Actuarial Services – Corporate Overview and Technical Response

Solicitation #120961 O5

Prepared for Nebraska Public Employees Retirement Systems

March 21, 2025

Submitted by:

Milliman

Ryan Falls, FSA, EA, MAAA
Principal & Consulting Actuary

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Milliman
Solutions for a world at risk™

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Sent via ShareFile

March 21, 2025

Connie Heinrichs and Brook Taylor
Nebraska Public Employees Retirement Systems
1526 K Street, Suite 130
Lincoln, NE 68505

Re: Request for Proposal – Services Contract for Nebraska Public Employees Retirement Systems – Solicitation #120961 O5

On behalf of Milliman, we are pleased to present this proposal to provide Actuarial Services to Nebraska Public Employees Retirement Systems. This proposal follows the format set forth in the RFP and describes our firm, approach, our people, and proposed fees.

Please do not hesitate to get in touch with me if you have any questions or would like to discuss any aspect of this proposal. Thank you for the opportunity to present Milliman's capabilities. We look forward to working with you.

Sincerely,

Ryan Falls, FSA, EA, MAAA
Principal & Consulting Actuary
Tel: 214 863 5635
Email: ryan.falls@milliman.com

Table of Contents

Introduction

Thank you for considering Milliman's proposal for actuarial consulting services. We appreciate the opportunity to demonstrate how our expertise can benefit Nebraska Public Employees Retirement Systems ("NPERS") and the Public Employee Retirement Board ("PERB").

What sets Milliman apart:

1. **Established Legacy**: With more than 75 years of experience in retirement and actuarial consulting, Milliman brings a wealth of knowledge to the table.
2. **Industry Leadership**: We are the retained system actuary, or the most recently appointed pension actuarial auditor, for six of the US's seven largest public pension systems, as identified by *Pensions & Investments*.
3. **Enthusiastic References**: The best indicator of how well we will serve you is how we serve our current clients. Milliman builds our business primarily on the strength of enthusiastic client references, and we think references are one of the strongest and most important parts of our service proposals.
4. **Commitment to Investment & Growth**: Our continuous investment in our actuarial consulting capabilities ensures that we maintain our leadership in the marketplace.

Why Milliman is the right strategic partner for NPERS:

Demonstrated State System Expertise: Our service team has a record of ably serving some of the largest and most complex state retirement systems. This includes serving as system actuary for Florida Retirement System, CalSTRS, Texas County & District Retirement System, PERS of Idaho, and Oregon PERS, and serving as audit actuary for entities such as TRS of Texas, Montana PERA, and retirement systems for both New York City and the State of New York. *Most importantly, Co-Lead Actuary Ryan Falls led the most recent actuarial audit of NPERS in 2022 and this intimate familiarity with the NPERS benefit plans and financing methods will best position Milliman to immediately serve effectively as the strategic advisor for NPERS upon selection.*

Strength of Service Team and Depth of Our Bench: NPERS' complexity and importance to Nebraska's residents and economy demands a strong and responsive service team. Further, NPERS should plan for contingencies and know ahead of time that experienced backup resources are ready to step in if replacement or additional service team members are needed. With more than 5,000 employees, Milliman has the resources to meet and exceed all staffing demands required of our partnership with NPERS.

Customized Solutions: We tailor strategies to meet NPERS's unique needs. With an experienced team of critical thinkers and problem solvers, Milliman strives to understand the uniqueness of each retirement system and provide customized solutions to meet their specific needs.

Although there are many qualified actuarial firms, we feel that no firm can match the combination of Milliman's experience, high technical ability, and client service. **In a world overloaded with information, our clients rely on us to help find the right information and turn it into actionable knowledge to solve their toughest problems.** We are committed to bringing depth, clarity, and context to the issues and challenges that our clients face every day. Our clients rely on us to be industry experts, trusted advisors, and creative problem-solvers.

With Milliman, NPERS will receive large-firm resources with small-firm attentiveness and service levels.

Milliman's Values

Milliman's advice, products and client service adhere to the highest standards of quality.

Milliman's people demonstrate integrity in all that we do. We are committed to honesty and professionalism in our interaction with our clients and colleagues.

Milliman is committed to embracing diversity and providing all of our people opportunities to achieve their full potential.

On the basis of these values, Milliman has become one of the largest independent providers of comprehensive employee benefits consulting and administration services in the world.

RFP Contractual Agreement Form – Signed

CONTRACTUAL AGREEMENT FORM

BIDDER MUST COMPLETE THE FOLLOWING

By signing this Contractual Agreement Form, the bidder guarantees compliance with the provisions stated in this solicitation and agrees to the terms and conditions unless otherwise indicated in writing and certifies that bidder is not owned by the Chinese Communist Party.

Per Nebraska's Transparency in Government Procurement Act, Neb. Rev Stat § 73-603, DAS is required to collect statistical information regarding the number of contracts awarded to Nebraska Vendors. This information is for statistical purposes only and will not be considered for contract award purposes.

_____ NEBRASKA VENDOR AFFIDAVIT: Bidder hereby attests that bidder is a Nebraska Vendor. "Nebraska Vendor" shall mean any bidder who has maintained a bona fide place of business and at least one employee within this state for at least the six (6) months immediately preceding the posting date of this Solicitation. All vendors who are not a Nebraska Vendor are considered Foreign Vendors under Neb. Rev Stat § 73-603 (c).

_____ I hereby certify that I am a Resident disabled veteran or business located in a designated enterprise zone in accordance with Neb. Rev. Stat. § 73-107 and wish to have preference, if applicable, considered in the award of this contract.

_____ I hereby certify that I am a blind person licensed by the Commission for the Blind & Visually Impaired in accordance with Neb. Rev. Stat. § 71-8611 and wish to have preference considered in the award of this contract.

THIS FORM MUST BE SIGNED MANUALLY IN INK OR BY DOCUSIGN

COMPANY:	Milliman, Inc.
ADDRESS:	12790 Merit Drive, Suite 800 Dallas, Texas 75251
PHONE:	214 863 5635
EMAIL:	ryan.falls@milliman.com
BIDDER NAME & TITLE:	Ryan Falls, Principal and Consulting Actuary
SIGNATURE:	R. Ryan Falls
DATE:	3/21/2025

VENDOR COMMUNICATION WITH THE STATE CONTACT INFORMATION (IF DIFFERENT FROM ABOVE)	
NAME:	
TITLE:	
PHONE:	
EMAIL:	

1. CORPORATE OVERVIEW

a. BIDDER IDENTIFICATION AND INFORMATION

The bidder should provide the full company or corporate name, address of the company's headquarters, entity organization (corporation, partnership, proprietorship), state in which the bidder is incorporated or otherwise organized to do business, year in which the bidder first organized to do business and whether the name and form of organization has changed since first organized.

Milliman, Inc. (Milliman) is a corporation with headquarters located at 1301 Fifth Avenue, Suite 3800, Seattle, WA 98101-2646. We have more than 70 offices in principal cities in the U.S. and worldwide.

The firm was founded in 1947 by Wendell Milliman and Stuart Robertson and was officially incorporated on July 5, 1957.The firm changed its name from Milliman & Robertson, Inc. to Milliman USA in 2001, and to Milliman, Inc. in 2004. These changes were in name only; no change in ownership or structure was involved.

Milliman is a corporation in the state of Washington, with its Chief Executive Officer, Chief Financial Officer, and most corporate staff located in Seattle. Milliman’s Board of Directors includes the Chairman, CEO, Practice Directors from the four primary service areas and five at-large members who are also Principals of the firm. Milliman is entirely owned and managed by its approximately 600 Principals, who have been elected in recognition of their technical, professional, and business achievements. Milliman’s board of directors includes the chairman, CEO, practice directors from the four primary business lines, and five at-large members who are also principals of the firm.

b. FINANCIAL STATEMENTS

The bidder should provide financial statements applicable to the firm. If publicly held, the bidder should provide a copy of the corporation's most recent audited financial reports and statements, and the name, address, and telephone number of the fiscally responsible representative of the bidder’s financial or banking organization.

If the bidder is not a publicly held corporation, either the reports and statements required of a publicly held corporation, or a description of the organization, including size, longevity, client base, areas of specialization and expertise, and any other pertinent information, should be submitted in such a manner that solicitation evaluators may reasonably formulate a determination about the stability and financial strength of the organization. Additionally, a non-publicly held firm should provide a banking reference.

The bidder must disclose any and all judgments, pending or expected litigation, or other real or potential financial reversals, which might materially affect the viability or stability of the organization, or state that no such condition is known to exist.

The State may elect to use a third party to conduct credit checks as part of the corporate overview evaluation.

Milliman’s most recent audited financial statement is provided as Appendix A.

Milliman is an independent firm owned and managed by its principals, who are all active in the operation of the business. Milliman is financially strong, producing consistent revenue growth for the past 70 years.

As a non-publicly-held firm, our banking reference is Patrick Schuppert, who, can be reached at 425 362 1738, or 205 108th Avenue NE, Suite 500 Bellevue, WA 98004. A reference letter can be found in Appendix A.

With more than 70 locations throughout the world, Milliman is subject to litigation from time to time in the normal course of its business activities. Such suits can arise in a variety of contexts. No litigation currently pending against Milliman will interfere with or jeopardize Milliman's ability to provide any of the services included in this proposal.

c. CHANGE OF OWNERSHIP

If any change in ownership or control of the company is anticipated during the twelve (12) months following the solicitation response due date, the bidder should describe the circumstances of such change and indicate when the change will likely occur. Any change of ownership to an awarded bidder(s) will require notification to the State.

With the exception of the election of additional Principals, there have been no significant recent changes to our ownership structure; in fact, given our unique structure, significant changes in ownership are unlikely to occur at this time or in the foreseeable future.

d. OFFICE LOCATION

The bidder’s office location responsible for performance pursuant to an award of a contract with the State of Nebraska should be identified.

Milliman has more than 70 locations throughout the United States and overseas with more than 5,000 employees. The office responsible for the performance of this work is located at 12790 Merit Drive, Suite 800, Dallas, Texas 75251.

e. RELATIONSHIPS WITH THE STATE

The bidder should describe any dealings with the State over the previous ten (10) years. If the organization, its predecessor, or any Party named in the bidder’s solicitation response has contracted with the State, the bidder should identify the contract number(s) and/or any other information available to identify such contract(s). If no such contracts exist, so declare.

Based on the size of our firm, and the many services we provide to public entities, it can be difficult to identify every engagement Milliman has with the State of Nebraska. Noted below are three separate engagements Milliman has with the State of Nebraska, the University of Nebraska, and the City of Omaha. While this procurement only requested detail on contracts with the State of Nebraska, we thought it was important to demonstrate that Milliman has successfully negotiated contract terms with other public entities within the State of Nebraska.

Milliman is currently engaged with the State of Nebraska to provide Medicaid reimbursement services and Medicaid consulting for the Department of Health and Human Services. State of Nebraska Contract Number 95283 O4, effective June 14, 2021 through June 13, 2026. Milliman’s noted exceptions to the Terms and Conditions in this proposal are intended to conform with this existing contract with the State of Nebraska.

Milliman is also engaged with the University of Nebraska to provide casualty actuarial services for general liability, auto liability, auto physical damage, and property programs. The current contract was initiated on June 22, 2021.

Additionally, Milliman serves as the consulting actuary for the City of Omaha Employees Retirement System and the City of Omaha Police and Fire Retirement System. The contract with the Employees Retirement System commenced on February 19, 2021 and is governed by City Ordinance Number 42483. The contract with the Police and Fire Retirement System also commenced on February 19, 2021 and is governed by City Ordinance Number 42484.

f. BIDDER’S EMPLOYEE RELATIONS TO STATE

If any Party named in the bidder’s solicitation response is or was an employee of the State within the past twelve (12) months, identify the individual(s) by name, State agency with whom employed, job title or position held with the State, and separation date. If no such relationship exists or has existed, so declare.

If any employee of any agency of the State of Nebraska is employed by the bidder or is a subcontractor to the bidder, as of the due date for solicitation response submission, identify all such persons by name, position held with the bidder, and position held with the State (including job title and agency). Describe the responsibilities of such persons within the proposing organization. If, after review of this information by the State, it is determined that a conflict of interest exists or may exist, the bidder may be disqualified from further consideration in this solicitation. If no such relationship exists, so declare.

No party of Milliman is or was an employee of the State of Nebraska within the past 12 months. No employee of any agency of the State of Nebraska has been employed by Milliman or is a subcontractor of Milliman as of the due date of this solicitation.

g. CONTRACT PERFORMANCE

If the bidder or any proposed subcontractor has had a contract terminated for default during the past ten (10) years, all such instances must be described as required below. Termination for default is defined as a notice to stop performance delivery due to the bidder’s non-performance or poor performance, and the issue was either not litigated due to inaction on the part of the bidder or litigated and such litigation determined the bidder to be in default.

It is mandatory that the bidder submit full details of all termination for default experienced during the past ten (10) years, including the other Party's name, address, and telephone number. The response to this section must present the bidder’s position on the matter. The State will evaluate the facts and will score the bidder’s solicitation response accordingly. If no such termination for default has been experienced by the bidder in the past ten (10) years, so declare.

If at any time during the past ten (10) years, the bidder has had a contract terminated for convenience, non-performance, non-allocation of funds, or any other reason, describe fully all circumstances surrounding such termination, including the name and address of the other contracting Party.

Milliman currently works with more than 1,000 pension and retiree healthcare plans across the county. From time-to-time, we will lose a client as part of a standard competitive bid process. Due to the large number of clients, we do not actively track every client loss. The key members of Milliman’s proposed consulting team have not lost a client or had a contract terminated for cause.

h. SUMMARY OF BIDDER'S CORPORATE EXPERIENCE

The bidder should provide a summary matrix listing the bidder's previous projects similar to this Solicitation in size, scope, and complexity. The State will use no more than three (3) narrative project descriptions submitted by the bidder during its evaluation of the solicitation response.

The bidder should address the following:

i. Provide narrative descriptions to highlight the similarities between the bidder's experience and this Solicitation. These descriptions should include:

   a. The time period of the project,

   b. The scheduled and actual completion dates,

   c. The bidder's responsibilities,

   d. For reference purposes, a customer name (including the name of a contact person, a current telephone number, a facsimile number, and e-mail address); and

   e. Each project description should identify whether the work was performed as the prime Vendor or as a subcontractor. If a bidder performed as the prime Vendor, the description should provide the originally scheduled completion date and budget, as well as the actual (or currently planned) completion date and actual (or currently planned) budget.

   Milliman provides this in Attachment C, Additional Corporate Experience.

ii. Bidder and Subcontractor(s) experience should be listed separately. Narrative descriptions submitted for Subcontractors should be specifically identified as subcontractor projects.

   Milliman is a primary bidder and does not typically function as a subcontractor.

iii. If the work was performed as a subcontractor, the narrative description should identify the same information as requested for the bidders above. In addition, subcontractors should identify what share of contract costs, project responsibilities, and time period were performed as a subcontractor.

   N/A. Milliman will not utilize subcontractors for this contract.

iv. Additional corporate experience must be completed on Attachment C.

   Milliman has completed Attachment C, Additional Corporate Experience and it is provided in the Technical Response section of our proposal. Milliman is not proposing the use subcontractors to complete the requested scope of work.

i. SUMMARY OF BIDDER'S PROPOSED PERSONNEL/MANAGEMENT APPROACH

The bidder should present a detailed description of its proposed approach to the management of the project.

The bidder should identify the specific professionals who will work on the State's project if their company is awarded the contract resulting from this Solicitation. The names and titles of the team proposed for assignment to the State project should be identified in full, with a description of the team leadership, interface, and support functions, and reporting relationships. The primary work assigned to each person should also be identified.

The bidder should provide resumes for all personnel proposed by the bidder to work on the project. The State will consider the resumes as a key indicator of the bidder's understanding of the skill mixes required to carry out the requirements of the Solicitation in addition to assessing the experience of specific individuals.

Resumes should not be longer than three (3) pages. Resumes should include, at a minimum, academic background and degrees, professional certifications, understanding of the process, and at least three (3) references (name, address, and telephone number) who can attest to the competence and skill level of the individual. Any changes in proposed personnel shall only be implemented after written approval from the State.

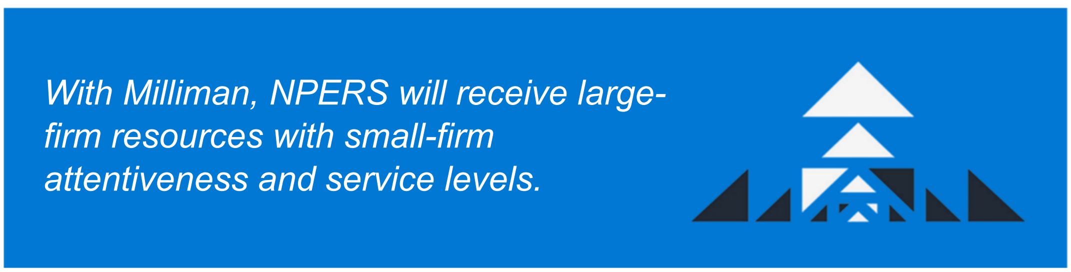

Figure 1

Milliman is the pre-eminent service firm for large, complex public systems. Serving large, complex public systems like NPERS is our specialty. Each large, complex public system has one group (sometimes in-house, sometimes an outside third-party) perform its valuation work and a different group perform its regular actuarial audit work. Based on 2025 size rankings from *Pensions & Investments* magazine, **Milliman is currently the valuation actuary or most recent audit actuary for six of the US's seven largest public systems. No other competitor currently fills one of those roles for more than two systems**. In addition to providing NPERS with some of the finest public plan actuaries in the country, Milliman can also bring forward experts from across the employee benefits spectrum – in areas such as healthcare, disability and leave benefits, life insurance and annuitization – to support NPERS during key strategic discussions.

At the same time, NPERS will experience a focused, responsive and strategic engagement with Milliman that may be more often associated with a smaller consulting firm. The best confirmation of this level of service is how we serve our current state system clients. Milliman builds our business primarily on the strength of enthusiastic client references, and we think references are one of the strongest and most important parts of our service proposals. We have included references with this proposal who are served by members of our proposed service team and we strongly encourage you to reach out to them and learn about Milliman's service approach.

Structure of Actuarial Consulting Team

With more than 5,000 employees and diverse client service teams across the country, Milliman has the resources to meet all the services requested under the RFP and many additional services that arise during the course of our partnership with NPERS.

Millman Comprehensive Consulting Team for NPERS

We have assembled the top professionals from across Milliman to serve all aspects of the services requested by NPERS as the consulting actuary. Our proposals will detail how each of these professionals will be an integral part of a successful partnership between Milliman and NPERS.

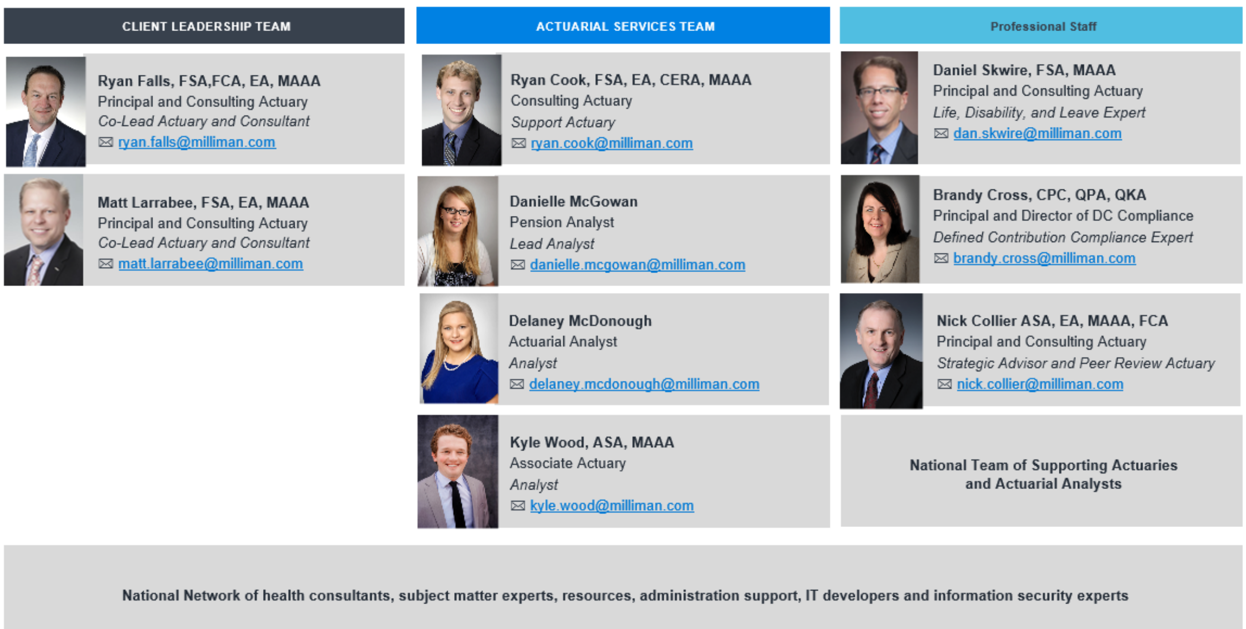

Figure 2

As you will note in the team chart above (Figure 2), we have included two examples of the broad and diverse expertise that Milliman brings to this engagement with NPERS outside of our pension consulting actuaries. First, **Dan Skwire leads a dedicated team that specializes in disability and group life insurance** and has performed more than 250 projects for more than 150 clients in the past five years, all related to these specific products. Among these clients are six state retirement systems, public and private sector employers, professional associations, unions and membership organizations, and insurance companies. Working with these organizations, we have provided a wide range of services, including actuarial valuations, plan design support, financial analysis, claim audits, and vendor selection and management. We have also performed industry research projects, chaired industry committees, authored textbooks and study materials, written journal articles, and delivered presentations at professional conferences—all on the specific topic of disability and group life insurance. We do not believe that any other consulting firm has the depth and breadth of our experience in this field, and we have a long record of successful work with a wide range of clients. Additionally, **Brandy Cross leads Milliman's defined contribution compliance team** who regularly work with our public clients who sponsor defined contribution plan on the frequently changing landscape of defined contribution plans and their compliance requirements.

Co-Lead Approach for Consulting Services

Milliman believes in the Co-Lead approach to actuarial services for key public sector clients. The Co-Lead approach assigns two experienced senior consulting actuaries to the client, with both actuaries sharing all the responsibilities typically held by a single lead consulting actuary. As you can see in the team descriptions below (Figure 2), Ryan Falls and Matt Larrabee are listed as Co-Lead Actuaries for NPERS. This approach allows NPERS to have more direct contact and receive more experienced consulting insights. Additionally, this approach allows our consultants to have a broader client base, while keeping an appropriate client load. It also allows for more flexibility around meetings and presentations, as well as for stronger relationships.

BROAD EXPERIENCE WITH PUBLIC PENSIONS FOR CO-LEAD ACTUARY

Ryan Falls will serve as the proposed Co-Lead Actuary for NPERS. While working at another employer, Ryan led the most recent actuarial audit of NPERS in 2022 which prompted great conversation with the Board about the strategy and philosophy behind cash balance dividends. Further, Ryan's experience with the actuarial audit gives him intimate familiarity with NPERS financial structure, challenges, and opportunities.

Ryan is actively engaged with the public pension community through his decades-long involvement with the National Conference on Teacher Retirement (NCTR). Ryan is a frequent speaker at the NCTR Annual Conference as well as the NCTR System Directors' Meeting. Ryan also supports NCTR behind the scenes as a member of NCTR's Corporate Advisory Committee.

Finally, Ryan has served as the lead actuary for many complex, high-visibility public systems in the county. Immediately prior to joining Milliman's public sector consulting team in April 2023, Ryan served as the lead actuary for the Employees Retirement System of Texas, the Arizona State Retirement System, the Teachers Retirement System of Oklahoma, the New Mexico Educational Retirement Board, and the New Mexico Public Employee Retirement Association.

Since joining Milliman, Ryan supports Milliman's consulting relationship with the Public Employee Retirement System of Idaho but Ryan does not currently serve as the lead actuary for this relationship.

DEMONSTRATED STATEWIDE PLAN SUCCESS FOR CO-LEAD ACTUARY

Matt Larrabee will also serve as the proposed Co-Lead Actuary for NPERS. Matt has served the largest retirement plans in the country throughout his career, including serving as the lead actuary for the following systems:

Milliman has a 25-year partnership serving as the systems actuary for the **Texas County & District Retirement System** ("TCDRS"), an agent multiple-employer cash balance plan with more than 850 employers and more than $40 billion in assets. TCDRS offers a menu of benefits to the member employers and regularly adds new employers every year.

Milliman also serves as the consulting actuary for the **Oregon Public Employees' Retirement System** (Oregon PERS). Oregon PERS was rated by CEM Benchmarking as the second most administratively complex system in its benchmarking universe. Milliman has been the Oregon PERS system actuary since 2012 and Matt has been its principal actuary since 2006, performing all tasks expected of a retained actuary. Its complex plan structure has many employers participating in both cost-sharing and agent-employer plan structures. Milliman provides full funding valuation reports each year to more than 600 individual employers.

Milliman has been the **Florida Retirement System** (FRS) consulting actuary for more than 30 years, performing all tasks expected of a retained actuary. FRS is the fifth largest pension system in the US, with more than 1 million participants and more than $200 billion in assets. It provides benefits to general service, public safety and school employees at various levels of state and local government. A unique aspect of FRS is that it offers plan choice as new hires select between defined benefit-only and defined contribution-only plan options at time of enrollment. Members then have one “second election” opportunity to change plans subsequently during their career. Actuarially determined contribution rates are updated annually for proposed adoption by the Florida Legislature. Actuarial assumptions and methods are reviewed by the FRS Actuarial Assumption Conference, which consists of the Legislature’s Chief Economist and other representatives of the Governor, Senate, and House.

Core Pension Consulting Team

The core pension consulting team is represented in Figure 3. As noted, Ryan Falls and Matt Larrabee will serve as Co-Lead Actuaries for NPERS. Resumes for the team members are included in Appendix B. The three requested references for key team members are found on the second page of each applicable resume in Appendix B.

MILLIMAN CONSULTING TEAM FOR ACTUARIAL SERVICES

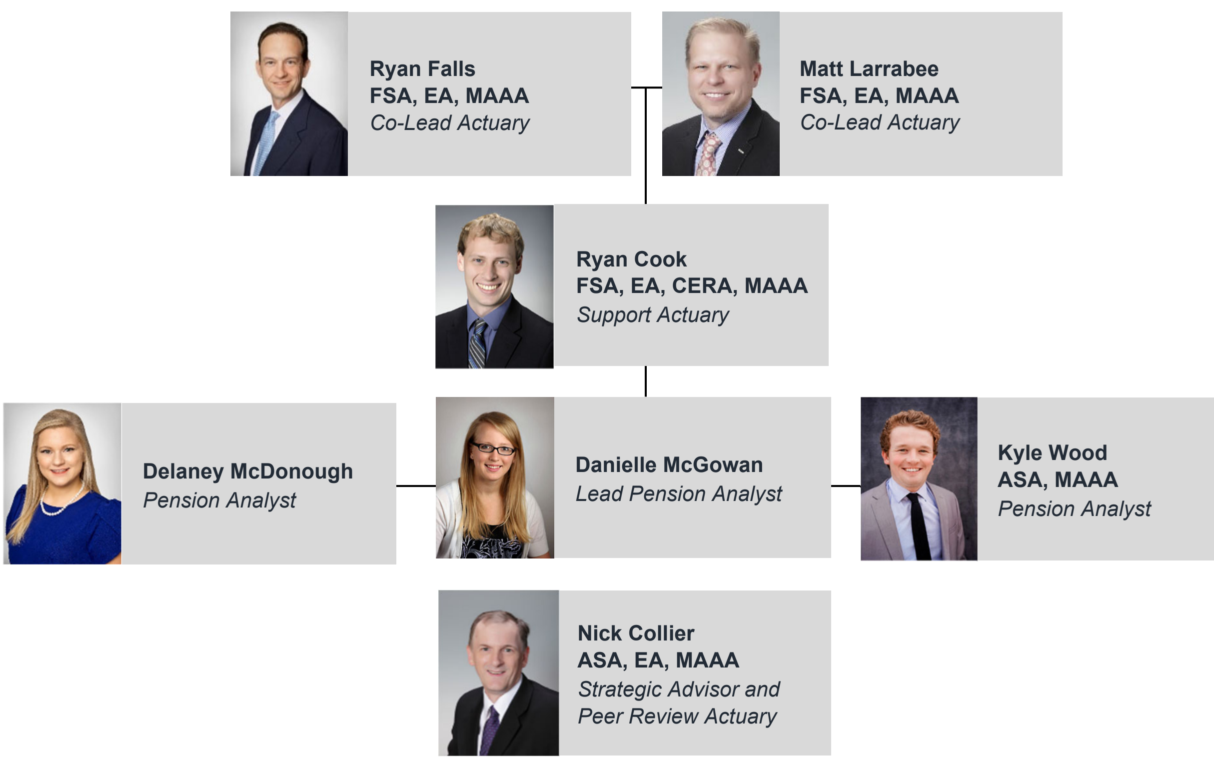

Figure 3

The role for each member of Milliman's pension consulting team for NPERS is described below.

Name **Credentials** **NPERS Role**	**Responsibilities**	**Years of Actuarial Experience**
Ryan Falls **FSA, EA, MAAA** *Co-Lead Actuary* *Primary Point of Contact*	As Co-Lead and primary point of contact for NPERS, Ryan will be responsible for ensuring that all promised deliverables from Milliman are thorough, professional, accurate and timely. Ryan will work closely with Matt during the annual actuarial valuation process to ensure the actuarial valuation stays on schedule and the processing team has all resources necessary to complete the process.	25 years
Matt Larrabee **FSA, EA, MAAA** *Co-Lead Actuary*	Matt will bring his vast experience consulting with complex retirement systems like TCDRS, Oregon PERS, and Florida Retirement System to the consulting team. Matt will work with Ryan Falls to complete complex and strategic initiatives for NPERS as well as participate in all PERB presentations.	25 years
Ryan Cook **FSA, EA, CERA, MAAA** *Support Actuary*	As a Support Actuary, Ryan Cook will serve as a resource to Ryan Falls and Matt throughout the annual actuarial valuation process. Ryan Cook will also work closely with Ryan Falls to complete all aspects of the Scope of Services outside of the annual actuarial valuation.	10 years
Danielle McGowan *Lead Pension Analyst*	Danielle will lead the team of analysts processing the annual valuation data and review the analysts work for completeness and accuracy.	10 years
Delaney McDonough *Analyst*	Delaney will work closely with Danielle to process all inputs for the annual actuarial valuation and other requests for NPERS.	5 years
Kyle Wood **ASA, MAAA** *Analyst*	Kyle will work with Ryan Falls and Ryan Cook to manage NPERS deliverables throughout the year while also serving as an additional resource for Danielle during the annual actuarial valuation process.	5 years
Nick Collier **ASA, EA, MAAA** *Strategic Advisor and Peer Review Actuary*	Nick will support Ryan Falls and Matt by lending his experience working with the large statewide and cost-sharing systems from around the country and provide an additional senior resource for NPERS. Nick will also provide overall peer review for all NPERS report and deliverables.	35 years
Dan Skwire **FSA, MAAA** *Life, Disability, and Leave Expert*	Dan provides NPERS with access to Milliman's disability insurance team that is the leading disability and group life insurance experts serving public and private employers with design, pricing, compliance, valuation, appraisals, and expert witness work. Dan's team has particular expertise working with state retirement systems, including regular and ongoing work with systems in Kansas, Oklahoma, Wisconsin, Maine, Colorado, and Washington.	35+ years

Brandy Cross **CPC, QPA, QKA** *Defined Contribution Compliance Expert*	Brandy has experience with complex nondiscrimination testing, administration, government reporting, and consulting on qualified and nonqualified retirement plans. As needed, Brandy will support the management and compliance of the NPERS defined contribution plans to ensure they maintain qualified status.	25 years

j. SUBCONTRACTORS

If the bidder intends to subcontract any part of its performance hereunder, the bidder should provide:

i. name, address, and telephone number of the subcontractor(s),

ii. specific tasks for each subcontractor(s),

iii. percentage of performance hours intended for each subcontract; and

iv. total percentage of subcontractor(s) performance hours.

Not applicable. Milliman does not intend to utilize a subcontractor for this opportunity.

COMPLETED SECTIONS II-IV

Below are completed sections II – IV.

II. TERMS AND CONDITIONS

Bidder should read the Terms and Conditions within this section and must initial either "Accept All Terms and Conditions Within Section as Written" or "Exceptions Taken to Terms and Conditions Within Section as Written" in the table below. If exception is not taken to a provision, it is deemed accepted as stated. If the bidder takes any exceptions, they must provide the following within the "Exceptions" field of the table below (Bidder may provide responses in separate attachment if multiple exceptions are taken):

1. The specific clause, including section reference, to which an exception has been taken;
2. An explanation of why the bidder took exception to the clause; and
3. Provide alternative language to the specific clause within the solicitation response.

By signing the solicitation, bidder agrees to be legally bound by all the accepted terms and conditions, and any proposed alternative terms and conditions submitted with the solicitation response. The State reserves the right to negotiate rejected or proposed alternative language. If the State and bidder fail to agree on the final Terms and Conditions, the State reserves the right to reject the solicitation response. The State reserves the right to reject solicitation responses that attempt to substitute the bidder's commercial contracts and/or documents for this solicitation.

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	**Exceptions:** (Bidder must note the specific clause, including section reference, to which an exception has been taken, an explanation of why the bidder took exception to the clause, and provide alternative language to the specific clause within the solicitation response.)
	RRF	Exceptions to the Terms and Conditions are noted in the sections below. The requested exceptions are consistent with the current contract between Milliman and the State of Nebraska, Department of Heath and Human Services.

The bidders should submit with their solicitation response any license, user agreement, service level agreement, or similar documents that the bidder wants incorporated in the Contract. The State will not consider incorporation of any document not submitted with the solicitation response as the document will not have been included in the evaluation process. These documents shall be subject to negotiation and will be incorporated as addendums if agreed to by the Parties.

If a conflict or ambiguity arises after the Addendum to Contract Award has been negotiated and agreed to, the Addendum to Contract Award shall be interpreted as follows:

1. If only one (1) Party has a particular clause, then that clause shall control,
2. If both Parties have a similar clause, but the clauses do not conflict, the clauses shall be read together,
3. If both Parties have a similar clause, but the clauses conflict, the State's clause shall control.

A. GENERAL

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	**Exceptions:**
	RRF	Milliman believes that it's submitted proposal should precede amendments to the solicitation and any questions and Answers, as well as the original solicitation document and any addenda.

1. The contract resulting from this Solicitation shall incorporate the following documents:

   a. Solicitation, including any attachments and addenda;

b. Questions and Answers;
c. Bidder's properly submitted solicitation response, including any terms and conditions or agreements submitted by the bidder;
d. Addendum to Contract Award (if applicable); and
e. Amendments to the Contract. (if applicable)

These documents constitute the entirety of the contract.

Unless otherwise specifically stated in a future contract amendment, in case of any conflict between the incorporated documents, the documents shall govern in the following order of preference with number one (1) receiving preference over all other documents and with each lower numbered document having preference over any higher numbered document: 1) Amendment to the executed Contract with the most recent dated amendment having the highest priority, 2) Executed Contract and any attached Addenda 3) <u>the Contractor's submitted Proposal, including any terms and conditions or agreements that are accepted by the State, 4) </u>Addendums to the solicitation and any Questions and Answers, ~~4)~~ <u>and 5) </u>the original solicitation document and any Addenda or attachments~~, and 5) the Vendor's submitted solicitation response, including any terms and conditions or agreements that are accepted by the State~~.

Unless otherwise specifically agreed to in writing by the State, the State's standard terms and conditions, as executed by the State, shall always control over any terms and conditions or agreements submitted or included by the Vendor.

Any ambiguity or conflict in the contract discovered after its execution, not otherwise addressed herein, shall be resolved in accordance with the rules of contract interpretation as established in the State of Nebraska.

B. NOTIFICATION

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

Bidder and State shall identify the contract manager who shall serve as the point of contact for the executed contract.

Communications regarding the executed contract shall be in writing and shall be deemed to have been given if delivered personally; electronically, return receipt requested; or mailed, return receipt requested. All notices, requests, or communications shall be deemed effective upon receipt.

Either party may change its address for notification purposes by giving notice of the change and setting forth the new address and an effective date.

C. BUYER'S REPRESENTATIVE

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

The State reserves the right to appoint a Buyer's Representative to manage or assist the Buyer in managing the contract on behalf of the State. The Buyer's Representative will be appointed in writing, and the appointment document will specify the extent of the Buyer's Representative authority and responsibilities. If a Buyer's Representative is appointed, the bidder will be provided a copy of the appointment document and is expected to cooperate accordingly with the Buyer's Representative. The Buyer's Representative has no authority to bind the State to a contract, amendment, addendum, or other change or addition to the contract.

D. GOVERNING LAW (Nonnegotiable)

Notwithstanding any other provision of this contract, or any amendment or addendum(s) entered into contemporaneously or at a later time, the parties understand and agree that, (1) the State of Nebraska is a sovereign state and its authority to contract is therefore subject to limitation by the State's Constitution, statutes, common law, and regulation; (2) this contract will be interpreted and enforced under the laws of the State of Nebraska; (3) any action to enforce the provisions of this agreement must be brought in the State of Nebraska per state law; (4) the person signing this contract on behalf of the State of Nebraska does not have the authority to waive the State's sovereign immunity, statutes, common law, or regulations; (5) the indemnity, limitation of liability, remedy, and other similar provisions of the final contract, if any, are entered into subject to the State's Constitution, statutes, common law, regulations, and sovereign immunity; and, (6) all terms and conditions of the final contract, including but not limited to the clauses concerning third party use, licenses, warranties, limitations of liability, governing law and venue, usage verification, indemnity, liability, remedy or other similar provisions of the final contract are entered into specifically subject to the State's Constitution, statutes, common law, regulations, and sovereign immunity.

The Parties must comply with all applicable local, state, and federal laws, ordinances, rules, orders, and regulations.

E. BEGINNING OF WORK & SUSPENSION OF SERVICES

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

The bidder shall not commence any billable work until a valid contract has been fully executed by the State and the successful Vendor. The Vendor will be notified in writing when work may begin.

The State may, at any time and without advance notice, require the Vendor to suspend any or all performance or deliverables provided under this Contract. In the event of such suspension, the Contract Manager or POC, or their designee, will issue a written order to stop work. The written order will specify which activities are to be immediately suspended and the reason(s) for the suspension. Upon receipt of such order, the Vendor shall immediately comply with its terms and take all necessary steps to mitigate and eliminate the incurrence of costs allocable to the work affected by the order during the period of suspension. The suspended performance or deliverables may only resume when the State provides the Vendor with written notice that such performance or deliverables may resume, in whole or in part.

F. AMENDMENT

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

This Contract may be amended in writing, within scope, upon the agreement of both parties.

G. CHANGE ORDERS OR SUBSTITUTIONS

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

The State and the Vendor, upon the written agreement, may make changes to the contract within the general scope of the solicitation. Changes may involve specifications, the quantity of work, or such other items as the State may find necessary or desirable. Corrections of any deliverable, service, or work required pursuant to the contract shall not be deemed a change. The Vendor may not claim forfeiture of the contract by reasons of such changes.

The Vendor shall prepare a written description of the work required due to the change and an itemized cost sheet for the change. Changes in work and the amount of compensation to be paid to the Vendor shall be determined in accordance with applicable unit prices if any, a pro-rated value, or through negotiations. The State shall not incur a price increase for changes that should have been included in the Vendor's solicitation response, were foreseeable, or result from difficulties with or failure of the Vendor's solicitation response or performance.

No change shall be implemented by the Vendor until approved by the State, and the Contract is amended to reflect the change and associated costs, if any. If there is a dispute regarding the cost, but both parties agree that immediate implementation is necessary, the change may be implemented, and cost negotiations may continue with both Parties retaining all remedies under the contract and law.

In the event any good or service is discontinued or replaced upon mutual consent during the contract period or prior to delivery, the State reserves the right to amend the contract to include the alternate product at the same price.

*****Vendor will not substitute any item that has been awarded without prior written approval of SPB*****

H. RECORD OF VENDOR PERFORMANCE

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

The State may document the vendor's performance, which may include, but is not limited to, the customer service provided by the vendor, the ability of the vendor, the skill of the vendor, and any instance(s) of products or services delivered or performed which fail to meet the terms of the purchase order, contract, and/or specifications. In addition to other remedies and options available to the State, the State may issue one or more notices to the vendor outlining any issues the State has regarding the vendor's performance for a specific contract ("Contract Compliance Request"). The State may also document the Vendor's performance in a report, which may or may not be provided to the vendor ("Contract Non-Compliance Notice"). The Vendor shall respond to any Contract Compliance Request or Contract Non-Compliance Notice in accordance with such notice or request. At the sole discretion of the State, such Contract Compliance Requests and Contract Non-Compliance Notices may be placed in the State's records regarding the vendor and may be considered by the State and held against the vendor in any future contract or award opportunity. The record of vendor performance will be considered in any suspension or debarment action.

I. NOTICE OF POTENTIAL VENDOR BREACH

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
	RRF	In many instances, immediate notification is functionally impossible; however, Milliman will promptly notify the State of a breach or anticipated breach caused by Milliman.

If Vendor breaches the contract or anticipates breaching the contract, the Vendor shall ~~immediately~~ promptly give written notice to the State. The notice shall explain the breach or potential breach, a proposed cure, and may include a request for a waiver of the breach if so desired. The State may, in its discretion, temporarily or permanently waive the breach. By granting a waiver, the State does not forfeit any rights or remedies to which the State is entitled by law or equity, or pursuant to the provisions of the contract. Failure to give ~~immediate~~ prompt notice, however, may be grounds for denial of any request for a waiver of a breach.

J. BREACH

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
	RRF	Milliman believes that a party not fulfilling any and all of its obligations under this agreement, including a failure to pay for services, should be considered a breach.

Either Party may terminate the contract, in whole or in part, if the other Party breaches its duty to perform its obligations under the contract in a timely and proper manner. Termination requires written notice of default and a thirty (30) calendar day (or longer at the non-breaching Party's discretion considering the gravity and nature of the default) cure period. Said notice shall be delivered by email, delivery receipt requested; certified mail, return receipt requested; or in person with proof of delivery. Allowing time to cure a failure or breach of contract does not waive the right to immediately terminate the contract for the same or different contract breach which may occur at a different time.

~~The State's failure to make payment shall not be a breach, and the Vendor shall retain all available statutory remedies.~~

K. NON-WAIVER OF BREACH

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

The acceptance of late performance with or without objection or reservation by a Party shall not waive any rights of the Party nor constitute a waiver of the requirement of timely performance of any obligations remaining to be performed.

L. SEVERABILITY

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

If any term or condition of the contract is declared by a court of competent jurisdiction to be illegal or in conflict with any law, the validity of the remaining terms and conditions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the contract did not contain the provision held to be invalid or illegal.

M. INDEMNIFICATION AND LIMITATION OF LIABILITY

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
	RRF	Milliman's risk management requirements require that our company limit its indemnification of clients to our gross negligence, willful misconduct, and fraud. As a professional service firm, literally every claim that arises because of our services is going to allege negligence. If Milliman agrees to indemnify for simple negligence, Milliman essentially will be agreeing to indemnify for any claim that arises out of our services. This could completely undercut the requested limitation of liability. Therefore, Milliman's risk management requirements limit indemnification of clients to Milliman's gross negligence. Furthermore more, all indemnification clauses should be limited to third party claims. If the State has a direct claim that arises under this Agreement, the State is free to file such claim in accordance with the dispute resolution clause added to Section K. In regard to the limitation of liability, Milliman recommends that the State give fair consideration to proposals, such as Milliman's, that contain an explicit limit of liability since most actuarial firms have either: (i) An explicitly negotiated, contractual limit of liability, or (ii) An implicit, non-negotiated non-contractual limit of liability that is equal to the assets of the actuarial firm plus any errors & omissions (E&O) insurance, less legal fees. Our understanding is that State would prefer proposals which do not contain a limitation of a vendor's liability for services provided. However, no consulting firm is able to provide unlimited liability coverage. Please keep in mind that the ability for the State to recover damages is already limited. In most cases, the State will only be able to recover assets of a vendor and any Errors and Omissions (E&O) insurance the vendor may possess. Please also note that the liability limits of the majority of Milliman's remaining competitors are non-contractual limits. Most of these competitors are smaller firms with much smaller firm assets and much more limited E&O insurance. The limitation of liability Milliman is proposing is completely backed both by our firm's assets and our E&O insurance and is larger than the non-contractual limits of liability most other actuarial firms in this market are able to provide.

		We believe that because Milliman's limitation of liability is larger than the non-contractual limits of liability of most of our competitors Milliman is more accountable. A firm that pays a claim negotiated to be equal to its E&O coverage, which is smaller than Milliman's contractual limit, suffers a smaller impact to their finances and is therefore less accountable.

1. GENERAL

The Vendor agrees to defend, indemnify, and hold harmless the State and its employees, ~~volunteers,~~ agents, and its elected and appointed officials ("the indemnified parties") from and against any and all third party claims, liens, demands, damages, liability, actions, causes of action, losses, judgments, costs, and expenses of every nature, including investigation costs and expenses, settlement costs, and reasonable attorney fees and expenses ("the claims"), sustained or asserted against the State for personal injury, death, or tangible property loss or damage, arising out of, resulting from, or attributable to the willful misconduct, negligence, ~~error,~~ or ~~omission~~ fraud of the Vendor, its employees, Subcontractors, consultants, representatives, and agents, resulting from the performance of services under this contract, except to the extent such Vendor liability is attenuated by any action of the State which directly and proximately contributed to the claims.

2. INTELLECTUAL PROPERTY

The Vendor agrees it will, at its sole cost and expense, defend, indemnify, and hold harmless the indemnified parties from and against any and all third party claims, to the extent such claims arise out of, result from, or are attributable to, the actual or alleged infringement or misappropriation of any patent, copyright, trade secret, trademark, or confidential information of any third party by the Vendor or its employees, Subcontractors, consultants, ~~representatives,~~ and agents permitted use of the services or deliverables provided by Vendor under the contract; provided, however, the State gives the Vendor prompt notice in writing of the claim. The Vendor may not settle any infringement claim that will affect the State's use of the Licensed Software without the State's prior written consent, which consent may not be unreasonably withheld ~~for any reason~~.

If a judgment or settlement is obtained or reasonably anticipated against the State's use of any intellectual property for which the Vendor has indemnified the State, the Vendor shall, at the Vendor's sole cost and expense, promptly modify the item or items which were determined to be infringing, acquire a license or licenses on the State's behalf to provide the necessary rights to the State to eliminate the infringement, or provide the State with a non-infringing substitute that provides the State the same functionality. ~~At the State's election, the actual or anticipated judgment may be treated as a breach of warranty by the Vendor, and the State may receive the remedies provided under this Solicitation.~~

3. PERSONNEL

The Vendor shall, at its expense, indemnify and hold harmless the indemnified parties from and against any third party claim with respect to withholding taxes, worker's compensation, employee benefits, or any other third party claim, demand, liability, damage, or loss of any nature relating to any of the personnel, including subcontractor's and their employees, provided by the Vendor to perform services under this contract.

4. SELF-INSURANCE

The State of Nebraska is self-insured for any loss and purchases excess insurance coverage pursuant to Neb. Rev. Stat. § 81-8,239.01. If there is a presumed loss under the provisions of this agreement, Vendor may file a claim with the Office of Risk Management pursuant to Neb. Rev. Stat. §§ 81-8,239.01 to 81-8,306 for review by the State Claims Board. The State retains all rights and immunities under the State Miscellaneous (Neb. Rev. Stat. § 81-8,294), Tort (Neb. Rev. Stat. § 81-8,209), and Contract Claim Acts (Neb. Rev. Stat. § 81-8,302), as outlined in state law and accepts liability under this agreement only to the extent provided by law.

5. The Parties acknowledge that Attorney General for the State of Nebraska is required by statute to represent the legal interests of the State, and that any provision of this indemnity clause is subject to the statutory authority of the Attorney General.

6. LIMITATION OF LIABILITY.

In the event of any claims arising from services provided by Contractor at any time, the total liability of Vendor, its officers, directors, agents and employees to the State of Nebraska shall not exceed ten million dollars ($10,000,000). This limit applies regardless of the theory of law under which a claim is brought, including negligence, tort, contract, or otherwise. In no event shall Contractor be liable for lost profits of the State of Nebraska or any other type of incidental or consequential damages. The foregoing limitations shall not apply in the event of the intentional fraud or willful misconduct of Contractor.

N. DISPUTE RESOLUTION AND ATTORNEY'S FEES

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
	RRF	Milliman's board mandates that all Milliman agreements must have a dispute's resolution clause. Milliman has found that due to the complicated mathematical nature of its services, the issues that arise are complex and require an experienced adjudicator who understands the nature of actuarial services. A jury of twelve lay people will not understand the complexities that typically are involved in actuarial claims. Therefore, jury trials do not make for a fair forum for resolution of the issues.

If any dispute occurs between the parties, they shall attempt in good faith to resolve the dispute by mediation. In such mediation, the parties thereto will choose a mutually acceptable mediator with a background in insurance, actuarial science or law. If such mediation fails after a good-faith effort has occurred, only then may a party institute litigation. The parties agree that any litigation will be filed and conducted in the state courts in Nebraska. Both parties agree to waive the right to a trial by jury. In the event of any litigation, appeal, or other legal action to enforce any provision of the contract, the Parties agree to pay all expenses of such action, as permitted by law and if ordered by the court, including reasonable attorney's fees and costs, if the other Party prevails.

O. ASSIGNMENT, SALE, OR MERGER

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

Either Party may assign the contract upon mutual written agreement of the other Party. Such agreement shall not be unreasonably withheld.

The Vendor retains the right to enter into a sale, merger, acquisition, internal reorganization, or similar transaction involving Vendor's business. Vendor agrees to cooperate with the State in executing amendments to the contract to allow for the transaction. If a third party or entity is involved in the transaction, the Vendor will remain responsible for performance of the contract until such time as the person or entity involved in the transaction agrees in writing to be contractually bound by this contract and perform all obligations of the contract.

P. CONTRACTING WITH OTHER NEBRASKA POLITICAL SUBDIVISIONS OF THE STATE OR ANOTHER STATE

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

The Vendor may, but shall not be required to, allow agencies, as defined in Neb. Rev. Stat. § 81-145(2), to use this contract. The terms and conditions, including price, of the contract may not be amended. The State shall not be contractually obligated or liable for any contract entered into pursuant to this clause. A listing of Nebraska political subdivisions may be found at the website of the Nebraska Auditor of Public Accounts.

The Vendor may, but shall not be required to, allow other states, agencies or divisions of other states, or political subdivisions of other states to use this contract. The terms and conditions, including price, of this contract shall apply to any such contract, but may be amended upon mutual consent of the Parties. The State of Nebraska shall not be contractually or otherwise obligated or liable under any contract entered into pursuant to this clause. The State shall be notified if a contract is executed based upon this contract.

Q. FORCE MAJEURE

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
	RRF	Typically, in Force Majeure situations, a restricted timeframe requirement can be functionally impossible. Therefore, Milliman will promptly notify the State of a breach of a Force Majeure event. Furthermore, due to the uncontrollable nature of Force Majeure events, a single party should not have the subjective right to dictate if relief from the affected party's obligations should be granted.

Neither Party shall be liable for any costs or damages, or for default resulting from its inability to perform any of its obligations under the contract due to a natural or manmade event outside the reasonable control and not the fault of the affected Party ("Force Majeure Event") that was not foreseeable at the time the Contract was executed. The Party so affected shall ~~immediately~~ promptly make a written request for relief to the other Party and shall have the burden of proof to justify the request. ~~The other Party may grant the relief requested; relief may not be unreasonably withheld.~~ Upon such notice, all obligations of the affected Party under this contract which are reasonably related to the Force Majeure Event shall be suspended, and the affected Party shall do everything reasonably necessary to resume performance as soon as possible. Labor disputes with the impacted Party's own employees will not be considered a Force Majeure Event.

R. CONFIDENTIALITY

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
	RRF	Milliman would like to add some additional exclusions to this section that clarifies what should be considered "confidential information". Please note that the added language are standard exclusions in a confidentiality setting. As previously mentioned, in many instances, immediate notification is functionally impossible; however, Milliman will promptly notify the State if there is a breach of its confidential information that is in Milliman's possession.

All materials and information provided by the Parties or acquired by a Party on behalf of the other Party shall be regarded as confidential information. Notwithstanding the foregoing, information received from the disclosing Party, or a third party at the disclosing Party's direction, shall not be considered confidential if such information: (i) was in the public domain at the time of the communication thereof to the receiving Party; (ii) enters the public domain through no fault of the receiving Party subsequent to the time of the communication thereof to the receiving Party; (iii) was in the receiving Party's possession free of any obligation of confidentiality at the time of the communication thereof to the receiving Party; (iv) is developed by the receiving Party completely independent from the confidential information of the disclosing Party; or (v) is required by law or regulation to be disclosed, but only to the extent and for the purpose of such required disclosure after providing the disclosing Party with advance written notice, if not legally prohibited, of such disclosure so that the disclosing Party is afforded an opportunity to contest the disclosure or seek an appropriate protective order. All materials and information provided or acquired shall be handled in accordance with federal and state law, and ethical standards. Should said confidentiality be breached by a Party, the Party shall notify the other Party ~~immediately~~ promptly of said breach and take ~~immediate~~ prompt corrective action.

It is incumbent upon the Parties to inform their officers and employees of the penalties for improper disclosure imposed by the Privacy Act of 1974, 5 U.S.C. 552a. Specifically, 5 U.S.C. 552a (i)(1), which is made applicable by 5

U.S.C. 552a (m)(1), provides that any officer or employee, who by virtue of his/her employment or official position has possession of or access to agency records which contain individually identifiable information, the disclosure of which is prohibited by the Privacy Act or regulations established thereunder, and who knowing that disclosure of the specific material is prohibited, willfully discloses the material in any manner to any person or agency not entitled to receive it, shall be guilty of a misdemeanor and fined not more than $5,000.

S. EARLY TERMINATION

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

The contract may be terminated as follows:

1. The State and the Vendor, by mutual written agreement, may terminate the contract, in whole or in part, at any time.
2. The State, in its sole discretion, may terminate the contract, in whole or in part, for any reason upon thirty (30) calendar day's written notice shall be delivered by email, delivery receipt requested; certified mail, return receipt requested; or in person with proof of delivery to the Vendor. Such termination shall not relieve the Vendor of warranty or other service obligations incurred under the terms of the contract. In the event of termination, the Vendor shall be entitled to payment, determined on a pro rata basis, for products or services satisfactorily performed or provided.
3. The State may terminate the contract, in whole or in part, immediately for the following reasons:

a. if directed to do so by statute,
b. Vendor has made an assignment for the benefit of creditors, has admitted in writing its inability to pay debts as they mature, or has ceased operating in the normal course of business,
c. a trustee or receiver of the Vendor or of any substantial part of the Vendor's assets has been appointed by a court,
d. fraud, misappropriation, embezzlement, malfeasance, misfeasance, or illegal conduct pertaining to performance under the contract by its Vendor, its employees, officers, directors, or shareholders,
e. an involuntary proceeding has been commenced by any Party against the Vendor under any one of the chapters of Title 11 of the United States Code and (i) the proceeding has been pending for at least sixty (60) calendar days; or (ii) the Vendor has consented, either expressly or by operation of law, to the entry of an order for relief; or (iii) the Vendor has been decreed or adjudged a debtor,
f. a voluntary petition has been filed by the Vendor under any of the chapters of Title 11 of the United States Code,
g. Vendor intentionally discloses confidential information,
h. Vendor has or announces it will discontinue support of the deliverable; and,
i. In the event funding is no longer available.

T. CONTRACT CLOSEOUT

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
	RRF	Unfinished work product represents a drastic expansion of liabilities faced by Milliman. Incomplete or partially completed work product may not have been reviewed, double-checked, or finalized and therefore should not be relied upon by the State. Therefore, Milliman only provides completed and finalized work product to its clients. Milliman wants to ensure that its obligation to cooperate is limited to reasonable requests from the State and the State's other contractors.

Upon termination of the contract for any reason the Vendor shall within thirty (30) days, unless stated otherwise herein:

1. Transfer all completed ~~or partially completed~~and final deliverables to the State,
2. Transfer ownership and title to all completed ~~or partially completed~~and final deliverables to the State,
3. Return to the State all information and data unless the Vendor is permitted to keep the information or data by contract or rule of law. Vendor may retain one copy of any information or data as required to comply with applicable work product documentation standards or as are automatically retained in the course of Vendor's routine back up procedures,
4. Reasonably ~~C~~cooperate with any successor Contactor, person, or entity in the assumption of any or all of the obligations of this contract,
5. Reasonably ~~C~~cooperate with any successor Contactor, person, or entity with the transfer of information or data related to this contract,
6. Return or vacate any state owned real or personal property; and,
7. Return all data in a mutually acceptable format and manner.

Nothing in this section should be construed to require the Vendor to surrender intellectual property, real or personal property, or information or data owned by the Vendor for which the State has no legal claim.

U. AMERICANS WITH DISABILITIES ACT

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

Vendor shall comply with all applicable provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12131–12134), as amended by the ADA Amendments Act of 2008 (ADA Amendments Act) (Pub.L. 110–325, 122 Stat. 3553 (2008)), which prohibits discrimination on the basis of disability by public entities.

III. VENDOR DUTIES

Bidder should read the Vendor Duties within this section and must initial either "Accept All Terms and Conditions Within Section as Written" or "Exceptions Taken to Vendor Duties Within Section as Written" in the table below. If exception is not taken to a provision, it is deemed accepted as stated. If the bidder takes any exceptions, they must provide the following within the "Exceptions" field of the table below (Bidder may provide responses in separate attachment if multiple exceptions are taken):

1. The specific clause, including section reference, to which an exception has been taken;
2. An explanation of why the bidder took exception to the clause; and
3. Provide alternative language to the specific clause within the solicitation response.

By signing the solicitation, bidder agrees to be legally bound by all the accepted terms and conditions, and any proposed alternative terms and conditions submitted with the solicitation response. The State reserves the right to negotiate rejected or proposed alternative language. If the State and bidder fail to agree on the final Terms and Conditions, the State reserves the right to reject the solicitation response. The State reserves the right to reject solicitation responses that attempt to substitute the bidder's commercial contracts and/or documents for this solicitation.

Accept All Vendor Duties Within Section as Written (Initial)	**Exceptions Taken to Vendor Duties Within Section as Written (Initial)**	**Exceptions:** (Bidder must note the specific clause, including section reference, to which an exception has been taken, an explanation of why the bidder took exception to the clause, and provide alternative language to the specific clause within the solicitation response.)
	RRF	Exceptions to the Vendor Duties are noted in the sections below. The requested exceptions are consistent with the current contract between Milliman and the State of Nebraska, Department of Heath and Human Services.

A. INDEPENDENT VENDOR / OBLIGATIONS

Accept All Terms and Conditions Within Section as Written (Initial)	**Exceptions Taken to Terms and Conditions Within Section as Written (Initial)**	**Exceptions:**
RRF		

It is agreed that the Vendor is an independent Vendor and that nothing contained herein is intended or should be construed as creating or establishing a relationship of employment, agency, or a partnership.

The Vendor is solely responsible for fulfilling the contract. The Vendor or the Vendor's representative shall be the sole point of contact regarding all contractual matters.

The Vendor shall secure, at its own expense, all personnel required to perform the services under the contract. The personnel the Vendor uses to fulfill the contract shall have no contractual or other legal relationship with the State; they shall not be considered employees of the State and shall not be entitled to any compensation, rights or benefits from the State, including but not limited to, tenure rights, medical and hospital care, sick and vacation leave, severance pay, or retirement benefits.

By-name personnel commitments made in the bidder's solicitation response shall not be changed without the prior written approval of the State. Replacement of these personnel, if approved by the State, shall be with personnel of equal or greater ability and qualifications.

All personnel assigned by the Vendor to the contract shall be employees of the Vendor or a subcontractor and shall be fully qualified to perform the work required herein. Personnel employed by the Vendor or a subcontractor to fulfill the terms of the contract shall remain under the sole direction and control of the Vendor or the subcontractor respectively.

With respect to its employees, the Vendor agrees to be solely responsible for the following:

1. Any and all pay, benefits, and employment taxes and/or other payroll withholding,
2. Any and all vehicles used by the Vendor's employees, including all insurance required by state law,
3. Damages incurred by Vendor's employees within the scope of their duties under the contract,
4. Maintaining Workers' Compensation and health insurance that complies with state and federal law and submitting any reports on such insurance to the extent required by governing law,
5. Determining the hours to be worked and the duties to be performed by the Vendor's employees; and,
6. All claims on behalf of any person arising out of employment or alleged employment (including without limit claims of discrimination alleged against the Vendor, its officers, agents, or subcontractors or subcontractor's employees).

If the Vendor intends to utilize any subcontractor, the subcontractor's level of effort, tasks, and time allocation should be clearly defined in the solicitation response. The Vendor shall agree that it will not utilize any subcontractors not specifically included in its solicitation response in the performance of the contract without the prior written authorization of the State. If the Vendor subcontracts any of the work, the Vendor agrees to pay any and all subcontractors in accordance with the Vendor's agreement with the respective subcontractor(s).

The State reserves the right to require the Vendor to reassign or remove from the project any Vendor or subcontractor employee.

Vendor shall insure that the terms and conditions contained in any contract with a subcontractor does not conflict with the terms and conditions of this contract.

The Vendor shall include a similar provision, for the protection of the State, in the contract with any Subcontractor engaged to perform work on this contract.

B. FOREIGN ADVERSARY CONTRACTING PROHIBITION ACT CERTIFICATION (Nonnegotiable)

The Vendor certifies that it is not a scrutinized company as defined under the Foreign Adversary Contracting Prohibition Act, Neb. Rev. Stat. Sec. § 73-903 (5); that it will not subcontract with any scrutinized company for any aspect of performance of the contemplated contract; and that any products or services to be provided do not originate with a scrutinized company.

C. EMPLOYEE WORK ELIGIBILITY STATUS

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

The Vendor is required and hereby agrees to use a federal immigration verification system to determine the work eligibility status of employees physically performing services within the State of Nebraska. A federal immigration verification system means the electronic verification of the work authorization program authorized by the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, 8 U.S.C. 1324a, known as the E-Verify Program, or an equivalent federal program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of an employee.

If the Vendor is an individual or sole proprietorship, the following applies:

1. The Vendor must complete the United States Citizenship Attestation Form, available on the Department of Administrative Services website at https://das.nebraska.gov/materiel/docs/pdf/Individual%20or%20Sole%20Proprietor%20United%20States%20Attestation%20Form%20English%20and%20Spanish.pdf
2. The completed United States Attestation Form should be submitted with the Solicitation response.
3. If the Vendor indicates on such attestation form that he or she is a qualified alien, the Vendor agrees to provide the US Citizenship and Immigration Services documentation required to verify the Vendor's lawful presence in the United States using the Systematic Alien Verification for Entitlements (SAVE) Program.
4. The Vendor understands and agrees that lawful presence in the United States is required, and the Vendor may be disqualified or the contract terminated if such lawful presence cannot be verified as required by Neb. Rev. Stat. § 4-108.

D. COMPLIANCE WITH CIVIL RIGHTS LAWS AND EQUAL OPPORTUNITY EMPLOYMENT / NONDISCRIMINATION (Nonnegotiable)

The Vendor shall comply with all applicable local, state, and federal statutes and regulations regarding civil rights laws and equal opportunity employment. The Nebraska Fair Employment Practice Act prohibits Vendors of the State of Nebraska, and their Subcontractors, from discriminating against any employee or applicant for employment, with respect to hire, tenure, terms, conditions, compensation, or privileges of employment because of race, color, religion, sex, disability, marital status, or national origin (Neb. Rev. Stat. §§ 48-1101 to 48-1125). The Vendor guarantees compliance with the Nebraska Fair Employment Practice Act, and breach of this provision shall be regarded as a material breach of contract. The Vendor shall insert a similar provision in all Subcontracts for goods and services to be covered by any contract resulting from this Solicitation.

E. COOPERATION WITH OTHER VENDORS

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
	RRF	Milliman wants to ensure that its obligation to cooperate is limited to reasonable requests from the State and the State's other contractors.

Vendor may be required to work with or in close proximity to other Vendors or individuals that may be working on same or different projects. The Vendor shall agree to reasonably cooperate with such other Vendors or individuals and shall not commit or permit any act which may interfere with the performance of work by any other Vendor or individual. Vendor is not required to compromise Vendor's intellectual property or proprietary information unless expressly required to do so by this contract.

F. DISCOUNTS

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

Prices quoted shall be inclusive of ALL trade discounts. Cash discount terms of less than thirty (30) days will not be considered as part of the solicitation response. Cash discount periods will be computed from the date of receipt of a properly executed claim voucher or the date of completion of delivery of all items in a satisfactory condition, whichever is later.

G. PRICES

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

Prices quoted shall be net, including transportation and delivery charges fully prepaid by the bidder, F.O.B. destination named in the Solicitation. No additional charges will be allowed for packing, packages, or partial delivery costs. When an arithmetic error has been made in the extended total, the unit price will govern.

Prices submitted on the cost sheet shall remain fixed for the first three (3) years of the contract. Any request for a price increase subsequent to the first three (3) years of the contract shall not exceed three percent (3 %) of the previous Contract period. Increases will be cumulative across the remaining periods of the contract. Requests for an increase must be submitted in writing to the State Purchasing Bureau a minimum of 180 days prior to the end of the current contract period. Documentation may be required by the State to support the price increase.

The State reserves the right to deny any requested price increase. No price increases are to be billed to any State Agencies prior to written amendment of the contract by the parties.

The State will be given full proportionate benefit of any decreases for the term of the contract.

H. PERMITS, REGULATIONS, LAWS

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

The contract price shall include the cost of all royalties, licenses, permits, and approvals, whether arising from patents, trademarks, copyrights or otherwise, that are in any way involved in the contract. The Vendor shall obtain and pay for all royalties, licenses, and permits, and approvals necessary for the execution of the contract. The Vendor must guarantee that it has the full legal right to the materials, supplies, equipment, software, and other items used to execute this contract.

I. OWNERSHIP OF INFORMATION AND DATA / DELIVERABLES

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:

	RRF	Milliman added language to this clause for two specific reasons: (i) Milliman needs to ensure that it retains its rights in the knowledge capital and intellectual property used in the rendering of services to the State. (ii) Milliman's risk management policies require that Milliman mitigate risks by controlling our liability to third parties who are in receipt of our work product. Therefore, Milliman requires the inclusion of disclaimer language on all Milliman work.

Subject to the rights and obligations set forth herein, ~~T~~the State shall have the unlimited right to ~~publish,~~ duplicate~~,~~ and use~~, and disclose~~ all information and data developed or obtained by the Vendor and delivered to~~on behalf of~~ the State pursuant to this contract.

Subject to the rights and obligations set forth herein, ~~T~~the State shall own and hold exclusive title to any deliverable developed by Vendor and delivered to the State as a result of this contract. Subject to the Vendor's intellectual property rights set forth herein, Vendor shall have no ownership interest or title, and shall not patent, license, or copyright, duplicate, transfer, sell, or exchange, the design, specifications, concept, or deliverable.

Vendor shall retain all rights, title and interest (including, without limitation, all copyrights, patents, service marks, trademarks, trade secret and other intellectual property rights) in and to all technical or internal designs, data, databases, methods, ideas, concepts, know-how, techniques, generic documents and templates ("Tools") that have been previously developed by Vendor or such Tools developed during the course of the provision of the Services provided such Tools do not contain and/or are not based upon or derived from any State Rights and ownership by Vendor of its Tools shall not extend to or include all or any part of the State's confidential information or proprietary data. To the extent that Vendor may include in the materials any Tools, Vendor agrees that the State shall be deemed to have a fully paid up perpetual license to make copies of the Tools as part of this engagement for its internal business purposes and provided that such Tools cannot be modified or distributed outside the State without the written permission of Vendor or except as otherwise permitted herein.

The deliverables are prepared solely for the use and benefit of the State in accordance with its statutory and regulatory requirements. Vendor recognizes that deliverables may be public records subject to disclosure to third parties, however, Vendor does not intend to benefit and assumes no duty or liability to any third parties who receive the deliverables and may include disclaimer language on the deliverables so stating. The State agrees not to remove any such disclaimer language from the deliverables

J. INSURANCE REQUIREMENTS

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
	RRF	All edits to this section were made to be consistent with the insurance coverage maintained by Milliman.

The Vendor shall throughout the term of the contract maintain insurance as specified herein and provide the State a current Certificate of Insurance/Acord Form (COI) verifying the coverage. The Vendor shall not commence work on the contract until the insurance is in place. If Vendor subcontracts any portion of the Contract the Vendor must, throughout the term of the contract, either:

1. Provide equivalent insurance for each subcontractor and provide a COI verifying the coverage for the subcontractor,
2. Require each subcontractor to have equivalent insurance and provide written notice to the State that the Vendor has verified that each subcontractor has the required coverage; or,
3. Provide the State with copies of each subcontractor's Certificate of Insurance evidencing the required coverage.

The Vendor shall not allow any Subcontractor to commence work until the Subcontractor has equivalent insurance. The failure of the State to require a COI, or the failure of the Vendor to provide a COI or require subcontractor insurance shall not limit, relieve, or decrease the liability of the Vendor hereunder.

In the event that any policy written on a claims-made basis terminates or is canceled during the term of the contract or within ~~five~~ two (~~5~~2) years of termination or expiration of the contract, the Vendor shall obtain an extended discovery or reporting period, or a new insurance policy, providing coverage required by this contract for the term of the contract and ~~five~~ two (~~5~~2) years following termination or expiration of the contract.

If by the terms of any insurance a mandatory deductible is required, or if the Vendor elects to increase the mandatory deductible amount, the Vendor shall be responsible for payment of the amount of the deductible in the event of a paid claim.

Notwithstanding any other clause in this Contract, the State may recover up to the liability limits of the insurance policies required herein.

1. WORKERS' COMPENSATION INSURANCE

The Vendor shall take out and maintain during the life of this contract the statutory Workers' Compensation and Employer's Liability Insurance for all of the contactors' employees to be engaged in work on the project under this contract and, in case any such work is sublet, the Vendor shall require the Subcontractor similarly to provide Worker's Compensation and Employer's Liability Insurance for all of the Subcontractor's employees to be engaged in such work. This policy shall be written to meet the statutory requirements for the state in which the work is to be performed, including Occupational Disease. **The policy shall include a waiver of subrogation in favor of the State. The COI shall contain the mandatory COI subrogation waiver language found hereinafter**. The amounts of such insurance shall not be less than the limits stated hereinafter. For employees working in the State of Nebraska, the policy must be written by an entity authorized by the State of Nebraska Department of Insurance to write Workers' Compensation and Employer's Liability Insurance for Nebraska employees.

2. COMMERCIAL GENERAL LIABILITY INSURANCE AND COMMERCIAL AUTOMOBILE LIABILITY INSURANCE

The Vendor shall take out and maintain during the life of this contract such Commercial General Liability Insurance and Commercial Automobile Liability Insurance as shall protect Vendor and any Subcontractor performing work covered by this contract from claims for damages for bodily injury, including death, as well as from claims for property damage, which may arise from operations under this contract, whether such operation be by the Vendor or by any Subcontractor or by anyone directly or indirectly employed by either of them, and the amounts of such insurance shall not be less than limits stated hereinafter.

The Commercial General Liability Insurance shall be written on an **occurrence basis**, and provide Premises/Operations, Products/Completed Operations, Independent Vendors, Personal Injury, and Contractual Liability coverage. **The policy shall include the State~~, and others as required by the contract documents,~~ as Additional Insured(s). This policy shall be primary, and any insurance or self-insurance carried by the State shall be considered secondary and non-contributory**. **The COI shall contain the mandatory COI liability waiver language found hereinafter.** The Commercial Automobile Liability Insurance shall be written to cover all Owned, Non-owned, and Hired vehicles.

REQUIRED INSURANCE COVERAGE	
COMMERCIAL GENERAL LIABILITY	
General Aggregate	$2,000,000
Products/Completed Operations Aggregate	~~$2,000,000~~Included
Personal/Advertising Injury	$1,000,000 per occurrence
Bodily Injury/Property Damage	$1,000,000 per occurrence
Medical Payments	~~$10,000 any one person~~Included
Damage to Rented Premises (Fire)	~~$300,000 each occurrence~~Included
Contractual	Included
XCU Liability (Explosion, Collapse, and Underground Damage)	Included
Independent Vendors	Included
If higher limits are required, the Umbrella/Excess Liability limits are allowed to satisfy the higher limit.	
WORKER'S COMPENSATION	
Employers Liability Limits	$500K/$500K/$500K
Statutory Limits- All States	Statutory - State of Nebraska
Voluntary Compensation	Statutory
COMMERCIAL AUTOMOBILE LIABILITY	
Bodily Injury/Property Damage	$1,000,000 combined single limit
Include All Owned, Hired & Non-Owned Automobile liability	Included
Motor Carrier Act Endorsement	Where Applicable
UMBRELLA/EXCESS LIABILITY	
Over Primary Insurance	$5,000,000 per occurrence
PROFESSIONAL LIABILITY	
~~Professional liability (Medical Malpractice)~~	~~Limits consistent with Nebraska Medical Malpractice Cap~~
~~Qualification Under Nebraska Excess Fund~~	
All Other Professional Liability (Errors & Omissions)	$1~~0~~,000,000 Per Claim / Aggregate
COMMERCIAL CRIME	
Crime/Employee Dishonesty Including 3rd Party Fidelity	$1,000,000
CYBER LIABILITY	
Breach of Privacy, Security Breach, Denial of Service, Remediation, Fines and Penalties	$5,000,000
MANDATORY COI SUBROGATION WAIVER LANGUAGE	
"Workers' Compensation policy shall include a waiver of subrogation in favor of the State of Nebraska."	
MANDATORY COI LIABILITY WAIVER LANGUAGE	
"Commercial General Liability & Commercial Automobile Liability policies shall name the State of Nebraska as an Additional Insured and the policies shall be primary and any insurance or self-insurance carried by the State shall be considered secondary and non-contributory as additionally insured."	

3. EVIDENCE OF COVERAGE

The Vendor shall furnish the Contract Manager, via email, with a certificate of insurance coverage complying with the above requirements prior to beginning work at:

120961 O5

Nebraska Public Employees Retirement Systems
Attn: Controller
1526 K Street, Suite 400
Lincoln, NE 68508
Teresa.zulauf@nebraska.gov

These certificates or the cover sheet shall reference the solicitation number, and the certificates shall include the name of the company, policy numbers, effective dates, dates of expiration, and amounts and types of coverage afforded. If the State is damaged by the failure of the Vendor to maintain such insurance, then the Vendor shall be responsible for all reasonable costs properly attributable thereto.

Reasonable notice of cancellation of any required insurance policy must be submitted to the contract manager as listed above when issued and a new ~~coverage binder~~certificate shall be submitted ~~immediately~~ promptly to ensure no break in coverage.

4. DEVIATIONS

The insurance requirements are subject to limited negotiation. Negotiation typically includes, but is not necessarily limited to, the correct type of coverage, necessity for Workers' Compensation, and the type of automobile coverage carried by the Vendor.

K. ANTITRUST

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

The Vendor hereby assigns to the State any and all claims for overcharges as to goods and/or services provided in connection with this contract resulting from antitrust violations which arise under antitrust laws of the United States and the antitrust laws of the State.

L. CONFLICT OF INTEREST

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
	RRF	Milliman wants to ensure that it can comply with the conflict of interest obligations set forth in this clause. Standard conflict of interest provisions tend to be overly broad for Milliman due to the autonomy of each practice/office at our firm. Milliman is proposing an alternative clause to the deleted language in order to guarantee that we can meet the State's needs, but still service our other clients.

In the performance of this contract, the Contractor shall avoid all conflicts of interest and all appearances of conflicts of interest. Contractor represents to State that it maintains a robust internal conflict checking and agrees to promptly notify State of any potential conflict of interest encountered so that other arrangements can be made to complete the work~~By submitting a solicitation response, vendor certifies that no relationship exists between the vendor and any person or entity which either is, or gives the appearance of, a conflict of interest related to this solicitation or project~~.

~~Vendor further certifies that vendor will not employ any individual known by vendor to have a conflict of interest nor shall vendor take any action or acquire any interest, either directly or indirectly, which will conflict in any manner or degree with the performance of its contractual obligations hereunder or which creates an actual or appearance of conflict of interest.~~

~~If there is an actual or perceived conflict of interest, vendor shall provide with its solicitation response a full disclosure of the facts describing such actual or perceived conflict of interest and a proposed mitigation plan for consideration. The State will then consider such disclosure and proposed mitigation plan and either approve or reject as part of the overall solicitation response evaluation.~~

M. STATE PROPERTY

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:

RRF		

The Vendor shall be responsible for the proper care and custody of any State-owned property which is furnished for the Vendor's use during the performance of the contract. The Vendor shall reimburse the State for any loss or damage of such property; normal wear and tear is expected.

N. SITE RULES AND REGULATIONS

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
	RRF	Milliman is willing to comply with the State's on-site rules and regulations, but Milliman must first have a chance to review such policies prior to entry on to the State's premises.

The Vendor shall use ~~its best~~reasonable efforts to ensure that its employees, agents, and Subcontractors comply with site rules and regulations, of which it is informed in writing prior to entry, while on State premises. If the Vendor must perform on-site work outside of the daily operational hours set forth by the State, it must make arrangements with the State to ensure access to the facility and the equipment has been arranged. No additional payment will be made by the State on the basis of lack of access, unless the State fails to provide access as agreed to in writing between the State and the Vendor.

O. ADVERTISING

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

The Vendor agrees not to refer to the contract award in advertising in such a manner as to state or imply that the company or its goods or services are endorsed or preferred by the State. Any publicity releases pertaining to the project shall not be issued without prior written approval from the State.

P. NEBRASKA TECHNOLOGY ACCESS STANDARDS (Nonnegotiable)

1. The State of Nebraska is committed to ensuring that all information and communication technology (ICT), developed, leased, or owned by the State of Nebraska, affords equivalent access to employees, program participants and members of the public with disabilities, as it affords to employees, program participants and members of the public who are not persons with disabilities.

2. By entering into this Contract, Vendor understands and agrees that if the Vendor is providing a product or service that contains ICT, as defined in subsection 3 below and such ICT is intended to be directly interacted with by the user or is public facing, such ICT must provide equivalent access, or be modified during implementation to afford equivalent access, to employees, program participants, and members of the public who have and who do not have disabilities. The Vendor may comply with this section by complying with Section 508 of the Rehabilitation Act of 1973, as amended, and its implementing standards adopted and promulgated by the U.S. Access Board.

3. ICT means information technology and other equipment, systems, technologies, or processes, for which the principal function is the creation, manipulation, storage, display, receipt, or transmission of electronic data and information, as well as any associated content. Vendor hereby agrees ICT includes computers and peripheral equipment, information kiosks and transaction machines, telecommunications equipment, customer premises equipment, multifunction office machines, software, applications, web sites, videos, and electronic documents. For the purposes of these assurances, ICT does not include ICT that is used exclusively by a Vendor.

Q. DISASTER RECOVERY/BACK UP PLAN

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

The Vendor shall have a disaster recovery and back-up plan, of which a copy should be provided upon request to the State, which includes, but is not limited to equipment, personnel, facilities, and transportation, in order to continue delivery of goods and services as specified under the specifications in the contract in the event of a disaster.

R. DRUG POLICY

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

Vendor certifies it maintains a drug free workplace environment to ensure worker safety and workplace integrity. Vendor agrees to provide a copy of its drug free workplace policy at any time upon request by the State.

S. WARRANTY

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

Despite any clause to the contrary, the Vendor represents and warrants that its services hereunder shall be performed by competent personnel and shall be of professional quality consistent with generally accepted industry standards for the performance of such services and shall comply in all respects with the requirements of this Agreement. For any breach of this warranty, the Vendor shall, for a period of ninety (90) days from performance of the service, perform the services again, at no cost to the State, or if Vendor is unable to perform the services as warranted, Vendor shall reimburse the State all fees paid to Vendor for the unsatisfactory services. The rights and remedies of the parties under this warranty are in addition to any other rights and remedies of the parties provided by law or equity, including, without limitation actual damages, and, as applicable and awarded under the law, to a prevailing party, reasonable attorneys' fees and costs.

T. TIME IS OF THE ESSENCE

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

Time is of the essence with respect to Vendor's performance and deliverables pursuant to this Contract.

IV. PAYMENT

Bidder should read the Payment clauses within this section and must initial either "Accept All Terms and Conditions Within Section as Written" or "Exceptions Taken to Payment clauses Within Section as Written" in the table below. If exception is not taken to a provision, it is deemed accepted as stated. If the bidder takes any exceptions, they must provide the following within the "Exceptions" field of the table below (Bidder may provide responses in separate attachment if multiple exceptions are taken):

1. The specific clause, including section reference, to which an exception has been taken;
2. An explanation of why the bidder took exception to the clause; and
3. Provide alternative language to the specific clause within the solicitation response.

By signing the solicitation, bidder agrees to be legally bound by all the accepted terms and conditions, and any proposed alternative terms and conditions submitted with the solicitation response. The State reserves the right to negotiate rejected or proposed alternative language. If the State and bidder fail to agree on the final Terms and Conditions, the State reserves the right to reject the solicitation response. The State reserves the right to reject solicitation responses that attempt to substitute the bidder's commercial contracts and/or documents for this solicitation.

Accept All Payment Clauses Within Section as Written (Initial)	Exceptions Taken to Payment Clauses Within Section as Written (Initial)	**Exceptions:** (Bidder must note the specific clause, including section reference, to which an exception has been taken, an explanation of why the bidder took exception to the clause, and provide alternative language to the specific clause within the solicitation response.)
	RRF	Exceptions to the Payment terms are noted in the sections below. The requested exceptions are consistent with the current contract between Milliman and the State of Nebraska, Department of Heath and Human Services.

A. PROHIBITION AGAINST ADVANCE PAYMENT (Nonnegotiable)

Pursuant to Neb. Rev. Stat. § 81-2403, "[n]o goods or services shall be deemed to be received by an agency until all such goods or services are completely delivered and finally accepted by the agency."

B. TAXES (Nonnegotiable)

The State is not required to pay taxes and assumes no such liability as a result of this Solicitation. The Vendor may request a copy of the Nebraska Department of Revenue, Nebraska Resale or Exempt Sale Certificate for Sales Tax Exemption, Form 13 for their records. Any property tax payable on the Vendor's equipment which may be installed in a state-owned facility is the responsibility of the Vendor.

C. INVOICES

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
	RRF	Milliman needs to retain the right to suspend services for non-payment of invoices.

Invoices for payments must be submitted by the Vendor to the agency requesting the services with sufficient detail to support payment. Invoices detailed as shown on the cost proposal should be emailed to the Nebraska Public Employees Retirement Systems, Teresa.zulauf@nebraska.gov The terms and conditions included in the Vendor's invoice shall be deemed to be solely for the convenience of the parties. No terms or conditions of any such invoice shall be binding upon the State, and no action by the State, including without limitation the payment of any such invoice in whole or in part, shall be construed as binding or estopping the State with respect to any such term or condition, unless the invoice term or condition has been previously agreed to by the State as an amendment to the contract. **The State shall have forty-five (45) calendar days to pay after a valid and accurate invoice is received by the State.** The Contractor reserves the right to stop all work if any bill goes unpaid by State for ninety (90) days. In the event the State receives an invoice and requests the Contractor to review or adjust charges or services reflected on the invoice, the 90-day period will be measured starting on the date the Contractor submits an adjusted invoice to State. In the event there is a work stoppage under this provision, the Contractor shall be entitled to collect the outstanding balance which the State has reviewed and approved, as well as charges for all State approved invoices for services and expenses incurred up to the date of stoppage.

D. INSPECTION AND APPROVAL

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
RRF		

Final inspection and approval of all work required under the contract shall be performed by the designated State officials.

E. PAYMENT (Nonnegotiable)

Payment will be made by the responsible agency in compliance with the State of Nebraska Prompt Payment Act (See Neb. Rev. Stat. § 81-2403). The State may require the Vendor to accept payment by electronic means such as ACH deposit. In no event shall the State be responsible or liable to pay for any goods and services provided by the Vendor prior to the Effective Date of the contract, and the Vendor hereby waives any claim or cause of action for any such goods or services.

F. LATE PAYMENT (Nonnegotiable)

The Vendor may charge the responsible agency interest for late payment in compliance with the State of Nebraska Prompt Payment Act (See Neb. Rev. Stat. §§ 81-2401 through 81-2408).

G. SUBJECT TO FUNDING / FUNDING OUT CLAUSE FOR LOSS OF APPROPRIATIONS (Nonnegotiable)

The State's obligation to pay amounts due on the Contract for fiscal years following the current fiscal year is contingent upon legislative appropriation of funds. Should said funds not be appropriated, the State may terminate the contract with respect to those payments for the fiscal year(s) for which such funds are not appropriated. The State will give the Vendor written notice thirty (30) calendar days prior to the effective date of termination. All obligations of the State to make payments after the termination date will cease. The Vendor shall be entitled to receive just and equitable compensation for any authorized work which has been satisfactorily completed as of the termination date. In no event shall the Vendor be paid for a loss of anticipated profit.

H. RIGHT TO AUDIT (First Paragraph is Nonnegotiable)

The State shall have the right to audit the Vendor's performance of this contract upon a thirty (30) days' written notice. Vendor shall utilize generally accepted accounting principles, and shall maintain the accounting records, and other records and information relevant to the contract (Information) to enable the State to audit the contract. (Neb. Rev. Stat. § 84-304 et seq.) The State may audit, and the Vendor shall maintain, the Information during the term of the contract and for a period of five (5) years after the completion of this contract or until all issues or litigation are resolved, whichever is later. The Vendor shall make the Information available to the State at Vendor's place of business or a location acceptable to both Parties during normal business hours. If this is not practical or the Vendor so elects, the Vendor may provide electronic or paper copies of the Information. The State reserves the right to examine, make copies of, and take notes on any Information relevant to this contract, regardless of the form or the Information, how it is stored, or who possesses the Information. Under no circumstance will the Vendor be required to create or maintain documents not kept in the ordinary course of Vendor's business operations, nor will Vendor be required to disclose any information, including but not limited to product cost data, which is confidential or proprietary to Vendor.

Accept All Terms and Conditions Within Section as Written (Initial)	Exceptions Taken to Terms and Conditions Within Section as Written (Initial)	Exceptions:
	RRF	If the State choses to conduct an audit, the State should be responsible for all fees associated with such audit, subject to the exceptions set forth in this clause.

The ~~Parties~~ State shall pay ~~their own~~all costs ~~of~~associated with the audit unless the audit finds a previously undisclosed overpayment by the State. If a previously undisclosed overpayment exceeds ~~one-half of one~~two percent (~~.5~~2%) of the total contract billings, or if fraud, material misrepresentations, or non-performance is discovered on the part of the Vendor, the Vendor shall reimburse the State for the total costs of the audit. Overpayments and audit costs owed to the State shall be paid within ninety (90) days of written notice of the claim. The Vendor agrees to correct any material weaknesses or condition found as a result of the audit.

2.TECHNICAL RESPONSE

a. Understanding of the Project Requirements

Technical Approach

Milliman will provide services that include the services listed below. Additional details regarding our approach for specific category of services can be found in Attachment B, Proposed Technical Approach.

- Actuarial consulting services
- Valuation services for plans with valuation dates of July 1 and January 1
- GASB 67 & 68 services
- Projection services, including scenario testing over 30 years
- Actuarial experience study services
- Benefit adequacy study
- Supplemental services, as needed, including legislative support and analysis

Milliman's Approach to Annual NPERS Actuarial Valuations

Below are the key steps of preparing each of the actuarial valuations for NPERS:

- Preplanning and preparation
- Data analysis
- Review of assumptions if there are any material changes to the benefit provisions
- Calculation of liabilities and normal costs including individual and aggregate gain/loss analysis
- Determination of valuation assets
- Calculation of funded ratio and funding period, including analysis of changes from the prior year
- Calculation of actuarially determined employer contribution rate, including analysis of changes from the prior year
- Determination of accounting disclosures under GASB 67 & 68
- Reporting and summarizing valuation results, and presentation to the PERB and stakeholders

On the following pages, we provide additional details of this process.

STEP 1. Preplanning and Preparation

- Gather reports, to the extent they have not been provided, and confirm with staff that there have been no changes to information previously provided:
  - Financial statements, member handbooks, applicable statutes and administrative rules
- Confirm current funding policies
- Preliminary discussions with NPERS staff, including:
  - Confirmation of timeline
  - Determination if any additional data is needed
  - Discussion of any specific staff concerns

STEP 2. Data Analysis

- Compare data elements with NPERS provisions to ensure that all material benefit provisions are being considered.
- Review data for missing, incomplete, or questionable information, including:
  - Very low or high salaries, service retirees with reported ages less than eligibility age and/or questionable birth dates
- Compare member-average data provided by NPERS (including any adjustments, if necessary) with data used in prior valuations to help confirm reasonability and consistency of data reporting.

STEP 3. Review Assumptions

- While a full study of economic and demographic assumptions would typically only be done in a year with an experience study, it is good to do some annual review of key economic and/or demographic assumptions to assess reasonableness and appropriateness and ensure that the PERB understands the basis for the actuarial valuations. This statement holds particularly true for the investment return assumption, which should be assessed regularly in light of current economic and capital market outlook forecasts.
- Material changes to benefit provisions would also indicate the need for a review of the reasonableness and appropriateness of the current assumptions.

STEP 4. Calculation of Liabilities and Normal Costs including Gain/Loss Analysis

- Calculate the normal cost and the actuarial accrued liability in accordance with the cost allocation method.
- Review individual test lives for agreement with methodology, provisions, and assumptions. Individual test lives are selected to provide a robust cross-section of the population.
- Calculate the present value of benefits.
- Gain/loss analysis on both a system and individual basis. This is done to help ensure accuracy, assess the assumptions, and explain any material deviations in valuation results due to actual experience differing from assumptions.

STEP 5. Determination of Valuation Assets

- Review statement of position and statement of activities for reasonableness and completeness.
- Calculate the actuarial valuation of assets, based on system's asset valuation methodology.
- Calculate the investment returns on both a market and actuarial value basis.

STEP 6. Calculation of Funded Ratio and Funding Period

- Calculate the funded ratio: We will look at how assets compare to liabilities.
- Calculate the funding period: This will reflect the current statutory funding structure in an open group projection that estimates the long-term effect of new entrants in the most recently established tier replacing retiring members from older tiers with more valuable benefits.

STEP 7. Calculation of Actuarially Determined Employer Contribution

- In part to comply with professional standards of practice, each year we will calculate an actuarially determined employer contribution projected sufficient both to fully fund system benefits over the long term, avoid negative amortization of existing unfunded liability in the short term, and satisfy State statutes.

STEP 8. Determination of Accounting Disclosures Under GASB 67 & 68

- Prepare GASB-compliant reporting for the trust funds under Statement No. 67. Due to the significant funded status of many of the plans administered by NPERS, the "depletion date" calculation should be very straight forward for these plans. However, this calculation will need to be reviewed more closely for plans like the State Patrol that is not as well funded.
- Following the completion of the actuarial valuation process, Milliman will prepare the employer allocations described in GASB Statement No. 68 for each of the cost-sharing plans. The allocation schedules will reflect the contributions of individual employers and the State.

STEP 9. Reporting and Summarizing Results, and the PERB Presentation

- Formal written report containing Executive Summary of key results along with detailed technical documentation of all calculations and the underlying actuarial basis for the valuation.
- The report will receive quality assurance review from a senior public sector actuary outside of the NPERS service team in order to ensure technical soundness, obtain a fresh perspective and verify the understandability of the communication.
- In-person summary presentation to the PERB, including highlights of key changes since the prior year's results. The in-person presentations of valuation results will happen twice a year, once with the July 1 valuations are complete and once when the January 1 valuations are complete.
- Presentation to Legislature and Associations, as needed.

Annual Actuarial Valuation Timeline

Through our experience working with your peer retirement systems (Texas County and District Retirement System, Oregon PERS, Florida Retirement System, PERS of Idaho, etc.), we have developed the following representative workplan for the transition and first fiscal year.

Throughout this workplan, Milliman recommends conducting weekly or bi-weekly check-in calls with the appropriate staff members on both sides to discuss the current status of the transition and the current level of service. These meetings will allow NPERS staff to escalate any existing concerns and discuss plans for resolution. In subsequent years, Milliman recommends making check-in calls bi-weekly or monthly, whichever is most appropriate, to continue monitoring the timeliness and satisfaction of NPERS.

Timeliness is a key principle of our service philosophy and Milliman will deliver our annual funding actuarial valuations and GASB 67/68 disclosure reports based on the timing requirements of NPERS. As detailed in the timeline below (Table 1), we fully understand compressed valuation schedule and our internal resources will ensure we are able to meet and exceed this schedule on an annual basis.

The representative timeline shown in Table 1 was constructed based on the requirements listed in the RFP and our experience working with similar plans. You may find one or two bullet points are missing or a deliverable may be preliminarily scheduled for the wrong month. We will work closely with NPERS staff from the outset of the relationship to ensure that every single deliverable is accounted for, and the proper timing is reflected. We understand that the timing of specific deliverables is vital to an efficient operation and Milliman is dedicated to ensuring that the NPERS staff and the PERB have everything they need to serve their members and employers.
[Responsible Parties: Milliman (M), NPERS].

PROCESSING FOR JULY 1 VALUATIONS (SCHOOL, STATE PATROL, JUDGES)

Task	Target Dates	Responsible Party
Valuation planning meeting to establish annual workplan and review plan and assumption changes	July 15, 2025	M, NPERS
CENSUS DATA		
1. Receipt of census data from NPERS	August 1, 2025	NPERS
2. Data check, load data and email results to NPERS	August 29, 2025	M
3. Data questions to NPERS (if necessary)	September 12, 2025	M
4. Data answers received from NPERS and any follow-up date (if necessary)	September 23, 2025	NPERS
5. Finalize data	September 30, 2025	M
FINANCIAL DATA		
1. Receipt of financial data from NPERS	October 1, 2025	NPERS
2. Assets entered and reviewed	October 12, 2025	M
VALUATION PROCESSING		
1. Update programs and calculations	October 1, 2025	M
2. Test life program check and review	October 8, 2025	M
3. Financing workpapers input and review	October 10, 2025	M
4. Run gain/loss programs and analyze	October 13, 2025	M
5. Review gain/loss by source	October 15, 2025	M
6. Produce preliminary valuation results	October 17, 2025	M
7. Peer review of results	October 24, 2025	M
FUNDING AND GASB 67 REPORTING		
1. Draft Funding Valuation Reports provided to NPERS staff for review and comments	October 27, 2025	M
2. NPERS provides comments on draft reports	October 31, 2025	NPERS
3. Final funding valuation reports provided to NPERS staff	November 3, 2025	M
PRESENTATIONS		
1. Draft PERB presentation to NPERS staff for review and comments	November 10, 2025	M
2. In-person presentation to the PERB, including projections	November, 2025	M, NPERS
3. Additional presentations to stakeholders	TBD	M, NPERS
GASB REPORTING		
1. GASB 67 reporting	TBD	M
2. GASB 68 reporting including allocations to contributing employers, including State	June 30, 2026	M

Table 1a

PROCESSING FOR JANUARY 1 VALUATIONS (CASH BALANCE PLANS, OMAHA, ERBF)

Task	Target Dates	Responsible Party
Valuation planning meeting to establish annual workplan and review plan and assumption changes	February 2, 2026	M, NPERS
CENSUS DATA		
1. Receipt of census data from NPERS	February 16, 2026	NPERS
2. Data check, load data and email results to NPERS	February 23, 2026	M
3. Data questions to NPERS (if necessary)	March 2, 2026	M
4. Data answers received from NPERS and any follow-up date (if necessary)	March 9, 2026	NPERS
5. Finalize data	March 13, 2026	M
FINANCIAL DATA		
1. Receipt of financial data from NPERS	March 16, 2026	NPERS
2. Assets entered and reviewed	March 23, 2026	M
VALUATION PROCESSING		
1. Update programs and calculations	March 16, 2026	M
2. Test life program check and review	March 18, 2026	M
3. Financing workpapers input and review	March 23, 2026	M
4. Run gain/loss programs and analyze	March 25, 2026	M
5. Review gain/loss by source	March 27, 2026	M
6. Produce preliminary valuation results	March 30, 2026	M
7. Peer review of results	April 2, 2026	M
FUNDING AND GASB 67 REPORTING		
1. Draft Funding Valuation Reports provided to NPERS staff for review and comments	April 3, 2026	M
2. NPERS provides comments on draft reports	April 8, 2026	NPERS
3. Final funding valuation reports provided to NPERS staff	April 10, 2026	M
PRESENTATIONS		
1. Draft PERB presentation to NPERS staff for review and comments	April 15, 2026	M
2. In-person presentation to the PERB, including projections	April, 2026	M, NPERS
3. Additional presentations to stakeholders	TBD	M, NPERS
GASB REPORTING		
1. GASB 67 reporting	TBD	M
2. GASB 68 reporting including allocations to contributing employers, including State	June 30, 2026	M

Table 1b

A sample pension actuarial valuation report is included in Appendix C. This sample valuation report was developed based on the specific requirements of the client. Similarly, Milliman will customize the valuation report or NPERS to reflect the most specific needs and requirements for NPERS.

Transitional of Actuarial Services

As noted in the proposed transition timeline below (Table 2), Milliman will be prepared to start the transition and replication process immediately upon contract award on June 2, 2025. This selection timing is opportune with regards to the valuation processing for NPERS, right between the completion of the January 1 valuations and the commencement of the July 1 valuations. The transition will begin with meetings with Milliman and NPERS staff to develop a detailed schedule for the transition of services and for all deliverables through June 30, 2026.

The Milliman team will immediately begin a formal replication of the three July 1 actuarial valuations (School, State Patrol, and Judges) so that the team will be prepared to commence processing the July 1, 2025 actuarial valuations in early August, 2025. Milliman will develop a data processing plan and implement the benefit provisions and actuarial assumptions in Milliman's actuarial valuation platform. This step will require NPERS to provide the census data originally provided to the prior actuary for the July 1, 2024 actuarial valuations and it will require the prior actuary to provide the final valuation data used for the July 1, 2024 actuarial valuations.

Milliman will prioritize the transition work and will replicate the most recent published actuarial valuation results, including funded status and actuarially determined contributions. If any material differences in results are identified, they will be resolved by cooperative discussions between Milliman and the prior actuary. **Milliman is experienced with transitioning actuarial services from other actuarial firms and conducting the accompanying replication. Milliman will ensure that the transition has very limited or no impact on NPERS.** Milliman has completed five full-replication actuarial audits in the last five years where we replicated NPERS's current actuary so we are very familiar with the technicalities and nuances of how that actuary approaches actuarial valuations.

The replication will result in a memo that will be provided to the NPERS staff and the PERB that compares the results of the July 1, 2024 actuarial valuations prepared by the prior actuary and the results of the replication valuation prepared by Milliman. This transition memo will also include a comparison of the resulting contributions for the plans as well as an explanation for any notable differences. *[Responsible Parties: Milliman (M), NPERS, Prior Actuary (PA)]*

Task	Target Dates	Responsible Party
Contract award to Milliman	June 2, 2025	NPERS
Partnership kickoff meeting and planning discussion	June 2, 2025	M, NPERS
<u>Milliman requests to NPERS for July 2024 valuations</u> 1. Original valuation data files provided to actuary 2. Financial information provided to actuary	June 3, 2025	M, NPERS
<u>Milliman requests to prior actuary for July 2024 valuations</u> 1. Final valuation census data 2. Appropriate test life detail (if necessary) 3. Full disclosure of all assumptions and methods	June 3, 2025	M, PA
Milliman receives all requested information	June 16, 2025	M, NPERS, PA
Value NPERS benefits for July 1 plans in Milliman's actuarial valuation model	July 7, 2025	M
Process replication valuation and reconcile discrepancies, if any, with prior actuary	July 14, 2025	M, PA
Submit replication valuation memo for July 1 plans; discuss with NPERS	July 31, 2025	M, NPERS

Table 2

This replication also allows Milliman identify how the prior actuary was valuing the plan provisions and sets the stage to measure the experience gain/loss for the current year. **The replication will be completed by the end of July 2025** so that Milliman and NPERS are prepared to commence the July 1 valuations and the new partnership.

Ryan Cook, Danielle, and Delaney will immediately commence processing the July 1, 2025 valuations based on the recent replication. While the July 1 valuations are being processed, Ryan Falls and Kyle Wood will circle back and begin a similar transition process and replication of the January 1 valuations (State and County Cash Balance, Omaha School Employees, and ERBF). This additional replication process is expected to take 2-3 months.

All of the replication work will be performed at no cost to the NPERS, as an investment in our relationship and in-line with our belief that clients should not incur additional costs as the result of changing actuaries.

Quality Assurance / Quality Control Procedures

Milliman has built a national reputation of integrity and work of the highest standards. The firm's emphasis on preserving this reputation is demonstrated by our internal quality control procedures. We have had quality control features since the inception of the firm, with a formal policy in place for more than 50 years. Our *Peer Review & Signature Authority Guidelines* are formally reviewed at least once a year. Additional review is done throughout the year as needed.

Under our formal pre-release peer review program, client assignments are subject to an internal pre-release peer review by at least one other Milliman professional. The detailed review process can only be performed by actuaries who have met the firm's stringent qualification requirements. Qualified Reviewers are a select few consultants with vast experience and knowledge relevant to the practice area of the client assignment. The review process also helps ensure the understandability of the communication.

An internal Employee Benefits Steering Committee monitors the practices and procedures of all Milliman pension and employee benefits professionals for compliance with our internal professional standards.

The work of each practice center is periodically reviewed by other Milliman professionals to ensure that our professional standards have been met. A team of peers periodically reviews work products, methods, and documentation of assignments that have been completed recently. The objective of this post-release peer review is to verify that Milliman's internal practice standards, as well as those of the American Academy of Actuaries, are being followed by every consulting actuary.

On an ongoing basis, we provide training to our staff to keep them up to date on compliance issues, legislation affecting retirement plans, internal processes and procedures, and client service skills. In addition, our consultants who are Members of the Society of Actuaries, the American Academy of Actuaries, and Enrolled Actuaries must satisfy the relevant continuing education requirements to retain membership in those organizations.

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b. Attachment A: Mandatory Qualifications

The completed document follows

ATTACHMENT A

Mandatory Qualification Certification and Questionnaire

Request for Proposal Number 120961 O5

All bidders are required to complete this attachment.

The bidder hereby certifies that it meets all of the following mandatory qualifications:

1. As of December 31, 2024, the bidder has a minimum of three (3) public pension fund clients.

___x__ Yes. _____ No.

2. The bidder has a minimum of five (5) years of experience in providing actuarial consulting services to a public pension fund. This means that the bidder as an organization has been providing actuarial consulting services to a public pension fund for at least five (5) years. This requirement is not satisfied simply because its employees have at least five (5) years' experience in providing actuarial consulting services to a public pension fund.

__x___ Yes. _____ No.

3. The bidder's lead consultant on the account must have a minimum of ten (10) years of experience in providing actuarial consulting service to public pension funds. This experience shall include general consulting, experience analysis, and valuation assignments for such funds. This person shall also have experience in testifying before legislative and administrative bodies in support of actuarial positions and the principles used in valuing a public retirement system or pricing legislation, and an ability to discuss in laymen's terms the following: actuarial theory; basis for assumptions; and other actuarial matters. The lead consultant must be a member of the American Academy of Actuaries.

___x__ Yes. _____ No.

4. Professional staff assigned to the account shall have a minimum of five (5) years of experience in the field of actuarial science and will include persons with appropriate professional credentials such as Fellow or Associate of Society of Actuaries, and/or Fellow of the Conference of Actuaries in Public Practice, and/or Member of the American Academy of Actuaries, and/or meet standards of a qualified actuary under the provisions of the Employee Retirement Income Security Act of 1974.

__x___ Yes. _____ No.

5. All services to be provided on behalf of the account shall be in accordance with generally accepted actuarial principles.

___x__ Yes. _____ No.

6. The actuarial firm must carry liability insurance as set forth in this RFP for the duration the contract (Section III, J Insurance Requirements).

___x__ Yes. _____ No.

03/21/2025	Milliman, Inc.
Date	Name of firm
Ryan Falls, Principal and Consulting Actuary	R. Ryan Falls
Name and title of individual signing for the firm.	Signed Manually in Ink or by DocuSign

c. Attachment B: Proposed Technical approach

The completed document follows

ATTACHMENT B

Technical Approach

Request for Proposal Number 120961 O5

Bidder Name: __Milliman, Inc.____________________________

Bidders shall complete and submit a Technical Approach Document to provide Actuarial Services for the Nebraska Public Employees Retirement Systems (NPERS). Bidders are required to describe in detail how their proposed solution meets the specifications outlined within each Requirement.

The Technical Approach Document must indicate how the bidder intends to comply with the requirement and the effort required to achieve that compliance. It is not sufficient for the bidder to simply state that it intends to meet the requirements of the RFP. The State will consider any such response to the requirements in this RFP to be non-responsive. The narrative should provide the State with sufficient information to differentiate the bidder's solution from other bidders' solutions.

TECHNICAL APPROACH
1. Describe bidder's understanding of the Scope of Work for this RFP.
Bidder response: As we know from our experience working with several of your peers, statewide pension systems operate in an environment with a variety of stakeholders and interested parties. We believe that our experience in navigating the complex legislative and public relations environment of a statewide pension system will help us be a strategic asset to NPERS from day one. Some interested parties have agendas that can conflict with each other. To operate successfully in that type of environment, it is vital for all the actuarial work to have a high degree of credibility with all interested parties that are operating in good faith. If any stakeholder group is unable to "follow the numbers" of the technical math, it can create credibility challenges for the actuary, and by association, for the system. Because of the operating environment, any issues with understanding key technical numbers can lead to one or more "good faith" interested parties calling into question the reliability of all the actuarial results. NPERS would be served by the most senior public plan actuaries Milliman has to offer, and all our work for NPERS would be subject to our highest level of peer review before any reports are issued. Notably, our service team would have multiple senior credentialed consulting actuaries. The NPERS staff, the PERB, the State of Nebraska, and the employers participating in NPERS have partnered together for many years to achieve and maintain one of the best funded retirement systems in the country. The NPERS staff and the PERB deserve significant credit for their good governance, prudent decision, and thorough education of stakeholders to maintain the strong funded status. One important aspect of that governance is the procedures and processes around granting cash balance dividends based on the funded status of the plans each year. The PERB and the Legislature are the primary decision makers for policy. Our job as actuaries and strategic advisors is to provide decision makers with patient, understandable, and forthright information for decision making. We believe Milliman has the best equipped team to serve this important role for NPERS. Milliman has internal pre-release peer review standards and procedures that are unsurpassed in our profession. Prior to issuance, work products for a high-visibility system like NPERS are peer reviewed by a senior actuary who is not directly involved in the development of the work product. That review involves both verification of the technical results and review of the work product's verbiage and structure for clarity, understandability, and tone.

When it comes to assisting systems on the key issue of guidance regarding the investment return assumption, Milliman has an advantage versus our competitors due to our firm's size and the associated depth and breadth of resources. Milliman has a group of credentialed investment professionals who on a semi-annual basis update our proprietary capital market outlook model. That model serves as a second opinion to assist sponsors assessing the outlook for future returns. It also allows us to compose stochastic (also known as Monte Carlo or variable return) projection models with the return component of the model prepared by a credentialed investment professional rather than an actuary lacking formal investment training and certification.

To help our clients address issues, we have dedicated employee benefits research staff to keep our consultants and clients abreast of the latest developments that impact the public sector and beyond. In addition to employee benefits expertise, Milliman has major consulting practices in health, property & casualty insurance, as well as life insurance and financial services. This includes deep subject matter experts on topics such as disability benefits.

For seven decades, Milliman has been assisting public sector retirement systems navigate through a constantly shifting economic and legislative environment and we are confident that our track record will continue. The best and most credible way to get a sense of what it would be like to work with Milliman as your pension actuarial consultant is to talk to multiple stakeholders (e.g., Executive Director, Board Members, Actuarial Manager, Financial Manager) for each of our references. These enthusiastic endorsements from your peers are relevant, and we encourage you to contact them.

With this context, **Milliman will provide the services detailed in the Scope of Work detailed with this procurement (Section V.B.)**. At a high level, the scope includes the services listed below.

- Actuarial consulting services
- Valuation services for plans with valuation dates of July 1 and January 1
- GASB 67 & 68 services
- Projection services, including scenario testing over 30 years
- Actuarial experience study services
- Benefit adequacy study
- Supplemental services, as needed, including legislative support and analysis

2. Describe bidder's approach for providing Actuarial Consulting Services for public pension funds.

Bidder response:

We work hard to distinguish ourselves in all aspects of our service, but particularly in terms of timeliness, understandability of communication, and depth of thought.

- **Responsiveness.** We strive to meet and exceed your expectations with respect to our accessibility and responsiveness.
- **Quality.** We have built a national reputation for work of the highest standards. We preserve this reputation through strict internal quality control procedures. Technical excellence is one of Milliman's most outstanding characteristics. We see the big picture and provide knowledge and understanding beyond the numbers, providing value and insight to our clients.
- **Communication.** Time after time, our team has been complimented for its ability to explain difficult topics. By simply speaking with clarity and by using visual examples, we have gained the confidence of the clients we serve. One Milliman client stated that our "strength is translating complex data into understandable concepts that we can share with those who are not as familiar with how the whole process works."
- **Integrity.** We provide independent, non-biased advice that is respectful of all interested parties.
- **Stability.** Many employees start and complete their entire careers with Milliman. We support the professional growth and development of all our employees and have very low turnover.
- **Modeling.** Milliman has outstanding financial projection models available online and on-demand, both deterministic (steady annual returns) and stochastic (varying annual returns) that can assist the PERB, NPERS staff and other stakeholders and policy makers in understanding the potential outcomes of different policies. Just as importantly, our consultants understand when these types of models are useful and when they are just noise.

Milliman is the nation's leader in providing public plan actuarial services to large, public retirement systems and a large number of our approximately 1,100 qualified consultants and actuaries across our 70+ offices dedicate a significant part of their efforts to public retirement systems. Our senior consultants are heavily involved on a day-to-day in client relationships and the technical actuarial work, and NPERS will be served through experience and expertise. Our advice is free of conflict and we are sensitive to the political climate.

A key component of excellent actuarial consulting work in the public sector is the ability to effectively work with retirement boards. We know that board members represent a variety of points of view and possess a range of backgrounds and knowledge bases. We put a great deal of importance on getting to know the individuals and the issues. Each presentation and communication are tailored so that all members gain a clear understanding of the issues and financial complexities and therefore acquire a sound basis for making decisions. Milliman will approach each situation with the NPERS staff and the PERB with understandable, patient, respectful, and forthright communication.

3. Describe bidder's approach for providing Actuarial Valuation Services for defined benefit and cash balance public pension funds. Give examples.
Bidder response: Milliman will provide ensure timeliness, accuracy, and collaboration for the annual actuarial valuations for NPERS. With the number of actuarial valuations processed each year for NPERS, these elements become even more important. Prior to the beginning of each valuation cycle, Milliman will meet with NPERS staff to discuss the valuation timeline so that each side can discuss deliverables and any possible changes to the process. The goal will be to eliminate as many 'surprises' from the valuation process as possible. As discussed later in this section, Milliman believes that projections are an integral part of a public section actuarial valuation. The valuation reports will clearly articulate the funded status and contributions requirements for a public pension plan. Adding projections to the valuation process helps the PERB better understand the expected changes in the funded status of the plan over time and future contribution requirements. Further, Milliman's projections incorporate scenario testing to help NPERS understand the range of possible future outcomes for the retirement plans. As detailed in Attachment C, Additional Corporate Experience, Milliman serves as the retained actuary for seven public sector retirement systems with over 100,000 members. These major clients span a wide range of different plan designs and funding strategies. With regards to cash balance plans, Matt Larrabee is the Lead Actuary for the Texas County & District Retirement System which is an agent-employer plan that provides a cash balance benefit to the employees of over 850 employers across the State of Texas. Prior to joining Milliman, Ryan played an integral role in the development and implementation of the new cash balance plan for State of Texas employees as the retained actuary for the Employees Retirement System of Texas during the 2021 Texas legislative session. Following the adoption of the new benefits, Ryan Falls led his valuation processing team in the first actuarial valuation incorporating the new benefit structure. We are committed to providing a seamless and efficient experience, including a clearly articulated projected valuation results, for the NPERS defined benefit and cash balance plans.

4. Describe bidder's approach for providing GASB Services for single and multiple employer public pension funds. Give examples.

Bidder response:

The first step in GASB reporting is for the actuary to prepare the plan accounting information in accordance with GASB Statement No 67. Milliman prepares this information for all of our public sector clients and we will work closely with NPERS staff to ensure NPERS has the information in a timely manner that meets with all statutory and financial reporting requirements.

A sample GASB 67 report is included as ***Appendix D***.

The GASB 68 allocation schedules for NPERS are important and visible communications between NPERS and your participating employers. As a result, it is important that the schedules are completed timely and accurately the first time and prepared to be as understandable as possible given the technically complex nature of GASB 68 calculations for the NPERS cost-sharing plans. These complexities just reinforce that it is vital for the actuary to establish a procedure for tracking each of the individual employers, ensuring that all of the subtotals add correctly, and report the information in a consistent manner.

We take a wide range of approaches to assist our system clients and their reporting entities in their GASB 68 reporting, with each approach based on the client's needs and preferences. The level of involvement and approach can vary from low and simple to high and complex.

As an example of a simple, low involvement approach, for CalSTRS we only provide a GASB 67 report, while CalSTRS provides allocation percentages to assist their employers in the GASB 68 process. For plans with relatively few reporting entities, we may provide a combined a GASB 67/68 report that contains all required footnote disclosures and Required Supplementary Information. For plans with many reporting entities, we may provide either a summary page for each entity or schedules with the required information by entity.

An example of a moderate complexity and involvement approach is our work for the Florida Retirement System (FRS). We prepare the detailed publicly posted GASB 68 allocation schedules for over 1,000 contributing employers and agencies across the state. Our work includes close coordination with the Florida Auditor General's staff to allow local entities the option of relying on schedules which have been audited by a state agency independent of the system. The cost-sharing allocations for FRS are based on single-year contributions. That, along with the absence of special funding situations, moderates the complexity of the FRS work.

The GASB 68 allocations for the Oregon Public Employees Retirement System (Oregon PERS) are an example of a high complexity, high involvement assignment. For Oregon PERS which was rated as the second most administratively complex system in North America by CEM Benchmarking, the allocation methodology is more complicated than FRS. Specifically, Oregon PERS determines each employer's proportion based on their estimated share of the future long-term contribution effort of the System, in accordance with the preference stated in GASB 68. Contribution rates determined in the system are complex, with over 600 different employers receiving individual rates based on a variety of employer-specific factors and a variety of rate and experience pooling arrangements. Resulting contributions rates vary for three different categories of employer payroll and may have additional employer-specific adjustments (including for voluntary pre-payments of future contributions) that are reflected and tracked for individual employers. Milliman worked with Oregon PERS and their auditors to develop an appropriately rigorous framework to compare long-term contribution effort of each employer on a consistent basis. The total projected contribution effort for each employer is a customized calculation of their anticipated future contributions to normal cost and UAL payments, reflecting their specific pooling arrangement, payroll mix, and any employer-specific special adjustments. As part of GASB implementation, Milliman helped Oregon PERS explain and communicate the adopted approach to employers, their auditors, and other stakeholders. Additionally, Milliman prepares an individual exhibit for each employer to describe all of the pertinent accounting information for each employer.

Due to the significant number of pages included in a GASB 68 allocation report for a cost-sharing plan, we have included the following links to view the Oregon PERS GASB 68 cover letter and the full set of allocation exhibits.

https://www.oregon.gov/pers/emp/Documents/GASB/2024/2024_GASB68.pdf
https://www.oregon.gov/pers/emp/Documents/GASB/2024/06302024_GASB68_Exhibits.pdf

In the end, Milliman will work closely with NPERS to ensure that the GASB 67 reporting and the GASB 68 allocations continue to be appropriate for the participating employers of NPERS and will also seek additional methods of improving the communication of the complex information to the employers, as needed.

5. Describe bidder's approach for providing Projection Services for public pension funds. Give examples.

Bidder Response:

Importance of Projections

With the complexity of public retirement plans today, projections of valuation results and stress testing of those results are vital components of developing a comprehensive understanding of the health of a public retirement system. Milliman incorporates projections into every actuarial valuation for major public retirement systems as well as every significant proposed change to benefits or contributions. We applaud NPERS for being one of the first public retirement systems to understand the importance of projections and proactively including both five-year and 30-year projections as part of the annual actuarial valuation cycle.

Appendix F is a recent example of financial modeling we prepared for a large statewide retirement system that wanted to understand the impact of revisions to employer contribution procedures. Of note, slides 8 through 18 review the impact of sustained changes in the investment return. Additionally, slides 19 through 36 review the probabilities that future contribution rates fall into certain ranges using stochastic modeling. This example does not exactly match the requirements for the 30-year projection tool for NPERS but it demonstrates the level of complexity that Milliman is capability of going in order to provide our clients the information they need to make important decisions.

Milliman FutureCost Online

This self-service modeling tool allows retirement systems to proactively view the impact of changing contribution levels and rates of return on their retirement program's financial picture. You can have round-the-clock access via both desktop computers and mobile devices to the same robust projection tools that we use as the plan actuary. FutureCost Online gives you the ability to run "what-if" scenarios at any time. Charts and tables can be pulled into reports and presentations, forecasts can be exported to Excel files, and scenarios can be saved to compare to other scenarios that have been run previously. FutureCost Online will be provided to NPERS as part of our engagement.

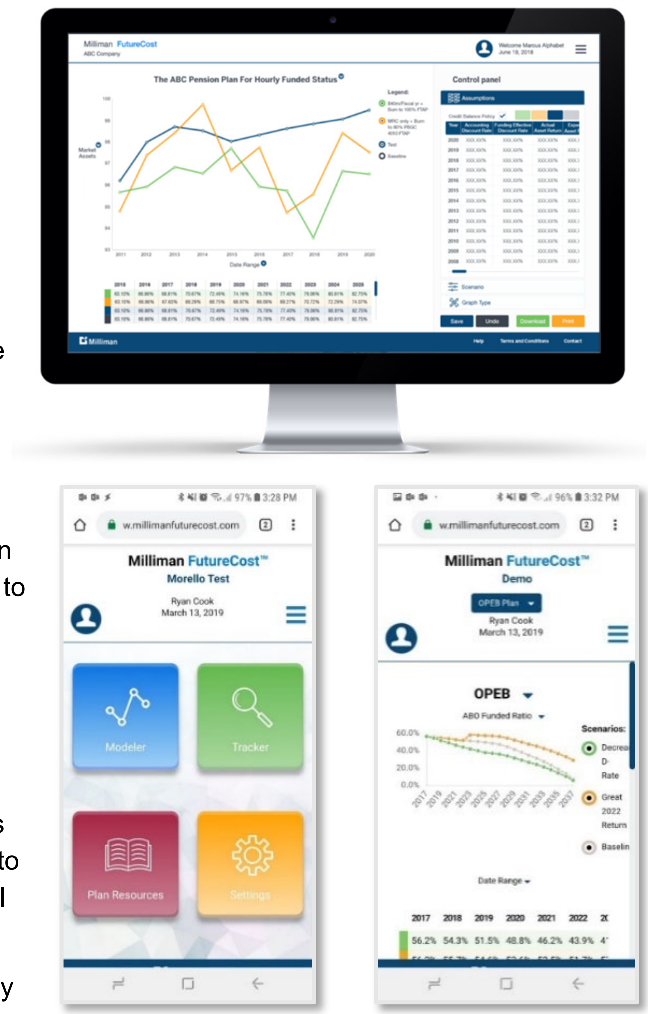


Figure 4

We find that Milliman FutureCost Online is a great compliment to regular meetings to review the valuation results because it gives you the information you need to make timely and important decisions based on plan design, market conditions, and plan performance. **FutureCost Online is capable of preparing both deterministic and stochastic projection analysis.**

We can model the impact of alternative assumptions and scenarios on funding levels and contribution rates to compare outcomes to clearly communicate results to decision makers. We have experience modeling for all our large public sector defined benefit clients.

In modeling done for one public system with actuarially determined funding, we allowed variations for the asset corridor, the asset smoothing period, the methodology for UAAL amortization, and the duration of UAAL amortization. This provided Board members with the opportunity to ask "what if" questions regarding all those variables. We also allowed varying assumptions for future asset returns and did stochastic modeling for future asset returns. The model provided 20-year projections of both the funded ratio and the employer contribution rates.

As with any model, certain assumptions were necessary to focus the attention upon the variables that we allowed to change. We used an existing actuarial valuation as the basis for projections. We assumed that no demographic gains or losses occurred (i.e., all demographic assumptions were met) and assumed that there were no changes to the benefit levels in the future. Our model was demonstrated interactively with staff prior to our client's Board meeting, along with a summary of the advantages and disadvantages of the various funding policy options. Milliman will also provide NPERS will the tools to conduct scenario testing in the 30-year projections with possible changes to plan elements like benefit multiplier, salary averaging period, retirement age, and employee contribution levels.

For a projection model used for another public system, our model answered what-if questions regarding the asset reserve policy, the amortization period and method, the excess earnings policy provisions, the assumed portfolio returns and salary increase assumptions, along with projections for the actual portfolio returns and the salary increases. Under the base case scenario, where all assumptions were met, the employer contribution rates increased significantly over the first few years as the large deferred asset losses were systematically recognized in the smoothed Actuarial Value of Assets. After that time, the employer contribution rates decreased as a new, lower tier of benefits for new hires began to materially affect the employer contribution rates.

6. Describe bidder's approach for providing Actuarial Experience Studies for public pension funds. Give examples.

Bidder Response:

Experience Studies – Philosophy

Our philosophy in selecting recommendations for assumptions includes:

- **Don't Overreact**. When we see significant changes in experience, we prefer not to fully reflect the entire difference between the old expectations and the new experience. We will generally recommend assumptions that fall somewhere between the old assumptions and the new experience. If the experience persists to the next experience study, then it will be fully reflected at that point. If the experience in the next period reverts to something closer to the prior level, then the client will have avoided causing unnecessary volatility in the contribution rates.
- **Anticipate Trends**. If there is an identified trend that is expected to continue, we believe that it should be recognized. One example of this is the retiree mortality assumption: it is an established trend that people are living longer. Therefore, it is best to reflect this through an explicit assumption for future mortality improvement. Please see below for additional information regarding our perspective on the use of generational mortality tables.
- **Simplify**. Where there is no material difference in results, we attempt to simplify our assumptions and methods. There is no point in adding complexity if it does not improve accuracy.

Experience Studies – Approach

Milliman's experience study for NPERS will be customized to consider the employee groups covered, specific benefit provisions, and differences between the participating employers.

A typical experience investigation consists of the following steps:

- Preplanning and preparation
- Data analysis
- Comparison of actual to expected decrements (e.g., deaths, disabilities, retirements, etc.)
- Review of other demographic assumptions
- Analysis of economic assumptions
- Review of actuarial methods (cost method, asset smoothing method, amortization method)
- Estimate of the cost impact of recommendations for changes in assumptions or methods

- Preparation of comprehensive report summarizing our results
- Presentation of results to the PERB

Using reasonable actuarial assumptions in the actuarial valuation is of critical importance to long-term system funding and system sustainability. There are two broad categories of actuarial assumptions: (1) demographic assumptions and (2) economic assumptions. The demographic assumptions tend to be based upon plan-specific data, with the exception of assumptions regarding future mortality improvement, which may rely predominantly on large data sets over long time periods such as data available from the Social Security Administration. Economic assumptions are based upon forward-looking expectations for the national and global economy.

After completion of an experience study, we monitor the material assumptions annually through the gain/loss analysis we prepare as part of the valuation process. We examine each primary assumption separately and compare what has happened since the prior valuation relative to what we expected to see based on the actuarial assumption. We also review the pattern of changes over several years. Trends of consistent gains or losses may emerge that indicate a certain assumption should be studied further and potentially modified.

Assumptions are reviewed annually, although a full analysis of the demographic assumptions is usually only completed in experience study years. Therefore, it is rare for us to recommend changes to the demographic assumptions outside of the five-year period.

Experience Studies – Process

Experience studies only occur periodically (at least every five years for NPERS) and the experience studies can cover a broad range of topics. As a result, we believe it is important to spread the experience study discussion with the PERB over a series of meetings.

For the next NPERS experience study, we recommend the following Board presentation schedule:

1. **First Meeting**: Education session for the PERB on the experience study process and present preliminary findings for the economic assumptions, especially the investment return assumption. The discussion of the investment return assumption would incorporate the perspectives of the NPERS investment staff and investment consultants.
2. **Second Meeting**: Preliminary findings for the demographic assumptions and potential cost impact of certain assumption changes.
3. **Third Meeting**: Final package of recommended assumptions presented to the PERB with final adoption of the assumptions by the PERB. As a result of the education session and preliminary discussions at the prior two meetings, there should be good understanding and consensus with the PERB at this point. Once adopted, the new assumptions would be reflected in the subsequent actuarial valuation.

A sample Milliman experience study report is included as ***Appendix E***.

7. Describe bidder’s approach for providing Benefit Adequacy Studies for public pension funds.
Bidder Response: All too often, public pension plan reform initiatives today are driven primarily by the current and projected contribution levels for employers. When this approach is taken, the benefits paid to retirees can be the variable that must change so the projected contributions fall into the necessary range. This lack of intentionality about the level of benefits can lead to benefits that do not support an equitable, dignified retirement and/or unintentionally reward certain groups of plan members. A Benefit Adequacy Study is a great way to take a step back from the analysis on contrition levels and focus on the benefits actually paid to the members of the plans, incorporating the contribution level of plan members to assess whether the benefits provided can support a healthy retirement. The Benefit Adequacy Study will cover six major public employee retirement systems in the State, including the DC plans. The Study will focus on areas such as the value of the benefit, income replacement ratios, comparisons with other retirement systems, and the impact of member contribution rates. Further, the Study will go on to make recommendations or provide alternative options for consideration, where the alternatives will result from a review of benefit adequacy, competitiveness, and cost. We truly believe this study will provide a series of interesting insights into the competitiveness of benefits provided across NPERS plans as well as across the country.
8. Describe bidder’s approach for providing Supplemental Services for public pension funds.
Bidder Response: Supplemental Services, by definition, are not predictable in terms of scope, timing, or intensity. However, when they do occur, it is important that the NPERS actuary is ready to work with NPERS to solve the problems in an efficient, highly responsive manner. Milliman will bring the depth and experience of our consulting team to provide the insights necessary to address the Supplemental Services when they arise. Since these services are definitionally not a standard process, it will be important for Milliman and NPERS to discuss estimated timing and needs at the beginning of the services and then regularly collaborate during the service process to efficiently “course adjust” as necessary. An example of this would be the at-times evolving nature of legislative analysis requests. With one of the largest groups of public sector clients in the U.S., our actuaries and consultants are well-versed in the GASB standards relating to pension, healthcare, and other post-employment benefit (OPEB) arrangements. They consider and analyze the impact of state and local laws on public sector benefit plans, focusing on current and future liabilities. We have developed industry-leading tools and forecasting reports in response to the increased oversight of and attention to public pension plans. Milliman has access firm-wide to these consultants with a very diverse set of specialties that can be invaluable for Supplemental Services. Milliman will provide bring these specialists forward to support NPERS, as needed, when the appropriate Supplemental Services are needed.

9. Describe bidder's experience at providing Legislative Expertise for public pension funds.
Bidder Response: Ryan Falls, Co-Lead Actuary, regularly meets with legislators and regulators in support of actuarial positions for his clients. Prior to joining Milliman, Ryan met with legislators in Texas during the 2021 legislative session in support of a proposal to move new State employees into a cash balance plan, as opposed to a mandatory DC plan as had been previously proposed. Similarly, Ryan met with legislators in Oklahoma during the 2022 legislative session to educate them about the cost impact of transitioning new teachers to a mandatory DC plan, similar to the plan that new Oklahoma State employees were currently being enrolled in, and the legislature decided to maintain the existing plan. Matt Larrabee, Co-Lead Actuary, has testified before state legislative and administrative bodies in support of actuarial positions and/or the principles used in valuing a defined benefit plan or pricing legislation. Matt has worked with Oregon PERS since 2006 and makes presentations in public session to its governing board and to legislative committees on actuarial concepts related to the program. He has also provided deposition, arbitration, and courtroom testimony for various plans, including a Special Master hearing requested by the Oregon Supreme Court for the Oregon PERS program. Since 2013, at least annually Matt has testified in televised public session to the governance entity for Florida Retirement System. Timeliness is also important when working with Legislative groups. Milliman will ensure that requested information is returned within the most appropriate timeline. Other aspects that assist Milliman with these initiatives: ▪ Milliman has contacts throughout governmental and industry bodies that assist us in keeping abreast of current events and position us as a leader on pension policy matters critical to the PERB and NPERS. For example, we actively participate in the following public retirement organizations: – National Association of State Retirement Administrators (NASRA) – National Council on Teacher Retirement (NCTR), where Ryan Falls currently serves on the Corporate Advisory Committee – National Conference on Public Employee Retirement Systems (NCPERS) – International Foundation of Employee Benefits Plans (IFEBP), where Matt Larrabee serves as instructional faculty for its trustee and staff training certificate programs and uses the NPERS dividend structure as part of his teaching curriculum on plan design ▪ To best serve our clients, Milliman can call upon our dedicated Employee Benefits Research Group, whose function is to keep Milliman consultants and clients current on regulatory developments and to lend assistance on specific projects involving new or complex changes in the ▪ Milliman issues Client Action Bulletins for new legislation or IRS rulings and publishes newsletters focused on public sector pension and OPEB plans and general interest employee benefits topics. ▪ Milliman consultants are active in actuarial organizations, stay informed about new developments in the retirement industry, and provide advice to staff on various issues. They also deliver educational seminars on specialized topics and publish periodic newsletters and white papers for public sector clients. All of these resources come together to ensure NPERS has the information necessary to address legislative requests and challenges.

d. Attachment C: Additional Corporate Experience

The completed document follows

ATTACHMENT C

Additional Corporate Experience

Request for Proposal Number 120961 O5

Bidder Name: ___Milliman, Inc.__________________________

Bidders shall complete and submit the Additional Corporate Experience Document to provide Actuarial Services for the Nebraska Public Employees Retirement Systems (NPERS). Bidders are required to describe in detail how their qualifications meet the specifications outlined within each Requirement.

The Additional Corporate Experience Document must indicate how the bidder intends to comply with the requirement and the effort required to achieve that compliance. It is not sufficient for the bidder to simply state that it intends to meet the requirements of the RFP. The State will consider any such response to the requirements in this RFP to be non-responsive. The narrative should provide the State with sufficient information to differentiate the bidder's solution from other bidders' solutions.

CORPORATE OVERVIEW – Additional Corporate Experience (Section VI.A.1.h.iv.)
1. Qualification One: As of December 31, 2024, bidder has a minimum of three (3) public pension fund clients. Please submit a written description of how this qualification is satisfied, including, at a minimum, a list of at least three (3) public pension fund clients for whom the bidder currently provides actuarial consulting services. These descriptions should include: **a)** The time period of the project; **b)** The scheduled and actual completion dates; **c)** The Contractor's responsibilities; **d)** For reference purposes, a customer name (including the name of a contact person, a current telephone number, and e-mail address); and, **e)** Each project description should identify whether the work was performed as the prime Contractor or as a subcontractor. If a bidder performed as the prime Contractor, the description should provide the originally scheduled completion date and budget, as well as the actual (or currently planned) completion date and actual (or currently planned) budget.
Bidder Response: **1. Florida Retirement System** a) Time period of the project: Retained consulting client of Milliman since 1986 b) The scheduled and actual completion dates: Milliman receives data (for July 1 val) in mid-August, preliminary results are presented in October, and final funding report is issued prior to December 1. c) Contractor's responsibilities: Services include valuations, GASB 68 schedule preparation, plan benefit administration assistance including development of benefit calculation software, legislative analysis, and experience studies. Matt Larrabee serves as lead consulting actuary. d) For reference purposes, a customer name (including the name of a contact person, a current telephone number, and e-mail address): Kathy Gould, State Retirement Director +1 850 778 4401 kathy.gould@dms.fl.gov e) Prime or Subcontractor: The work is performed as the prime contractor. The valuation report is regularly delivered on time and the fees charged to the client are consistent with the contractual agreements.

2. Public Employee Retirement System of Idaho

a) Time period of project: Retained consulting client of Milliman since 1970

b) The scheduled and actual completion dates: Milliman receives data (for July 1 val) in early-August, preliminary results are presented in mid-September, and final funding report is issued in mid-October.

c) Contractor's responsibilities: Actuarial valuation, experience analyses, prospective employer studies, various study work, and projection modeling. Milliman has been the PERSI system actuary for over 50 years, performing all tasks expected of a retained actuary.

d) For reference purposes, a customer name (including the name of a contact person, a current telephone number, and e-mail address):

Michael Hampton, Executive Director
+1 208 287 9290
michael.hampton@persi.idaho.gov

e) Prime or Subcontractor: The work was performed as the prime contractor. The work is performed as the prime contractor. The valuation report is regularly delivered on time and the fees charged to the client are consistent with the contractual agreements.

3. Oregon Public Employees Retirement System

a) Time period of project: Retained consulting client of Milliman since 2012

b) The scheduled and actual completion dates: Milliman receives data (for Dec 31 1 val) in May, preliminary results are presented in late-July, and final funding report is issued in September along with 600+ individual employer reports.

c) Contractor's responsibilities: Services include valuations, GASB 68 schedule preparation, plan benefit administration assistance including development of benefit calculation software, legislative analysis, and experience studies. Matt Larrabee serves as lead consulting actuary.

d) For reference purposes, a customer name (including the name of a contact person, a current telephone number, and e-mail address):

Kevin Olineck, Director
+1 503 603 7695
kevin.olineck@pers.oregon.gov

e) Prime or Subcontractor: The work is performed as the prime contractor. The valuation report is regularly delivered on time and the fees charged to the client are consistent with the contractual agreements.

2. Qualification Two:
The bidder has a minimum of five (5) years of experience in providing actuarial consulting services to a public pension fund. This means that the bidder as an organization has been providing actuarial consulting services to a public pension fund for at least five (5) years. This requirement is not satisfied simply because its employees have at least five (5) years' experience in providing actuarial consulting services to a public pension fund. Please submit a written description of how this qualification is satisfied, including, at a minimum, a list of the public pension fund clients for whom the actuarial consulting firm has provided actuarial consulting services for at least five (5) years.

Bidder Response:

Milliman currently serves as the retained actuary for more than 1,000 public pension and healthcare clients of all sizes, from California to Florida and from Texas to Alaska. This includes serving as the retained actuary for seven public retirement system clients with at least 100,000 members, as shown in Table 3 below. The years we have been retained by these clients shows our dedication to client service.

System Name	**First Year of Initial Contract**	**Approximate Asset Size**	**Approximate Number of Participants**
Florida Retirement System	1986	$202 billion	1,045,000
California State Teachers Retirement System (CalSTRS)	1985	$340 billion	965,000
Oregon Public Employees Retirement System	2012	$98 billion	381,000
Texas County & District Retirement System	1999	$46 billion	320,000
Puerto Rico Government Employees Retirement System	2007	$30 billion*	240,000
Los Angeles County Employees Retirement Association (LACERA)	1999	$80 billion	184,000
Public Employee Retirement System of Idaho	1970	$25 billion	160,000

Table 3

* For plans operating on a pay-as-you-go basis, the liability amount is shown in Table 3 above as a proxy for the plan size.

3. Qualification Three:
The bidder's lead consultant on the account must have a minimum of ten (10) years of experience in providing actuarial consulting service to public pension funds. This experience shall include general consulting, experience analysis, and valuation assignments for such funds. This person shall also have experience in testifying before legislative and administrative bodies in support of actuarial positions and the principles used in valuing a public retirement system or pricing legislation, and an ability to discuss in laymen's terms the following: actuarial theory; basis for assumptions; and other actuarial matters. The lead consultant must be a member of the American Academy of Actuaries. Please submit a written description of how this qualification is satisfied, including, at a minimum, a list of the lead consultant's experience in providing actuarial consulting services to public pension funds for at least ten (10) years, and showing past experience at testifying before legislative and administrative bodies.

Bidder Response:

Ryan Falls, Co-Lead Actuary

Ryan Falls, Co-Lead Actuary, joined Milliman's public sector consulting team in April 2023. Ryan has served as the principal actuary and lead consultant for many complex, high-visibility public systems and has more than 25 years of actuarial consulting experience with public retirement systems with memberships of at least 100,000 members.

Since joining Milliman, Ryan supports Milliman's consulting relationship with the Public Employee Retirement System of Idaho (membership of 189,000) and the City of Omaha retirement plans but Ryan does not currently serve as the Lead Actuary in these relationships.

Immediately prior to joining Milliman, Ryan served as the principal actuary and lead consultant for the following retirement systems:

Actuarial Valuation Client	**Membership** (As of last valuation)	**Experience as Lead Actuary**
Employees Retirement System of Texas	437,000	2013-2023
Arizona State Retirement System	661,000	2017-2023
Teachers Retirement System of Oklahoma	205,000	2012-2023
New Mexico Educational Retirement Board	171,000	2012-2023
New Mexico Public Employee Retirement Association	126,000	2022-2023

Table 4

Ryan Falls regularly meets with legislators and regulators in support of actuarial positions for his clients. Prior to joining Milliman, Ryan met with legislators in Texas during the 2021 legislative session in support of a proposal to move new State employees into a cash balance plan, as opposed to the mandatory DC plan as had been previously proposed. Similarly, Ryan met with legislators in Oklahoma during the 2022 legislative session to educate them about the cost impact of transitioning new teachers to a mandatory DC plan, similar to the plan that new Oklahoma State employees were currently being enrolled in, and the legislature decided to maintain the existing plan.

Matt Larrabee, Co-Lead Actuary

Matt Larrabee, Co-Lead Actuary, has over 25 years of experience serving as the principal actuary and lead consultant for several complex, high-visibility public systems. For these clients, he provides pension consulting services, experience analyses, and valuation assignments for public retirement systems with memberships of at least 100,000 including the two clients below.

Actuarial Valuation Client	**Membership** (As of last valuation)	Experience as Principal Actuary
Texas County and District Retirement System	379,000	2021-Current
Florida Retirement System	1,022,000	2013-Current
Oregon Public Employees Retirement System	381,000	2006-Current

Table 5

Matt Larrabee has testified before state legislative and administrative bodies in support of actuarial positions and/or the principles used in valuing a defined benefit plan or pricing legislation. Matt has worked with Oregon PERS since 2006 and makes presentations in public session to its governing board and to legislative committees on actuarial concepts related to the program. He has also provided deposition, arbitration, and courtroom testimony for various plans, including a Special Master hearing requested by the Oregon Supreme Court for the Oregon PERS program. Since 2013, at least annually Matt has testified in televised public session to the governance entity for Florida Retirement System.

4. Qualification Four:
Professional staff assigned to the account shall have a minimum of five (5) years of experience in the field of actuarial science and will include persons with appropriate professional credentials such as Fellow or Associate of Society of Actuaries, and/or Fellow of the Conference of Actuaries in Public Practice, and/or Member of the American Academy of Actuaries, and/or meet standards of a qualified actuary under the provisions of the Employee Retirement Income Security Act of 1974. Please submit a written description of how this qualification is satisfied, including, at a minimum, a list of the professional staffs' experience in providing actuarial consulting services to public pension funds for at least five (5) years, and showing the professional staffs' credentials.

Bidder Response:

Milliman proposes the following client service team, including six credentialed actuaries, to serve on the NPERS team consulting team:

Name **Credentials**	**Proposed Consulting Role for NPERS**	**Years of Actuarial Experience**
Ryan Falls **FSA, EA, MAAA**	Co-Lead Actuary and Primary Point of Contact	25 years
Matt Larrabee **FSA, EA, MAAA**	Co-Lead Actuary	25 years
Ryan Cook **FSA, EA, CERA, MAAA**	Support Actuary	10 years
Danielle McGowan	Lead Analyst	10 years
Delaney McDonough	Analyst	5 years
Kyle Wood **ASA, MAAA**	Analyst	5 years
Nick Collier **ASA, EA, MAAA**	Strategic Advisor and Peer Review Actuary	35 years
Dan Skwire **FSA, MAAA**	Life, Disability, and Leave Expert	35+ years
Brandy Cross **CPC, QPA, QKA**	Defined Contribution Compliance Expert	25 years (non-actuarial)

Table 6

Years of experience noted for the credentialed actuaries are all associated with actuarial consulting services to public pension funds.

e. Deliverables and due dates (Cost Proposal)

The completed Cost Sheet is provided as a separate file. A representative transition and valuation workplan is included earlier in this section of the response.

Appendices

A – Milliman Financial Statements

B – Staff Resumes

C – Sample Valuation Report

D – Sample GASB 67 Report

E – Sample Experience Study Report

F – Financial Modeling

Appendix A – Milliman Financial Statements

Wells Fargo Bank, N.A.
Bellevue Commercial Banking
205 108th Ave. N.E.
Suite 500 – Mailbox #5
Bellevue, WA 98004

wellsfargo.com

March 11th, 2025

RE: Milliman, Inc.

To Whom it May Concern,

At the request of our customer, Milliman, Inc., this letter is a reference letter from Wells Fargo Bank, N.A. Wells Fargo and predecessor banks have an ongoing relationship with Milliman, Inc., that dates back more than 68 years. We maintain a positive working relationship with Milliman, Inc., and hold the company in high regard.

The bank provides a number of financial products and services to Milliman, Inc., including credit, cash management and investments. The credit provided to Milliman, Inc. includes a line of credit commitment of over $100MM to support working capital and liquidity needs.

Please call with any questions, 425-559-3484.

Sincerely,

Patrick Schuppert
Executive Director, Wells Fargo Bank N.A.

Report of Independent Auditors
and Consolidated Financial Statements

Milliman, Inc.

December 31, 2023 and 2022

MOSSADAMS

Table of Contents

MOSSADAMS

Report of Independent Auditors

The Shareholders
Milliman, Inc.

Report on the Audit of the Financial Statements

Opinion

We have audited the consolidated financial statements of Milliman, Inc., which comprise the consolidated balance sheets as of December 31, 2023 and 2022, and the related consolidated statements of operations, comprehensive income (loss), changes in shareholders' equity, and cash flows for the years then ended, and the related notes to the consolidated financial statements.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the financial position of Milliman, Inc., as of December 31, 2023 and 2022, and the results of its operations and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audits in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of Milliman, Inc., and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audits. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Financial Statements

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

In preparing the consolidated financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about Milliman, Inc.'s ability to continue as a going concern within one year after the date that the consolidated financial statements are available to be issued.

Auditor's Responsibilities for the Audit of the Financial Statements

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

In performing an audit in accordance with GAAS, we:

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

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

Moss Adams LLP

Seattle, Washington
April 25, 2024

Consolidated Financial Statements

Milliman, Inc.
Consolidated Balance Sheets
December 31, 2023 and 2022

	2023	2022
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	$ 69,967,486	$ 72,917,203
Income tax receivable	5,843,000	4,206,000
Receivables and unbilled revenue		
Client receivables	209,381,353	173,450,097
Unbilled revenue and client advances	158,046,989	150,878,262
Related-party advances	260,712	346,675
Less allowance for credit losses	(60,500,000)	(55,500,000)
Total receivables and unbilled revenue, net	307,189,054	269,175,034
Prepaid expenses, deposits, and other current assets	22,190,342	19,284,369
Total current assets	405,189,882	365,582,606
PROPERTY AND EQUIPMENT, net	55,849,522	50,192,370
OPERATING LEASE RIGHT-OF-USE ASSETS	139,316,530	150,990,326
INTANGIBLE ASSETS, net	2,331,134	2,898,031
GOODWILL, net	10,973,792	12,400,197
OTHER ASSETS		
Investments	155,096	576,409
Long-term deposits	3,950,175	3,523,089
Total other assets	4,105,271	4,099,498
	$ 617,766,131	$ 586,163,028

See accompanying notes.

Milliman, Inc.
Consolidated Balance Sheets
December 31, 2023 and 2022

	2023	2022
LIABILITIES AND SHAREHOLDERS' EQUITY		
CURRENT LIABILITIES		
Accounts payable and accrued liabilities	$ 146,125,279	$ 133,109,551
Current portion of notes payable under lines of credit and long-term debt	-	99,524,000
Cash disbursements in excess of deposits	-	29,290,133
Current portion of operating lease liabilities	27,724,927	25,005,871
Deferred revenue	45,183,337	43,812,370
Total current liabilities	219,033,543	330,741,925
NOTES PAYABLE UNDER LINES OF CREDIT AND LONG-TERM DEBT, net of current portion	158,237,662	-
DEFERRED INCOME TAX LIABILITIES	14,116,000	15,526,000
OPERATING LEASE LIABILITES, net of current portion	149,930,547	161,047,962
Total liabilities	541,317,752	507,315,887
COMMITMENTS AND CONTINGENCIES (Notes 9 and 13)		
SHAREHOLDERS' EQUITY		
Milliman, Inc. shareholders' equity		
Class A voting common stock, $40 par value, 20,000 shares authorized, 12,410 and 11,970 shares issued and outstanding	496,400	478,800
Class B nonvoting common stock, $40 par value, 20,000 shares authorized, 7,900 and 7,500 shares issued and outstanding	316,000	300,000
Class C nonvoting common stock, $40 par value, 400 shares authorized, 0 and 0 shares issued and outstanding	-	-
Additional paid-in capital	3,249,600	3,115,200
Retained earnings	74,865,214	76,902,681
Accumulated other comprehensive loss	(3,646,847)	(3,140,571)
Total Milliman, Inc. shareholders' equity	75,280,367	77,656,110
Noncontrolling interest	1,168,012	1,191,031
	76,448,379	78,847,141
	$ 617,766,131	$ 586,163,028

See accompanying notes.

Milliman, Inc.
Consolidated Statements of Operations
Years Ended December 31, 2023 and 2022

	2023	2022
OPERATING REVENUES	$ 1,577,176,161	$ 1,467,437,054
OPERATING EXPENSES	1,588,994,840	1,490,206,919
OPERATING LOSS	(11,818,679)	(22,769,865)
GAIN ON SALE OF OPERATING UNIT	8,500,000	-
OTHER INCOME, net	2,183,610	121,558
LOSS FROM EQUITY METHOD INVESTEE	(8,817)	(8,197)
LOSS FROM OPERATIONS BEFORE INCOME TAX (EXPENSE)	(1,143,886)	(22,656,504)
INCOME TAX (EXPENSE) BENEFIT	(751,000)	9,191,000
LOSS FROM OPERATIONS	(1,894,886)	(13,465,504)
LESS LOSS ATTRIBUTABLE TO NONCONTROLLING INTEREST	23,019	58,056
LOSS ATTRIBUTABLE TO MILLIMAN, INC.	$ (1,871,867)	$ (13,407,448)

See accompanying notes.

Milliman, Inc.
Consolidated Statements of Comprehensive Loss
Years Ended December 31, 2023 and 2022

	2023	2022
NET LOSS	$ (1,894,886)	$ (13,465,504)
OTHER COMPREHENSIVE LOSS		
Foreign currency translation adjustment	(506,276)	(1,525,238)
COMPREHENSIVE LOSS	$ (2,401,162)	$ (14,990,742)

See accompanying notes.

Milliman, Inc.
Consolidated Statements of Changes in Shareholders' Equity
Years Ended December 31, 2023 and 2022

	Class A Number of Shares	Class A Common Stock	Class B Number of Shares	Class B Common Stock	Additional Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Noncontrolling Interest	Total
BALANCE, December 31, 2021	11,770	$ 470,800	7,500	$ 300,000	$ 3,083,200	$ 90,464,353	$ (1,615,333)	$ 1,249,087	$ 93,952,107
Net loss	-	-	-	-	-	(13,407,448)	-	(58,056)	(13,465,504)
Foreign currency translation adjustment	-	-	-	-	-	-	(1,525,238)	-	(1,525,238)
Stock issued	1,180	47,200	650	26,000	292,800	-	-	-	366,000
Stock repurchased	(980)	(39,200)	(650)	(26,000)	(260,800)	-	-	-	(326,000)
Dividends paid ($8 per share)	-	-	-	-	-	(154,224)	-	-	(154,224)
BALANCE, December 31, 2022	11,970	478,800	7,500	300,000	3,115,200	76,902,681	(3,140,571)	1,191,031	78,847,141
Net loss	-	-	-	-	-	(1,871,867)	-	(23,019)	(1,894,886)
Foreign currency translation adjustment	-	-	-	-	-	-	(506,276)	-	(506,276)
Stock issued	1,100	44,000	800	32,000	304,000	-	-	-	380,000
Stock repurchased	(660)	(26,400)	(400)	(16,000)	(169,600)	-	-	-	(212,000)
Dividends paid ($8 per share)	-	-	-	-	-	(165,600)	-	-	(165,600)
BALANCE, December 31, 2023	12,410	$ 496,400	7,900	$ 316,000	$ 3,249,600	$ 74,865,214	$ (3,646,847)	$ 1,168,012	$ 76,448,379

See accompanying notes.

Milliman, Inc.
Consolidated Statements of Cash Flows
Years Ended December 31, 2023 and 2022

	2023	2022
CASH FLOWS FROM OPERATING ACTIVITIES		
Net loss	$ (1,894,886)	$ (13,465,504)
Adjustments to reconcile net loss to net cash provided by operating activities		
Depreciation and amortization	19,032,884	11,454,412
Noncash lease expense	28,290,559	64,094,330
Deferred income taxes	(1,410,000)	(9,504,000)
Change in allowance for credit losses	5,000,000	2,500,000
Gain on sale of operating unit	(8,500,000)	-
Loss on disposals of property and equipment	83,371	393,296
Loss from equity method investee	8,817	8,197
Cash provided by (used in) changes in operating assets and liabilities		
Receivables and unbilled revenue	(43,014,020)	(17,801,717)
Prepaid expenses, deposits, and other current assets	(2,905,973)	(1,194,147)
Income taxes receivable/payable	(1,637,000)	(4,787,000)
Long-term deposits	(427,086)	(851,463)
Accounts payable and accrued liabilities	13,015,728	(10,863,087)
Deferred revenue	1,370,967	7,681,673
Operating lease liabilities	(25,015,122)	(29,030,823)
Deferred rent	-	(11,971,170)
Net cash used in operating activities	(18,001,761)	(13,337,003)
CASH FLOWS FROM INVESTING ACTIVITIES		
Purchases of property and equipment	(22,780,105)	(13,941,231)
Net cash received for sale of operating unit	8,500,000	-
Purchases of intangible assets and goodwill	-	(6,000,000)
Investments and advances	412,496	(3,960)
Net cash used in investing activities	(13,867,609)	(19,945,191)
CASH FLOWS FROM FINANCING ACTIVITIES		
Proceeds from notes payable and long-term debt	458,425,863	309,986,381
Payments on notes payable and long-term debt	(399,712,201)	(297,085,332)
Proceeds from issuance of common stock	380,000	366,000
Repurchase of common stock	(212,000)	(326,000)
Cash disbursements in excess of deposits	(29,290,133)	28,888,361
Dividends paid	(165,600)	(154,224)
Net cash from financing activities	29,425,929	41,675,186
EFFECTS OF FOREIGN CURRENCY TRANSLATION ON CASH	(506,276)	(1,525,238)
NET CHANGE IN CASH AND CASH EQUIVALENTS	(2,949,717)	6,867,754
CASH AND CASH EQUIVALENTS		
Beginning of year	72,917,203	66,049,449
End of year	$ 69,967,486	$ 72,917,203
NONCASH INVESTING AND FINANCING ACTIVITIES		
Right-of-use assets obtained in exchange for lease liabilities	$ 16,616,763	$ 215,084,656

See accompanying notes.

Note 1 – Organization and Summary of Significant Accounting Policies

Organization – Milliman, Inc. (the Company), is an international company that provides consulting, actuarial, and allied services, including calculation of insurance risks and premiums in the areas of life insurance, property and casualty insurance, employee benefits, and healthcare. The Company was incorporated in the state of Washington in 1957.

Principles of consolidation – The consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries. All material intercompany balances and transactions have been eliminated in consolidation.

Cash and cash equivalents – The Company considers all highly liquid investments purchased with an original maturity of three months or less to be cash equivalents.

Revenue recognition – The Company generates the majority of its revenues from providing professional services under two types of billing arrangements: time-and-expense and fixed-fee. The Company's contracts with customers for professional services typically consist of a single performance obligation, as the services provided are highly integrated within the context of the contracts. Revenue is recognized when evidence that an arrangement exists, the related services have been provided, the price is fixed or determinable, and collectability is reasonably assured. If, at the outset of an arrangement, management determines that the arrangement fee is not fixed or determinable, revenue is deferred until all criteria for recognizing revenue are met. Provisions are recorded for the estimated realization adjustments on all engagements. Invoices are typically presented monthly as work progresses or based on pre-established milestones and are due in 30 days.

Time-and-expense billing arrangements require the client to pay based on the number of hours worked by revenue-generating professionals at contractually agreed-upon rates. The Company recognizes revenues for professional services rendered under time-and-expense engagements based on the hours incurred at agreed-upon rates as work is performed. In some cases, time-and-expense arrangements are subject to a cap, in which case management assesses the work performed on a periodic basis to ensure that the cap has not been exceeded.

In fixed-fee billing arrangements, a pre-established fee is agreed to for the engagement of specified professional services. These contracts are for varying periods and generally permit the client to cancel the contract before the end of the term. Revenues are recognized over time as the services are performed.

The Company recognizes revenues for professional services performed under fixed fee billing arrangements on a monthly basis over the specified contract term or, in certain cases, revenue is recognized on the proportional performance method of accounting based on the estimated percentage of completion for the engagement. The estimated percentage of completion is based on labor hours incurred as a percentage of total estimated labor hours for the contract.

Reimbursed expenses, which include travel, out-of-pocket expenses, outside consultants, and other similar costs, are generally included in revenues, and an equivalent amount of reimbursable expenses is included in costs of services in the period in which the expense is incurred.

The Company also generates revenue through the following: (1) cloud-based subscription revenue, which allows clients to use hosted software over the contract period without taking possession of the software, consists of subscription fees from customers utilizing the Company's software, and give clients access to the ordered subscription service, related support, and updates, if any, to the subscribed service; (2) consulting services related to the hosted software arrangements, which consist of fees associated with implementation, data migration, training, and other services, plus reimbursable expenses; and (3) revenue for software license fees where customers take physical possession of the software license when it is installed onsite and the related installation and training related to the software license. Revenue for cloud-based subscription revenue and consulting services related to the hosted software arrangements consist of multiple performance obligations as further discussed below. Revenue for software license fees, installation, and training consist of one performance obligation, as the services provided are highly integrated within the context of the contracts. Revenue for software licenses is generally recognized at a point in time upon billing and revenue for maintenance and support is typically recognized over time as the services are performed.

Multiple performance obligations – The Company's contracts with clients for cloud-based subscription revenue and related consulting services often include promises to transfer multiple products and services. Determining whether products and services are considered distinct performance obligations that should be accounted for separately from one another sometimes requires judgment. Performance obligations are considered distinct if they are both capable of being distinct individually and distinct within the context of the contract. In determining whether performance obligations meet the criteria for being distinct, management considers a number of factors, such as the degree of interrelation and interdependence between obligations, and whether or not the good or service significantly modifies or transforms another good or service in the contract. The cloud-based subscription and consulting services are both determined to be distinct performance obligations and the transaction price is allocated to each performance obligation based on their estimated standalone selling prices. Subscription revenue is recognized over time over the subscription period. The duration of the Company's client contracts varies, but typically range from 12 to 36 months. The transaction price is allocated to consulting services using observable hourly rates and recognized over time using the input method as the services are delivered based on actual hours worked.

Contract costs – Additionally, the Company has evaluated the Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) Topic 340, *Other Assets and Deferred Cost* (Topic 340), which requires companies to defer certain incremental costs to obtain customer contracts, and certain costs to fulfill client contracts. The Company has determined that they incur no significant costs of obtaining client contracts such as commissions and, therefore, the provisions of Topic 340 do not have a significant impact on the Company's consolidated financial statements.

Unbilled revenue and deferred revenue – Unbilled revenue and deferred revenue are considered contract assets and liabilities, respectively. Contract assets represent accumulated charges that have not been billed as of year-end. Such amounts are reclassified to accounts receivable when billed under the terms of the contract. Contract liabilities consist of deferred revenue. Deferred revenue consists of prepayments of software maintenance contracts and amounts collected from clients in advance of services provided. The revenue is recognized as the related performance obligations are satisfied. Contract assets and liabilities are reported in a net position on a contract-by-contract basis at the end of each reporting period. There were no substantial noncurrent contract assets or liabilities for the periods presented.

The Company has the following contract assets and liabilities related to ASC 606:

	December 31, 2023	December 31, 2022	January 1, 2022
Contract assets - unbilled revenue	$ 158,046,989	$ 150,878,262	$ 151,682,487
Contract liabilities - deferred revenue	$ 45,183,337	$ 43,812,370	$ 36,130,697

Receivables – Client receivables consist of billed amounts due from clients. Management determines the allowance for credit losses by identifying troubled accounts and by using historical experience applied to an aging of accounts. Management also evaluates the current economic conditions and business environment to determine if future credit losses may differ from historical experience and therefore require a larger allowance for credit losses. Client receivables and unbilled revenue are written off when determined to be uncollectible and recoveries of amounts previously written off are reported as income when received.

Property and equipment – Property and equipment are stated at cost, net of accumulated depreciation and amortization. Leasehold improvements are amortized utilizing the straight-line method over the shorter of the estimated useful life of the asset or respective lease term. The Company provides for depreciation of property and equipment, using the double-declining balance method over the following estimated useful lives:

Computers and electronic equipment	5 years
Telephone equipment	5 years
Office furniture	7 years

Intangible assets – Intangible assets represent customer lists and are amortized over periods from 3 to 20 years from the date of acquisition.

Goodwill – The Company adheres to the accounting alternative provided by FASB Accounting Standards Update (ASU) No. 2014-02, *Intangibles-Goodwill and Other (Topic 350): Accounting for Goodwill (a consensus of the Private Company Council)*.

Goodwill represents the difference between the purchase price of an acquired business and the fair value of the identifiable tangible and intangible net assets acquired. Under the accounting alternative, goodwill is amortized on a straight-line basis over 10 years and assessed for impairment if an event or circumstances indicate that the fair value of the entity may be less than its carrying amount. A goodwill impairment loss is recognized to the extent the carrying amount of the entity including goodwill exceeds its fair value. There was no impairment of goodwill during 2023 or 2022.

Impairment of long-lived assets – In accordance with accounting principles generally accepted in the United States of America (GAAP), long-lived assets, such as property and equipment, intangible assets, and other assets, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable.

Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future cash flows, an impairment charge is recognized in the amount by which the carrying amount of the asset exceeds the fair value of the asset. There were no impairments of long-lived assets during the years ended December 31, 2023 and 2022.

Investments – Investments consist of equity method investments where the Company is considered to have significant influence (generally greater than 20% ownership of the investee's equity), but not control, and are carried at the cost of acquisition plus the Company's equity in undistributed earnings or losses since acquisition.

Claims loss reserve – The Company receives professional liability insurance coverage through policies written directly and through reinsurance arrangements for amounts in excess of a self-insured retention layer. Actual costs for outstanding claims may vary from estimates based on trends of losses for filed claims and claims estimated to be incurred but not yet filed. Estimated losses and costs of these self-insurance programs are accrued based on management's best estimate of the Company's exposure. The recorded claims loss reserve liability was $16,000,000 and $12,000,000 at December 31, 2023 and 2022, respectively. This amount is included in accounts payable and accrued liabilities on the consolidated balance sheets (see Note 7).

Income taxes – The Company is a cash-basis taxpayer and accounts for income taxes using an asset and liability approach that requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of temporary differences between the financial statement and tax basis of assets and liabilities at the applicable enacted tax rates. A valuation allowance is provided when it is more likely than not that some portion or all of the deferred tax assets will not be realized. The Company evaluates the realizability of its deferred tax assets by assessing its valuation allowance and by adjusting the amount of such allowance, if necessary.

The Company recognizes the tax benefits from uncertain tax positions only if it is more likely than not that the tax positions will be sustained on examination by the tax authorities, based on the technical merits of the position. The tax benefit is measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement.

Translation of foreign currencies – Assets and liabilities of foreign subsidiaries are translated to U.S. dollars at the year-end exchange rate; income and expenses are translated at the average exchange rates for the year. The related translation adjustments are reflected in the foreign currency translation line of the consolidated statements of changes in shareholders' equity and statements of comprehensive loss.

Retained earnings – Included in retained earnings is undistributed capital of active equity principals, net of taxes. Future distributions of retained earnings are dependent upon board approval, future cash collections, and are restricted by current debt covenants (see Note 8).

Concentration of credit risk – Financial instruments that potentially subject the Company to concentrations of credit risk consist primarily of cash and cash equivalents, client receivables, and unbilled revenue. Cash and cash equivalents consist of deposits and money market funds. Concentrations of credit risk with respect to client receivables and unbilled revenue are limited, as the Company has a large number of clients that are dispersed across many industries and geographic areas. The Company monitors concentrations of credit risk with respect to accounts receivable by performing credit evaluations on customers and, at times, will request retainers.

Approximately 88% of the Company's revenues were generated by its United States–based operations from a diverse client base during 2023 and 2022.

Sales and value-added taxes – The Company presents taxes collected from customers and remitted to governmental authorities on a net basis within the consolidated statements of operations.

Use of estimates – The preparation of financial statements in accordance with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts in the consolidated financial statements and the accompanying notes. Actual results could differ from those estimates.

Recent accounting pronouncement – In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*, which introduced an expected credit loss methodology for the measurement and recognition of credit losses on most financial assets, including trade accounts receivable, contract assets, and financial instruments at amortized cost. The expected credit loss methodology under ASU 2016-13 is based on historical experience, current conditions, reasonable and supportable forecasts, and replaces the probable/incurred loss model for measuring and recognizing expected credit losses under current US GAAP. The ASU also requires disclosure of information regarding how a company developed its allowance, including changes in the factors that influenced management's estimate of expected credit losses and the reasons for those changes. The ASU and its related clarifying updates are effective for fiscal years beginning after December 15, 2022, and interim periods within those fiscal years, with early adoption permitted. The Company adopted the standard on January 1, 2023, and the adoption did not have a significant impact on the consolidated financial statements.

Leasing arrangements – In the ordinary course of business, the Company enters into a variety of operating lease arrangements. Transactions give rise to leases when the Company receives substantially all the economic benefits from and has the ability to direct the use of specified property and equipment. The Company determines if an arrangement contains a lease at the inception date. An arrangement contains a lease if it implicitly or explicitly identifies an asset to be used and conveys the right to control the use of the identified asset in exchange for consideration. Leases are to be classified as finance or operating at the lease commencement date, which affects the classification of expense recognition in the income statement. Right-of-use (ROU) assets represent the right to use an underlying asset for the lease term, and lease liabilities represent the obligation to make lease payments, as agreed to in the lease.

Operating lease liabilities and the corresponding ROU assets are recognized based on the present value of the future minimum lease payments over the expected remaining lease term. For this purpose, the Company considers only payments that are fixed and determinable at the time of commencement. An operating ROU asset is measured as the amount of the initial measurement of the lease liability, adjusted for prepaid or accrued lease payments, the remaining balance of any lease incentive received, unamortized initial direct costs, and any impairment of the ROU asset. The initial measurement of the lease liabilities and ROU assets of finance leases is the same as for operating leases.

As the Company’s leases do not provide an implicit interest rate, the Company utilizes the nonpublic business entity alternative to use the risk-free rate over a similar term of the lease payments at commencement date to determine the present value of lease payments. Lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Lease expense for operating leases is recognized on a straight-line basis over the lease term as part of operating expenses.

The Company evaluates the carrying value of ROU assets for indicators of impairment and performs an analysis of the recoverability of the related asset group. If the carrying value of the asset group is determined to be in excess of the estimated fair value, the Company will record an impairment loss in the consolidated statements of operations. Additionally, the Company reviews the carrying value of the ROU assets for impairment when events or changes in circumstances indicate that the carrying values may not be recoverable, require reassessment of the leases, and remeasurement, if needed.

Subsequent events – Subsequent events are events or transactions that occur after the consolidated balance sheet date but before the consolidated financial statements are available to be issued. The Company recognizes in the consolidated financial statements the effects of all subsequent events that provide additional evidence about conditions that existed at the date of the consolidated balance sheet, including the estimates inherent in the process of preparing the consolidated financial statements. The Company’s consolidated financial statements do not recognize subsequent events that provide evidence about conditions that did not exist at the date of the consolidated balance sheet but arose after the consolidated balance sheet date and before the consolidated financial statements are available to be issued.

The Company has evaluated subsequent events through April 25, 2024, which is the date the consolidated financial statements were available to be issued.

Note 2 – Prepaid Expenses, Deposits, and Other Current Assets

Prepaid expenses, deposits, and other current assets consist of the following at December 31:

	2023	2022
Prepaid insurance	$ 10,516,513	$ 9,976,490
Deposits and other assets	11,673,829	9,307,879
	$ 22,190,342	$ 19,284,369

Note 3 – Property and Equipment

Property and equipment consist of the following at December 31:

	2023	2022
Furniture and equipment	$ 68,915,086	$ 70,465,174
Leasehold improvements	81,208,427	65,552,530
Construction in progress	682,803	3,356,603
	150,806,316	139,374,307
Accumulated depreciation and amortization	(94,956,794)	(89,181,937)
Property and equipment, net	$ 55,849,522	$ 50,192,370

Depreciation and amortization expense was $17,039,580 and $9,273,179 for 2023 and 2022, respectively.

Note 4 – Intangible Assets

The following table reflects changes in the net carrying amount of the customer lists for the years ended December 31:

	2023	2022
Gross carrying amount	$ 15,547,970	$ 15,547,970
Accumulated amortization	(13,216,836)	(12,649,939)
Customer lists, net	$ 2,331,134	$ 2,898,031

Aggregate amortization expense for customer lists was $566,897 and $621,897 for 2023 and 2022, respectively. Weighted average remaning life of intangible assets as of December 31, 2023 and 2022, was 4.33 years and 5.26 years, respectively.

The Company expects amortization expense for each year to be as follows:

2024	$ 539,397
2025	539,397
2026	539,397
2027	471,837
2028	241,106
	$ 2,331,134

Note 5 – Goodwill

Goodwill consists of the following at December 31:

	2023	2022
Gross carrying amount	$ 20,578,254	$ 20,578,254
Accumulated amortization	(9,604,462)	(8,178,057)
Goodwill, net	$ 10,973,792	$ 12,400,197

Aggregate amortization expense for goodwill was $1,426,405 and $1,559,336 for the years ended December 31, 2023 and 2022, respectively. Weighted average remaning life of goodwill as of December 31, 2023 and 2022, was 7.71 years and 8.68 years, respectively.

The Company expects goodwill amortization expense for each year to be as follows:

2024	$ 1,426,405
2025	1,426,405
2026	1,426,405
2027	1,426,405
2028	1,426,405
Thereafter	3,841,767
	$ 10,973,792

Note 6 – Investments

Professional Consultants Insurance Company, Inc. – Professional Consultants Insurance Company, Inc. (PCIC), was organized in 1987 as a captive insurance company under the laws of the state of Vermont. Through June 30, 2010, PCIC provided professional liability insurance on a claims-made basis to a group of actuarial and management consulting firms, all of which participated in the program as both policyholders and shareholders.

PCIC ceased issuing insurance policies effective July 1, 2010, based on an election by the shareholders to liquidate PCIC. Therefore, during 2023 and 2022, the Company paid no insurance premiums to PCIC. Accordingly, the Company began obtaining other insurance coverage at that time and has chosen to have a larger self-insured retention than it had under the previous structure. PCIC has been placed in run-off mode, and once all remaining claims are resolved, any residual assets will be distributed to the shareholders.

The Company's ownership interest in PCIC was 27.13% as of December 31, 2023 and 2022. The investment balance at December 31, 2023 and 2022, was $1,011,717 and $1,020,534, respectively, and is recorded in other assets on the consolidated balance sheets.

The Company accounts for its investment in PCIC as an equity-method investment. The Company's proportionate share of PCIC's net loss was $(8,817) and $(8,197) in 2023 and 2022, respectively, and these amounts are included in income from equity method investee in the accompanying consolidated statements of operations.

MBWL International – The Company entered into a joint venture in April 2017 with Barnett Waddingham and Lurse, UK and Germany–based providers of actuarial services, administration, and consultancy services. The investment was in a deficit position of $907,079 and $494,851 as of December 31, 2023 and 2022, respectively. The Company's share of the joint venture results is included in other assets on the accompanying consolidated balance sheets.

Note 7 – Accounts Payable and Accrued Liabilities

Accounts payable and accrued liabilities consist of the following at December 31:

	2023	2022
Accounts payable	$ 33,000,000	$ 34,000,000
Accrued profit sharing	41,263,184	37,241,608
Accrued vacation	24,219,506	21,257,518
Accrued bonuses	20,065,874	17,755,514
Sales and value-added taxes	4,603,664	3,908,544
Claims loss reserve	16,000,000	12,000,000
Other	6,973,051	6,946,367
	$ 146,125,279	$ 133,109,551

Note 8 – Notes Payable under Lines of Credit and Long-Term Debt

The Company has a line of credit that provides for maximum borrowings of $120,000,000 at a Base Rate of the highest of (a) the Prime Rate, (b) the Federal Funds Rate plus 0.50% and (c) Daily Simple Secured Overnight Financing Rate in effect on such day plus 1.00%, as stipulated in the agreement, with a maturity date no later than January 24, 2026. This line has variable limitations on borrowings and is reserved for undrawn letters of credit totaling $476,000 (see Note 12). Outstanding borrowings on this line at December 31, 2023 and 2022, were $114,083,123 and $99,524,000, respectively. In 2023 the Company also entered into a EUR credit agreement with a maximum borrowing of €55,000,000 and a Term Rate equal to the Euro Interbank Offered Rate (EURIBOR) plus a maximum applicable margin of 1.15%, as stipulated in the agreement, with a maturity date no later than January 20, 2026. Outstanding borrowings on this line at December 31, 2023 were $44,154,539. The full balance of these borrowings are presented as long term in accordance with the January 24, 2026 maturity date.

The Company's credit agreements require that the Company maintain certain minimum financial ratios.

Note 9 – Leasing Activities

The Company leases office space in various cities around the world under noncancelable operating leases with terms expiring through June 30, 2037. Where lease agreements contain an option to extend or terminate the term, the Company has included the exercise of the option only when there is reasonable certainty that the option would be exercised. Many of the Company's office space leases include escalating rent payments throughout the term of the leases.

The weighted-average discount rate was approximately 1.93% and 1.81% for the years ended December 31, 2023 and 2022, respectively. The remaining lease term for operating leases as of December 31, 2023 and 2022, was approximately 7.53 years and 8.13 years, respectively.

Maturities of lease liabilities under noncancelable operating leases for the 12-month periods ending December 31 are as follows:

2024	$ 30,826,360
2025	30,394,622
2026	28,671,721
2027	24,174,650
2028	16,573,410
Thereafter	62,125,403
Total lease payments	192,766,166
Less present value discount	(15,110,692)
Total operating lease liabilities	177,655,474
Less current portion	27,724,927
Long-term operating lease liabilities, net of current portion	$ 149,930,547

Total rent expense, inclusive of short-term and long-term leases, for the years ended December 31, 2023 and 2022, was approximately $23,000,000 and $47,000,000, respectively. Cash paid for amounts included in the measurement of operating lease liabilities was approximately $29,000,000 and $30,000,000 for the years ended December 31, 2023 and 2022, respectively.

Note 10 – Income Taxes

The significant temporary differences between the consolidated financial statements and tax basis of assets and liabilities are associated with client receivables and unbilled revenue, accounts payable, accrued liabilities, deferred revenue, deferred compensation, net operating losses, and depreciation of property and equipment.

Deferred tax assets and liabilities are recorded net of valuation allowances of approximately $3,906,000 and $3,514,000 at December 31, 2023 and 2022, respectively, and consist of the following:

	Total
December 31, 2023	
Deferred tax assets	$ 69,387,000
Deferred tax liabilities	(83,503,000)
Net deferred income tax liability	$ (14,116,000)
December 31, 2022	
Deferred tax assets	$ 51,774,000
Deferred tax liabilities	(67,300,000)
Net deferred income tax liability	$ (15,526,000)

For primarily all deferred tax assets, no valuation allowance is deemed necessary, based upon the estimated future taxable income from the reversal of existing temporary differences. The Company does have a valuation allowance related to certain foreign net operating losses that began to expire in 2020.

The components of income tax expense (benefit) were as follows:

	2023	2022
Current	$ 2,161,000	$ 313,000
Deferred	(1,410,000)	(9,504,000)
	$ 751,000	$ (9,191,000)

A reconciliation between the income tax provision at statutory rates and the recorded provision is as follows for the years ended December 31:

	2023	2022
Income tax provision at statutory rate	$ (240,000)	$ (4,757,000)
Permanent differences	2,508,000	781,000
True-up related to foreign operations	(2,953,000)	(4,494,000)
Valuation allowance	392,000	(974,000)
State tax provision, net of federal provision	(52,000)	(1,030,000)
Change in state effective rate	1,096,000	1,283,000
	$ 751,000	$ (9,191,000)

The Company had no liability for uncertain tax positions as of December 31, 2023 and 2022. The Company recognizes interest accrued and penalties related to uncertain tax positions as a component of tax expense. During the years ended December 31, 2023 and 2022, the Company recognized no interest and penalties.

The Company files income tax returns in the U.S. federal jurisdiction and various state jurisdictions.

Note 11 – Deferred Revenue

Deferred revenue consists of the following at December 31:

	2023	2022
Prepayments of licensing fees and maintenance contracts	$ 13,391,116	$ 12,770,071
Amounts collected from customers in advance of services provided	31,792,221	31,042,299
	$ 45,183,337	$ 43,812,370

Note 12 – Letters of Credit

Letters of credit – The Company has one outstanding letter of credit, totaling $476,000, under an existing line-of-credit facility to guarantee payment in the event the Company fails to meet its financial obligation to the beneficiaries. During 2023, there were no events of default that would require satisfaction of the guarantees described above.

Note 13 – Commitments and Contingencies

Contingent payments – The Company periodically acquires business from external entities and typically agrees to pay the seller a percentage of revenues or profits generated from future services for a specific time period. Future liabilities for potential earnouts, considered to be material to the consolidated financial statements as a whole, have been reflected within accounts payable and accrued liabilities on the consolidated balance sheets.

The Company may also agree to pay retiring equity principals a percentage of revenue earned from those equity principals' former client base after retirement. At December 31, 2023, there were several agreements in place to pay a percentage of future revenues earned to retired equity principals, with the last expiration date for payment being December 2033. During 2023 and 2022, the Company made payments to the retired equity principals of $50,126,504 and $50,600,566, respectively.

Legal matters – The Company is involved from time to time in claims, proceedings, and litigation arising from its business. The Company does not believe that any such claims, proceedings, or litigation, either alone or in the aggregate, will have a material adverse effect on the Company's financial position or results of its operations.

Note 14 – Profit-Sharing Plan

The Company has a non-discriminatory, defined contribution profit-sharing plan (the Plan) for U.S. employees. Contributions to the Plan are discretionary and are determined annually by the Board of Directors of the Company. Participants are also allowed to make voluntary contributions, to which the Company matches 50% thereof, up to a certain percentage of an employee's annual salary. During 2023 and 2022, the Company's expense related to the Plan was approximately $53,000,000 and $48,000,000, respectively.

Note 15 – Supplemental Cash Flow Information

Cash paid for interest during 2023 and 2022 was $4,592,224 and $1,554,977, respectively. The Company made income tax payments of $500,000 and $2,000,000 during 2023 and 2022, respectively. Noncash purchases of property and equipment included in operating lease liabilities were $14,747,946 and $0 as of December 31, 2023 and 2022, respectively. Non-cash additions to ROU assets made in exchange for lease liabilities were $16,616,763 and $215,084,656 as of December 31, 2023 and 2022, respectively.

Note 16 – Supplemental Operating Expense Information

Operating expenses consist of the following at December 31:

	2023	2022
Employee compensation	$ 928,272,679	$ 874,061,099
Employee benefits	102,978,226	96,818,179
Rent	23,478,903	46,987,419
Depreciation/amortization	19,032,884	11,454,412
Client reimbursable expenses	76,513,026	61,738,879
Other	438,719,122	399,146,931
Total operating expenses	$ 1,588,994,840	$ 1,490,206,919

MOSSADAMS

Appendix B – Staff Resumes

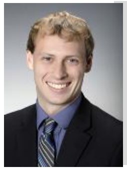
Milliman actuarial services team organization chart

CLIENT LEADERSHIP TEAM

Ryan Falls, FSA,FCA, EA, MAAA
Principal and Consulting Actuary
Co-Lead Actuary and Consultant
✉ ryan.falls@milliman.com

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary
Co-Lead Actuary and Consultant
✉ matt.larrabee@milliman.com

ACTUARIAL SERVICES TEAM



Ryan Cook, FSA, EA, CERA, MAAA
Consulting Actuary
Support Actuary
✉ ryan.cook@milliman.com

Danielle McGowan
Pension Analyst
Lead Analyst
✉ danielle.mcgowan@milliman.com

Delaney McDonough
Actuarial Analyst
Analyst
✉ delaney.mcdonough@milliman.com

Kyle Wood, ASA, MAAA
Associate Actuary
Analyst
✉ kyle.wood@milliman.com

PROFESSIONAL STAFF

Daniel Skwire, FSA, MAAA
Principal and Consulting Actuary
Life, Disability, and Leave Expert
✉ dan.skwire@milliman.com

Brandy Cross, CPC, QPA, QKA
Principal and Director of DC Compliance
Defined Contribution Compliance Expert
✉ brandy.cross@milliman.com

Nick Collier ASA, EA, MAAA, FCA
Principal and Consulting Actuary
Strategic Advisor and Peer Review Actuary
✉ nick.collier@milliman.com

National Team of Supporting Actuaries and Actuarial Analysts

National Network of health consultants, subject matter experts, resources, administration support, IT developers and information security experts

Milliman

RYAN FALLS

FSA, FCA, EA, MAAA

Principal & Consulting Actuary

ryan.falls@milliman.com

214-863-5635

Current Responsibility

Ryan Falls is a principal and consulting actuary in Milliman's Dallas, Texas, office. Ryan joined Milliman's public sector consulting team in April 2023.

Professional Work Experience

Ryan has 25 years of actuarial and benefits consulting experience, focusing on the needs of major public employee retirement systems and private sector employers. Throughout his career, Ryan has provided consulting services to statewide and municipal retirement systems across the country. As an actuary and senior consultant, Ryan performs actuarial valuations for public pension and retiree health care plans; conducts plan design analyses, including the design and implementation of cash balance and other hybrid plan designs; and performs asset liability modeling and actuarial audits.

Ryan is an expert in consulting on plan design and sustainability. His background includes studying many large plan designs to understand the impacts on plan costs, employee retention, administrative functions, and applicable stakeholders. Ryan has repeatedly seen first-hand the monumental effort required by retirement systems, stakeholders, and politicians to reform public pension plans. As a result, Ryan firmly believes that true reform and plan sustainability must include adaptable features such as actuarially determined contributions and adjustable benefit provisions.

Prior to joining Milliman, Ryan was the lead actuary for the Arizona State Retirement System, the Teachers Retirement System of Oklahoma, the New Mexico Educational Retirement Board, the New Mexico Public Employees Retirement Association, and the Employees Retirement System of Texas. Ryan has also conducted nine actuarial audits over the past five years for many notable organizations, including the Nebraska Public Employees Retirement System, the Oregon Public Employees Retirement System, and the Texas Emergency Services Retirement System.

Professional Designations

- Fellow, Society of Actuaries
- Fellow, Conference of Consulting Actuaries
- Enrolled Actuary
- Member, American Academy of Actuaries

Education

Bachelor of Science, Applied Mathematical Science, Texas A&M

Presentations and Publications

Ryan regularly serves as a speaker at national conferences for organizations such as the National Council on Teacher Retirement (NCTR), National Conference on Public Employee Retirement Systems (NCPERS), National Association of State Treasurers (NAST), and National Association of Public Pension Attorneys (NAPPA).

Affiliations

Ryan is an active member of the NCTR Corporate Advisory Committee. As a committee member, Ryan provides advice and counsel for NCTR's governance process.

RYAN FALLS

FSA, FCA, EA, MAAA

Principal & Consulting Actuary

ryan.falls@milliman.com

214-863-5635

References

Immediately prior to joining Milliman's public sector consulting team in April 2023, Ryan served as the lead actuary for the Employees Retirement System of Texas, the Arizona State Retirement System, the Teachers Retirement System of Oklahoma, the New Mexico Educational Retirement Board, and the New Mexico Public Employee Retirement Association. Ryan is currently stepping into a leadership role onto Milliman's consulting teams for the Public Employees Retirement System of Idaho and the City of Omaha retirement plans but they may not yet have enough experience with Ryan to attest to his competence and skill level..

CITY OF SPRINGFIELD, MO POLICE OFFICERS' AND FIREFIGHTERS' RETIREMENT SYSTEM

Contact Name:	Tony Kelley
Contact Title:	Administrative Director
Telephone:	+1 417 343 1338
E-mail:	kelleypcllc@gmail.com

Services Provided: Since 2001, Milliman has provided retained actuarial services; including, actuarial valuations, experience studies, and strategic actuarial consulting services.

NEW MEXICO EDUCATIONAL RETIREMENT BOARD

Contact Name:	David Archuleta
Contact Title:	Executive Director
Telephone:	+1 505 670 7795
E-mail:	david.archuleta@erb.nm.gov

Services Provided: Ryan Falls served as the lead actuary for ERB from 2012 to 2023. This is a professional reference for Ryan Falls as ERB is not currently a Milliman client. Services included actuarial valuations, experience studies, cost studies, legislative initiatives, Board education and strategic actuarial consulting..

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

Contact Name:	Kevin Olineck
Contact Title:	Director
Telephone:	+1 503 603 7695
E-mail:	kevin.olinek@pers.oregon.gov

Services Provided: Prior to joining Milliman, Ryan completed a full-replication actuarial audit of Oregon PERS, focusing on the financing structure and contribution rate calculation process for the individual employers. The actuarial audit prompted a productive conversation with the Board and System staff. Following his transition to Milliman, Ryan has internally supported the Oregon PERS team based on his experience with the actuarial audit and remained connected with the Oregon PERS leadership team.

MATT LARRABEE

FSA, EA, MAAA

Principal & Consulting Actuary

matt.larrabee@milliman.com

+1 503 796 2665

Current Responsibility

Matt Larrabee is a principal and consulting actuary in Milliman's Portland, Oregon office. He worked for Milliman from 1998 to 2001, and rejoined in 2012 after having served as Portland retirement practice leader of a national competitor for six years.

Professional Work Experience

Matt has more than 25 years of actuarial consulting experience. His expertise is in pension and retiree medical programs sponsored by governmental entities. Matt has consulted with a variety of plan types and sponsors, and is currently the lead actuary for two of the country's largest 20 pension plans (Florida Retirement System, Oregon Public Employees Retirement System).

Matt assists clients with a variety of matters. His projects and experience include:

- Board and legislative public testimony
- Legislative concept cost analyses
- Stochastic analysis of funding policy alternatives
- Asset/liability analysis
- Stakeholder communications and media interaction
- Experience studies
- GASB financial reporting
- Expert witness testimony
- Design assistance on a new plan
- Actuarial audits of large, complex systems
- Stochastic assessment of long-term tax levy adequacy for system funding

Professional Designations

- Fellow, Society of Actuaries
- Member, American Academy of Actuaries
- Enrolled Actuary under ERISA

Affiliations

- Past Member, American Academy of Actuaries Public Plans Committee
- Past Chair, Milliman's Public Sector Specialty Practice Group

Education

- BS, Mathematics, University of Utah
- BSEE, Electrical Engineering, University of Utah

Presentations and Publications

Matt has been quoted numerous times by the media on public pension issues. He is an experienced public speaker, including having the honor of speaking at the annual conferences of the National Association of State Retirement Administrators (NASRA), the National Council on Teacher Retirement (NCTR), the Association of Public Pension Fund Auditors (APPFA), and the Institutional Society of Risk Professionals (ISRP). Matt also conducted webinars for the National Institute on Retirement Security (NIRS), and has made presentations to regional GFOA conferences.

Matt is the co-author (with Jennifer Brown of the National Institute on Retirement Security) of the 2017 research study, *Decisions, Decisions–Retirement Plan Choices for Public Employees and Employers.*

MATT LARRABEE

FSA, EA, MAAA

Principal & Consulting Actuary

matt.larrabee@milliman.com

+1 503 796 2665

References

FLORIDA RETIREMENT SYSTEM

Contact Name:	Kathy Gould
Contact Title:	State Retirement Director
Telephone:	+1 850 778 4401
E-mail:	kathy.gould@dms.myflorida.com

Services Provided: From 1986, Milliman has provided valuations, GASB 68 schedule preparation, plan benefit administration assistance including development of benefit calculation software, legislative analysis, and experience studies. Matt Larrabee serves as lead consulting actuary.

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

Contact Name:	Kevin Olineck
Contact Title:	Director
Telephone:	+1 503 603 7695
E-mail:	kevin.olinek@pers.oregon.gov

Services Provided: Matt Larrabee has provided OPERS consulting and actuarial services continuously since 2006 (Milliman since 2012). Services have included valuations, GASB 68 schedule preparation, stochastic long-term system financial modeling and stress testing, legislative analysis, and experience studies. Matt Larrabee serves as lead consulting actuary.

TEXAS COUNTY AND DISTRICT RETIREMENT SYSTEM

Contact Name:	Chris Bucknall
Contact Title:	Director, Actuarial Services
Telephone:	+1 800 823 7782, ext 208
E-mail:	chrisb@tcdrs.org

Services Provided: Since 1999, Milliman has provided actuarial valuations, experience studies, cost studies, and general consulting for an agent employer system. Individual contribution rates and reporting developed for each of the 600+ participating employers.

RYAN COOK

FSA, EA, CERA, MAAA

Consulting Actuary

ryan.cook@milliman.com

208-350-2230

Current Responsibility

Ryan Cook is the lead and co-lead actuarial consultant for over a dozen clients at Milliman, including single-employer corporate pension and OPEB plans and public pension and OPEB plans.

Professional Work Experience

Client Projects

- Funding valuations (PPA, PBGC, VEBA, and ADC)
- Accounting valuations (ASC 715/960 and GASB 67/68/73/74/75)
- Government filings (Forms 5500, PBGC Forms 10, and PBGC premium filings)
- Experience studies
- Deterministic and stochastic projections
- Plan change/design studies
- Plan de-risking studies
- Plan terminations
- Benefit calculations

Other Work

- Serve as co-lead actuary in the development of Milliman's online projection tool
- Develop and manage various firmwide Excel-based tools
- Serve as ProVal expert within Milliman
- Conduct firmwide training sessions

Professional Designations

- Fellow of the Society of Actuaries (FSA)
- Member of the American Academy of Actuaries (MAAA)
- Enrolled Actuary (EA)
- Certified Enterprise Risk Analyst (CERA)

Education

Bachelor of Science in Mathematics from the University of Idaho

Presentations and Publications

- Article: IBM saves billions by reopening its pension plan – Could other companies do the same?
- Monthly publications of the Milliman Pension Buyout Index
- Assist with annual publications of the Corporate Pension Funding Study and monthly publications of the Corporate Pension Funding Index
- Podcast: Could pensions save big this year? Experts weigh in on 2023 PBGC premiums
- Article: Should you switch to the standard method to calculate your 2023 PBGC premiums?
- Article: What made 2021 such a big year for pension risk transfers?
- Article: How the American Rescue Plan Act of 2021 can impact corporate pension plans: Four case studies
- Article: Navigating retirement risks

RYAN COOK

FSA, EA, CERA, MAAA

Consulting Actuary

ryan.cook@milliman.com

208-350-2230

References

PUBLIC EMPLOYEES RETIREMENT SYSTEM OF IDAHO

Contact Name:	Mike Hampton
Contact Title:	Executive Director
Telephone:	+1 208 287 9290
E-mail:	michael.hampton@persi.idaho.gov

Services Provided: Ryan has worked on the PERSI plans since 2016 and currently serves as one of the lead actuarial consultants for PERSI. These plans include four defined benefit plans and two OPEB plans with a total of approximately 250,000 members. During this time Ryan assisted PERSI with annual valuations, experience studies, plan design studies, Board education, and legislative impact studies.

THE ODP CORPORATION

Contact Name:	Max Hood
Contact Title:	Co-CFO, Senior Vice President
Telephone:	+1 561 438 4313
E-mail:	max.hood@theodpcorp.com

Services Provided: Ryan has worked on ODP's plans since he joined Milliman in 2014 and currently serves as one of the lead actuarial consultants for ODP. These plans included eight defined benefit plans and two OPEB plans with a total of approximately 20,000 participants. During this time Ryan assisted ODP with annual valuations, experience studies, de-risking studies, plan mergers, company mergers, ALM studies, and benefit calculations.

SIMPLOT

Contact Name:	Kimberly Vo
Contact Title:	Global Benefits, Retirement and Recognition Director, Totatl Rewards
Telephone:	+1 208 780 7292
E-mail:	kimberly.vo@simplot.com

Services Provided: Ryan has worked on Simplot's three defined benefit plans since he joined Milliman in 2014 and currently serves as one of the lead actuarial consultants for Simplot. These plans included multiple tiers, unions, and approximately 10,000 participants. During this time Ryan assisted Simplot with annual valuations, experience studies, plan design studies, benefit calculations, and plan terminations.

DANIELLE MCGOWAN

Pension Analyst

danielle.mcgowan@milliman.com

+1 314 446 5618

Current Responsibility

Danielle McGowan is an actuarial analyst in the St. Louis office of Milliman. She joined Milliman in 2014.

Professional Work Experience

Her main focus is producing the basic actuarial calculations underlying the valuation, cost studies, and experience studies for review by senior analysts and consulting actuaries.

Education

BA, Mathematics, McKendree College of Lebanon, IL

KYLE WOOD

ASA, MAAA

Associate Actuary

kyle.wood@milliman.com

Current Responsibility

Kyle Wood is an associate actuary with Milliman. He joined the firm in 2020.

Professional Work Experience

Kyle works on corporate and public defined benefit plans. He does a variety of different projects for those plans, including funding and accounting actuarial valuations, experience studies, government filings, deterministic and stochastic projections, and benefit calculations.

Professional Designations

- Associate, Society of Actuaries (SOA)
- Member, American Academy of Actuaries (MAAA)

Education

BS, Mathematics, Southern Utah University

Presentations and Publications

Article: Is it time to do an experience study? Understanding the need for experience studies with pension plans.

DELANEY MCDONOUGH

Actuarial Analyst

delaney.mcdonough@milliman.com

Current Responsibility

Delaney McDonough is an actuarial analyst in the Portland, Oregon office of Milliman. Delaney joined Milliman's public sector consulting team in November 2023.

Professional Work Experience

Delaney has worked in the benefits consulting field since 2018. She has experience providing actuarial consulting services to a variety of plan sponsors. Her work includes:

- Actuarial valuations for public pension plans and retiree medical plans
- Financial accounting for public pension plans and retiree medical plans
- Plan design analyses
- Asset liability modeling
- Benefit calculations
- Funding projections
- Legislative studies
- Actuarial audits

Education

Bachelor of Science in Mathematics, Specialization in Statistics, Probability & Data Analysis, University of Texas at Austin

DANIEL D. SKWIRE

FSA, MAAA

Principal and Consulting Actuary

dan.skwire@milliman.com

+1 207 771 1203

Current Responsibility

Dan Skwire is a principal and consulting actuary with the Portland, Maine, office of Milliman. He joined the firm in 1998.

Professional Work Experience

Since joining Milliman, Dan has assisted his clients in a wide range of individual disability, group disability, and group life insurance projects. His clients include many of the leading disability and group life insurers in the United States and Canada, as well as public and private employers. Dan's work for insurance carriers includes product design, pricing, valuation, capital management, and transaction support. His work for employers, associations, and other organizations involves support for both fully insured and self-funded plans, including plan design, funding analysis, actuarial valuations, and vendor selection. Dan was previously second vice president with Unum Life Insurance Company, where he was responsible for a variety of financial functions for the company's disability business.

Professional Designations

- Fellow, Society of Actuaries
- Member, American Academy of Actuaries
- Licensed Life and A&H Insurance Producer

Education

BA, Williams College - summa cum laude

Presentations and Publications

Dan is a frequent speaker at the Society of Actuaries and other industry meetings. He is the principal editor of the Group Insurance textbook and has authored articles for professional publications, including The North American Actuarial Journal and Contingencies. Dan's literary essays include "Actuarial Issues in the Novels of Jane Austen," "Risk Management in the Merchant of Venice," and "Charles Dickens and the Literary Actuary."

Affiliations

Dan is the chair of the Disability Special Interest Group of the Society of Actuaries and has served on the Society of Actuaries Health Section Council. He is a member of the National Academy of Social Insurance.

DANIEL D. SKWIRE

FSA, MAAA

Principal and Consulting Actuary

dan.skwire@milliman.com

+1 207 771 1203

References

The following references specifically apply to Dan's current engagements with these entities regarding their disability and/or group life plans.

KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM

Contact Name:	Alan Conroy
Contact Title:	Executive Director
Telephone:	+1 785 296 1019
E-mail:	aconroy@kpers.org

Services Provided: Milliman provides annual disability and group life actuarial valuations, as well as periodic assumption and financial reviews, as well as group life vendor selection support.

COLORADO PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

Contact Name:	Matthew Carroll
Contact Title:	Senior Director of Benefit Services
Telephone:	+1 303 863 3780
E-mail:	mcarroll@copera.org

Services Provided: Milliman provides ongoing support for COPERA's group life insurance program, including experience analysis and vendor management. Milliman also provided a detailed review of the plan's structure and pricing.

WISCONSIN DEPARTMENT OF EMPLOYEE TRUST FUNDS

Contact Name:	Cindy Klimke
Contact Title:	Chief Trust Finance Officer
Telephone:	+1 608 267 0745
E-mail:	cindy.klimke@etf.wi.gov

Services Provided: Milliman prepares the annual actuarial valuation of the Income Continuation Insurance Plan (state and local), Duty Disability Program, and GASB 74 & 75 reports for the State of Wisconsin Postretirement Life Insurance Plans (state and local), including employer allocations.

BRANDY CROSS

CPC, QPA, QKA

Principal and Director of DC Compliance

brandy.cross@milliman.com

+1 402 361 1533

Current Responsibility

Brandy Cross is a principal and compliance manager with Milliman's Employee Benefits Administration Practice. She joined the firm in 1998.

Professional Work Experience

Brandy has more than 20 years of experience with complex nondiscrimination testing, administration, government reporting, and consulting on qualified and nonqualified retirement plans. She has been in the retirement industry since 1998.

Brandy currently manages the team of professionals who are responsible for the completion of all compliance tasks for defined contribution retirement plans. She also works with clients and staff in relation to various Internal Revenue Service and Department of Labor plan compliance issues.

Professional Designations

- ERPA, Enrolled Retirement Plan Agent
- Certified Pension Consultant (CPC), American Society of Pension Professionals and Actuaries
- Qualified Pension Administrator (QPA), ASPPA
- Qualified 401(k) Administrator (QKA), ASPPA

Education

BA, Political Science, University of Iowa, Iowa City, IA

Affiliations

- Member, ASPPA
- Member, Pension Council of the Midlands

NICK COLLIER

ASA, EA, MAAA, FCA

Principal, Consulting Actuary

nick.collier@milliman.com

+1 206 504 5508

Current Responsibility

Nick Collier is a principal and consulting actuary with the Seattle office of Milliman. He joined the firm in 1987.

Professional Work Experience

Nick's area of expertise is the employee benefits field, serving a wide range of public and multiemployer clients. He has assisted clients with many aspects of defined benefit plans, including actuarial valuations, experience studies, asset-liability modeling, cost projections, and postretirement benefits valuation. Additionally, Nick has extensive experience performing actuarial audits.

Nick's projects have included:

- Creating stochastic asset-liability projections
- Designing a retirement benefit online calculator
- Analyzing the use of reserves in funding policy
- Conducting high-level internal quality control reviews

For each client, Nick is, at a minimum, involved with the actuarial valuation, experience analysis, cost studies, and projections. Each of these systems has more than 10,000 members and assets greater than $1 billion. Three of these systems have cash balance features as part of the retirement system. Additionally, Nick has performed more than 30 actuarial audits on large public sector retirement systems.

Professional Designations

- Associate, Society of Actuaries
- Member, American Academy of Actuaries
- Enrolled Actuary, ERISA
- Fellow, Conference of Consulting Actuaries

Education

BA (cum laude), Mathematics and Economics, Claremont McKenna College

Presentations and Publications

- "COVID 19 – An Actuarial Perspective on Experience, Assumptions, and Policies," March 8, 2021. Presentation at CALAPRS General Assembly.
- "6 Years Post-PEPRA – Are We Getting the Savings as Promised?" March 8, 2020. Presentation at CALAPRS General Assembly.
- "Volatility Adjusted Discount Rates," presented at the 2010

NICK COLLIER

ASA, EA, MAAA, FCA

Principal, Consulting Actuary

nick.collier@milliman.com

+1 206 504 5508

References

CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM

Contact Name: David Lamoureux
Contact Title: Deputy System Actuary
Telephone: +1 916 414 1303
E-mail: dlamoureux@calstrs.com

Services Provided: From 1985, Milliman has performed annual pension valuations for both funding and GASB purposes for five plans (one defined benefit, two cash balance, one purchasing power, and one Medicare payment), assistance with plan benefit administration including development, legislative analysis, and experience studies. Nick Collier serves as consulting actuary.

LOS ANGELES COUNTY EMPLOYEES' RETIREMENT ASSOCIATION (LACERA)

Contact Name: Ted Granger
Contact Title: Chief Financial Officer
Telephone: +1 626 564 6000, ext 3524
E-mail: rgranger@lacera.com

Services Provided: Since 2006, Milliman has provided retained actuarial services, including actuarial valuations, experience studies, and strategic actuarial consulting services. .

TEXAS COUNTY AND DISTRICT RETIREMENT SYSTEM

Contact Name: Chris Bucknall
Contact Title: Director, Actuarial Services
Telephone: +1 800 823 7782, ext 208
E-mail: chrisb@tcdrs.org

Services Provided: Since 1999, Milliman has provided actuarial valuations, experience studies, cost studies, and general consulting for an agent employer system. Individual contribution rates and reporting developed for each of the 600+ participating employers.

Appendix C – Sample Valuation Report

Public Employee Retirement System of Idaho

Actuarial Valuation

July 1, 2024

Prepared by:

Robert L. Schmidt, FSA, EA, MAAA
Principal and Consulting Actuary

Ryan J. Cook, FSA, EA, CERA, MAAA
Consulting Actuary

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Issued October 17, 2024

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October 17, 2024

Public Employee Retirement System of Idaho
P.O. Box 83720
Boise, ID 83720-0078

Dear Members of the Board:

In accordance with your request, we have performed an actuarial valuation of the Public Employee Retirement System of Idaho ("PERSI" or "System" or "Plan") to determine the System's financial status as of July 1, 2024. This report reflects the benefit provisions and contribution rates in effect as of July 1, 2024.

Purpose of the Valuation

Actuarial computations presented in this report are for the purposes of determining the recommended funding amounts for the System. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding policy. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Actuarial Assumptions

Actuarial assumptions, including discount rates, mortality tables, and others identified in this report, and actuarial cost methods are adopted by the Retirement Board. That entity is responsible for selecting the Plan's funding policy, actuarial valuation methods, asset valuation methods, and assumptions. The policies, methods, and assumptions used in this valuation are those that have been so adopted and are described in this report. The System is solely responsible for communicating to Milliman any changes required thereto. All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which, in our professional opinion, are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated future experience affecting the System and are expected to have no significant bias.

Variability of Results

This valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as, but not limited to, the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; 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 modifications to contribution calculations based on the Plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of the actuarial assignment, we did not perform an analysis of the potential range of future measurements. The Retirement Board has the final decision regarding the selection of the assumptions and actuarial cost methods, and the Board has adopted them as indicated in Appendix A of this report.

Reliance

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by PERSI's staff. This information includes, but is not limited to, benefit provisions, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different, and our calculations may need to be revised.

Limited Distribution

Milliman's work is prepared solely for the use and benefit of the System. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third-party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions:

a) The System may provide a copy of Milliman's work, in its entirety, to the System's professional service advisors who are subject to a duty of confidentiality and who agree not to use Milliman's work for any purpose other than to benefit the System.
b) The System may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third-party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

Models

The valuation results were developed using models intended for valuations that use standard actuarial techniques. We have reviewed the models, including their inputs, calculations, and outputs for consistency, reasonableness, and appropriateness to the intended purpose and in compliance with generally accepted actuarial practice and relevant actuarial standards of practice.

Qualifications and Certifications

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal, investment, or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board and the Code of Professional Conduct and Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States, published by the American Academy of Actuaries. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Conclusion

We would like to express our appreciation to Mike Hampton, Executive Director of the System, and to members of PERSI's staff, who gave substantial assistance in supplying the data on which this report is based.

We respectfully submit the following report, and we look forward to discussing it with you.

Sincerely,

Robert L. Schmidt, FSA, EA, MAAA
Principal and Consulting Actuary

Ryan J. Cook, FSA, EA, CERA, MAAA
Consulting Actuary

Table of Contents

1. Summary of Findings

Our actuarial valuation of the System as of July 1, 2024, shows that the contributions determined by the current scheduled contribution rates are expected to first exceed the normal cost, plus interest on the unfunded actuarial accrued liability (UAAL) in the fiscal year ending June 30, 2026, and the UAAL is projected to be fully amortized over 10.8 years (assuming future experience matches the actuarial assumptions and that there are no future Discretionary Postretirement Allowance Adjustments (PAAs), gainsharing, contribution rate changes, or benefit changes). Therefore, the amortization period is not greater than the 25-year maximum permitted under Section 59-1322, Idaho Code.

One measure of funding adequacy is the funded ratio, which compares the value of the actuarial assets to the actuarial accrued liability. The following compares the 2023 and the 2024 valuations.

Valuation	Funded Ratio
2023 Valuation	83.7%
2024 Valuation	85.4%

The calculations in this report assume a 1.0% automatic PAA in all future years. The calculations do not reflect any future discretionary PAAs that may be granted by the Board. While the Board has granted discretionary PAAs in the past, the decision whether or not to grant each PAA is made one year at a time. If the PAA assumption used for the actuarial valuation included provision for potential future discretionary PAAs, the impact would be a material increase in the costs and liabilities reported herein. See the risk disclosure section for more details.

The 2024 actuarial valuation indicates that an experience gain of $360.8 million occurred during the fiscal year that just ended. This gain is based on the expected UAAL as of July 1, 2024, of $4,150.5 million versus the actual UAAL of $3,789.7 million. The experience gain was primarily due to an investment gain, as reflected in the 8.84% investment yield (net of all expenses) for the past year. This and other sources of gains and losses are shown in Table 1.

Table 2 illustrates the gains and losses incurred in the last three fiscal years attributable to both expected and unexpected experiences, as well as changes in assumptions, benefits, and methods.

Change in Assumptions, Benefits, or Contribution Rates

At the September 2023 Board meeting, as a response to the new return to work law for safety members, the Board implemented a temporary 1.14% increase in safety contribution rates for July 1, 2024, to June 30, 2027. All figures in this report reflect this temporary increase in contribution rates.

There have been no other changes in actuarial assumptions or plan benefits since the July 1, 2023, valuation.

Discretionary Postretirement Benefit Increases (Postretirement Allowance Adjustments or PAAs)

The System automatically provides a 1.0% increase in retirement benefits each year if the Consumer Price Index (CPI) has increased by at least that amount. The Board is empowered to go beyond 1% and match the full increase in the CPI, up to a total of 6%, subject to rejection or amendment by the Legislature. If the increase is less than 1%, or negative, the PAA is automatic. A negative PAA cannot decrease benefits by more than 6% in one year, and each retiree’s benefit cannot be less than the amount of the retirement allowance at the member’s commencement date.

The CPI grew at a rate of 2.5% during the last year. The effect of the potential benefit increase beyond 1.0% is not reflected in the balance of this report (unless noted otherwise).

Table 1
Gains and Losses for the Year Ended July 1, 2024

	Actuarial Accrued Liability(1) (in millions)	Market Value of Assets (in millions)	Unfunded Actuarial Accrued Liability (in millions)	Funded Ratio	Amort. Period (years)
July 1, 2023, Valuation	$24,714.9	$20,695.8	$4,019.1	83.7%	13.5
Board Approval of Contribution Rate Increases(2)	(0.4)	-	(0.4)		
July 1, 2023, Results Incorporating the Rate Increases	$24,714.5	$20,695.8	$4,018.7	83.7%	13.4
Expected Change Between Valuation Dates	1,005.6	873.8	131.8		
Expected at July 1, 2024	$25,720.1	$21,569.6	$4,150.5	83.9%	12.4
Effect of Actuarial Experience Gains and Losses:					
• Investments [Gain]	-	520.5	(520.5)		
• Salaries [Loss]	163.2	5.8	157.4		
• Membership Growth [Loss]	21.0	20.3	0.7		
• Benefit Payments Lower than Expected	15.6	15.6	-		
• Retired Member Experience [Loss]	31.7	-	31.7		
• Active and Inactive Member Experience [Gain]	(30.1)	-	(30.1)		
Total Experience Gains and Losses	201.4	562.2	(360.8)		
Effect of Assumption Changes [none]	-	-	-		
Effect of Plan Changes [none]	-	-	-		
July 1, 2024, Valuation	$25,921.5	$22,131.8	$3,789.7	85.4%	10.8

1. Amounts are net of expected future ORP Contributions.

2. In September 2023, as a response to the new return to work law for safety members, the Board implemented a temporary 1.14% increase in Safety contribution rates for July 1, 2024, to June 30, 2027.

Table 2
Three-Year History of Actuarial Gains and Losses

(All Dollar Amounts in Millions)

Gain (Loss) for Period

	2023-2024	2022-2023	2021-2022
Investment Income			
Investment income was greater (less) than expected	520.5	539.3	(3,435.4)
Pay Increases			
Pay increases were less (greater) than expected	(157.4)	(206.9)	(151.8)
Membership Growth			
New members increased liabilities by less (more) than their contributions increased assets	(0.7)	(1.3)	5.4
Postretirement Allowance Adjustment (PAA)			
Different automatic PAA than expected	0.0	0.0	0.0
Other Retired Member Experience			
Retirees died younger (lived longer) than expected and miscellaneous retiree gains (and losses) resulting from other causes	(31.7)	(10.7)	(205.6)[1]
Other Active and Inactive Member Experience			
Members retiring at different times than expected and miscellaneous gains (and losses) resulting from other causes	30.1	(207.2)	(55.1)
Total Gain (Loss) During the Period From Actuarial Experience	360.8	113.2	(3,842.5)
Contribution Income			
Expected contributions and asset returns were greater (less) than the normal cost and interest on the Unfunded Actuarial Accrued Liability	(131.8)	(132.4)	89.7
Non-Recurring Items			
Changes in actuarial assumptions caused a gain (loss)	None	None	None
Changes in actuarial methods caused a gain (loss)	None	None	None
Changes in plan provisions caused a gain (loss)[2]	None	(22.9)	(275.4)
Change in Future Contribution Rates[3]	0.4	100.2	None
Composite Gain (Loss) During the Period	229.4	58.1	(4,028.2)

Note: Effects related to losses are shown in parentheses. Numerical results are expressed as a decrease (increase) in the unfunded actuarial accrued liability.

1. 2021-2022 loss includes re-addition of some retired members that were previously omitted from retired member data supplied by PERSI.

2. For 2022-23, this reflects the Return to Work provision. For 2021-22, this reflects the 2.50% discretionary PAA, effective March 1, 2022.

3. For 2022-23, this reflects the October 2022 Board decision to adopt a 1.25% contribution rate increase effective July 1, 2024, an additional 2.50% increase effective July 1, 2025, and an additional 3.75% rate increase effective July 1, 2026. For 2023-24, this reflects the September 2023 Board decision to, as a response to the new return to work law for safety members, implement a temporary 1.14% increase in Safety contribution rates for July 1, 2024, to June 30, 2027.

Table 3
Summary of Key Valuation Results

	July 1, 2024 Valuation	July 1, 2023 Valuation	Percentage Change
1. Total Membership			
A. Contributing Active Members	78,354	76,668	2.2%
B. Members and Beneficiaries Receiving Benefits	56,084	54,680	2.6%
C. Vested Terminated Members	16,546	16,106	2.7%
D. Non-vested Terminated Members	38,508	35,968	7.1%
E. Total Membership	189,492	183,422	3.3%
2. Annual Salaries			
A. Annual Total ($Thousands)	$ 4,541,818	$ 4,237,274	7.2%
B. Annual Average per Active Member	$ 57,965	$ 55,268	4.9%
3. Annual Benefits			
A. Annual Benefits ($Thousands)	$ 1,243,201	$ 1,191,960	4.3%
B. Annual Average Benefits	$ 22,167	$ 21,799	1.7%
4. Actuarial Accrued Liability ($Millions)			
A. Contributing Active Members	$ 11,203.6	$ 10,537.4	6.3%
B. Members and Beneficiaries Receiving Benefits	13,043.9	12,585.0	3.6%
C. Terminated Members	1,680.5	1,604.5	4.7%
D. Total Actuarial Accrued Liability (AAL)	$ 25,928.0	$ 24,726.9	4.9%
E. Less Present Value of Future ORP Contributions	6.5	12.0	-45.8%
F. AAL Funded by PERSI Contributions	$ 25,921.5	$ 24,714.9	4.9%
5. Value of Plan Assets ($Millions)			
A. Market Value	$ 22,131.8	$ 20,695.8	6.9%
6. Funded Status ($Millions)			
A. Funding Reserve (Unfunded Actuarial Accrued Liability, UAAL) (5A - 4F)	$ (3,789.7)	$ (4,019.1)	
B. Funded Ratio (5A ÷ 4F)	85.4%	83.7%	
7. Contribution Rates (percent of salaries)			
A. Current Total Blended Contribution Rate	20.96%	19.47%	
B. Total Normal Cost Rate	17.07%	16.89%	
C. Contribution Rate Minus Normal Cost Rate (7A - 7B)	3.89%	2.58%	
D. Ultimate Total Blended Contribution Rate[1]	27.02%	26.97%	
E. Amortization Period for UAAL Based on Currently Scheduled Contribution Rates[1]	10.8 years	13.5 years	

1. See Table 11 for details on the scheduled rate changes.

Contribution Rates

In November 2002, the Board approved three 1% contribution rate increases to take effect on July 1, 2004, July 1, 2005, and July 1, 2006. The total rate increase of 1% each year is split between the employer and employee contributions.

On July 1, 2004, the first of three scheduled contribution rate increases went into effect.

Due to the 17.63% investment return in the year ending June 30, 2004, in November 2004, the Board delayed the scheduled contribution rate increases for July 1, 2005, and July 1, 2006, to July 1, 2006, and July 1, 2007, respectively.

Due to the 10.34% investment return in the year ending June 30, 2005, in the fall of 2005, the Board delayed the contribution rate increases again, to July 1, 2007, and July 1, 2008.

Due to the 11.79% investment return in the year ending June 30, 2006, in the fall of 2006, the Board delayed the contribution rate increases again, to July 1, 2008, and July 1, 2009.

Due to continued improvements in the funded status, including exceeding a 100% funded ratio by July 1, 2007, the Board canceled the contribution rate increases in the fall of 2007.

In December 2009, due to a significant drop in funded status because of investment losses in the year ending June 30, 2009, the Board approved three contribution rate increases: 1.5% at July 1, 2011, 1.5% at July 1, 2012, and 2.28% at July 1, 2013.

Due to the 12.01% investment return in the year ending June 30, 2010, in December 2010, the Board delayed the scheduled contribution rate increases for July 1, 2011, July 1, 2012, and July 1, 2013, to July 1, 2012, July 1, 2013, and July 1, 2014, respectively.

Due to the 20.25% investment return in the year ending June 30, 2011, in December 2011, the Board delayed the scheduled contribution rate increases for July 1, 2012, July 1, 2013, and July 1, 2014, to July 1, 2013, July 1, 2014, and July 1, 2015, respectively.

On July 1, 2013, the first of three scheduled contribution rate increases went into effect. The total rate increase of 1.5% is split between the employer and employee contributions.

In October 2013 the Board delayed the scheduled contribution rate increases for July 1, 2014, and July 1, 2015, to July 1, 2015, and July 1, 2016, respectively.

Due to the 16.77% investment return in the year ending June 30, 2014, in September 2014 the Board canceled the contribution rate increases scheduled for July 1, 2015, and July 1, 2016.

In October 2016, due to a drop in funded status because of investment losses in the two preceding fiscal years, the Board approved a contribution rate increase from 18.42% to 19.42%, scheduled to go into effect at July 1, 2018.

In October 2017, due to an increase in funded status from investment gains in the prior fiscal year, the Board approved a delay in the contribution rate increase from July 1, 2018, to July 1, 2019.

On July 1, 2019, the scheduled contribution rate increase went into effect. The total rate increase of 1% was split between the employer and active member contributions.

In December 2021, the Board approved an adjustment to the contribution rates to become effective July 1, 2023. The goal of this adjustment was to separate the teacher contribution rate from that charged for general members and to make the contribution rate for each class more in line with the cost of benefits for that class, all while limiting the change in the weighted total contribution rate.

After a -9.65% investment return in the year ending June 30, 2022, the July 1, 2022, valuation found that the contribution rates were insufficient to amortize the unfunded actuarial accrued liability within 25 years of the valuation date. Therefore, in October 2022, the Board approved three contribution rate increases to take effect: 1.25% on July 1, 2024, 2.50% on July 1, 2025, and 3.75% on July 1, 2026. On July 1, 2024, the first of these rate increases went into effect.

In September 2023, as a response to the return to work law for safety members, the Board implemented a temporary 1.14% increase in Safety contribution rates for July 1, 2024, to June 30, 2027.

The currently scheduled contribution rates are sufficient to amortize the UAAL in 10.8 years. This is under the 25-year amortization period limit required under Section 59-1322, Idaho Code.

Gain Sharing

Beginning in 2000, under Section 59-1309, Idaho Code, the Board may allocate all or a portion of “extraordinary gains” to active and retired members and employers as Gain Sharing. Extraordinary gains are defined as the excess, if any, at the close of the fiscal year of the Assets over Actuarial Accrued Liabilities plus an amount necessary to absorb a one standard deviation market event without increasing contribution rates, as determined by the Board. Under the Board’s current investment policy, assets in excess of a 113% funded ratio are considered extraordinary gains. Therefore, no assets are available for gain sharing as of July 1, 2024.

2. Scope of the Report

This report presents the actuarial valuation of the Public Employee Retirement System of Idaho as of July 1, 2024. This valuation was requested by the System's Board.

Your particular attention is called for in reading our cover letter, where we refer to the guidelines employed in the preparation of this report. We also comment on the sources and reliability of both the data and the actuarial assumptions upon which our findings depend. Those comments are the basis for our certification that this report is complete and accurate to the best of our knowledge and belief.

A summary of the findings resulting from this valuation is presented in the previous section. Section 3 describes the assets and investment experience of the System. Sections 4 and 5 describe how the obligations of the System are to be met under the actuarial cost method in use. Section 6 of this report shows supplemental information including the estimated cash flow of future retirement benefit payments, based on the actuarial assumptions. Section 7 describes various risks that are material to the Plan.

This report includes several appendices:

Appendix A	A summary of the actuarial procedures and assumptions.
Appendix B	A summary of the current benefit structure based on governing law on July 1, 2024.
Appendix C	Schedules of valuation data classified by various categories; a brief summary of the System's recent experience; and comparative statistics since June 30, 1968.
Appendix D	A glossary of actuarial terms used in this report.

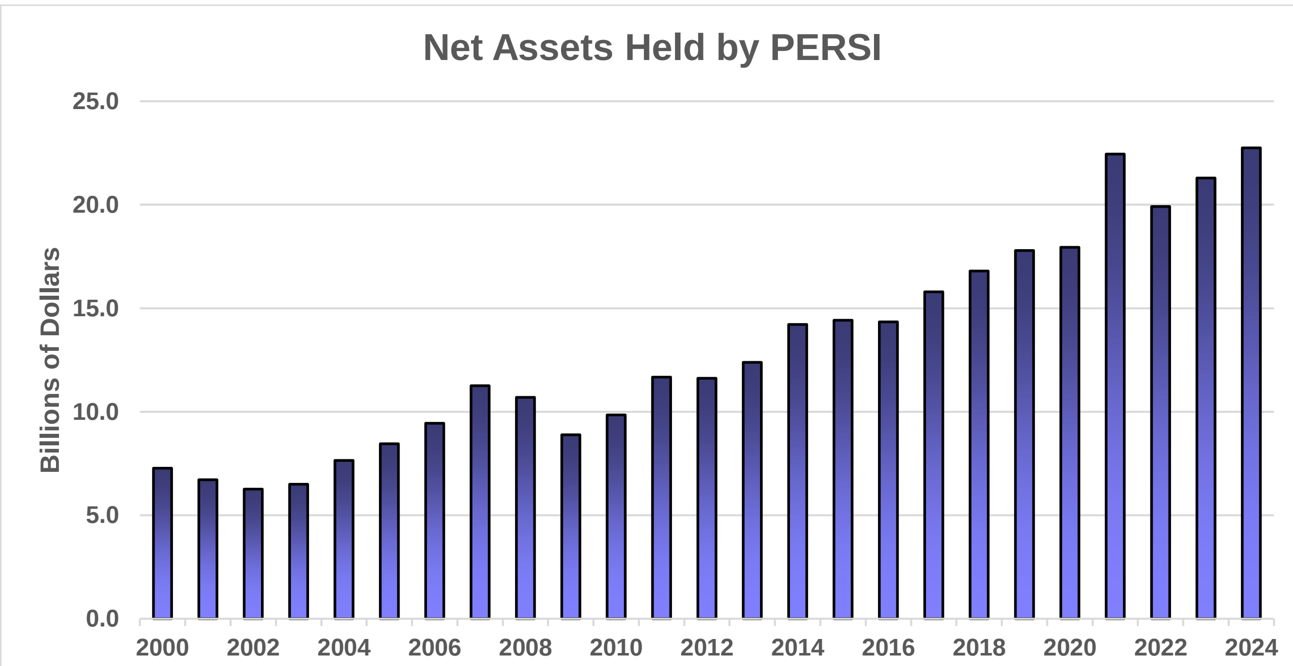
3. Assets

In many respects, an actuarial valuation can be thought of as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is July 1, 2024. On that date, the assets available for the payment of benefits are appraised. These assets are compared with the actuarial liabilities, which are generally well in excess of the assets. The actuarial process thus leads to a method of determining what contributions by members and their employers are needed to strike a balance.

This section of the report deals with the asset determination. In the next section, the actuarial liabilities will be discussed. Section 5 deals with the process for determining required contributions based on the relationship between the assets and actuarial liabilities.

The net assets at July 1, 2024, of $22,749,428,264 shown below and in Table 4 include assets used in plan operations and assets held for the Firefighters' Retirement Fund, the Judges' Retirement Fund, and the Idaho Falls Police Retirement Fund. The allocation of the trust is shown at the bottom of Table 4. The investments at fair value shown in Table 5 also include assets held for these other funds.

The market value of assets has increased 213% over the value in 2000. The chart below illustrates this growth.



For all years shown in this table, the system has elected to use the market value of assets on the valuation date as the asset value used in calculating its funding requirement (a.k.a. the actuarial value of assets).

Table 4 presents a summary of the System's assets, including the allocation of the assets to the various funds. Table 5 presents an analysis of the investments. Table 6 shows a reconciliation of the market value of assets held for PERSI pension benefits from July 1, 2023, to July 1, 2024. Table 7 shows an analysis of the investment yield of the System's assets for the fiscal year ending June 30, 2024.

Tables 4 through 7 are derived from data furnished to us by the System. We have accepted these tables for use in this report without audit, but we have reviewed them for reasonableness and consistency with previous reports.

The yield rates shown at the top of Table 7 are net of both investment and administrative expenses. The summary at the bottom of Table 7 shows the annual yields before expenses, net of investment expenses, and net of both investment and administrative expenses. Each yield should be compared with the appropriate actuarial assumption shown in the left column. The yield net of all expenses is 8.84% for the year ending June 30, 2024, which is compared with the actuarial assumption, net of all expenses, of 6.30% for the fiscal year ended June 30, 2024.

Table 4
Market Value of Assets

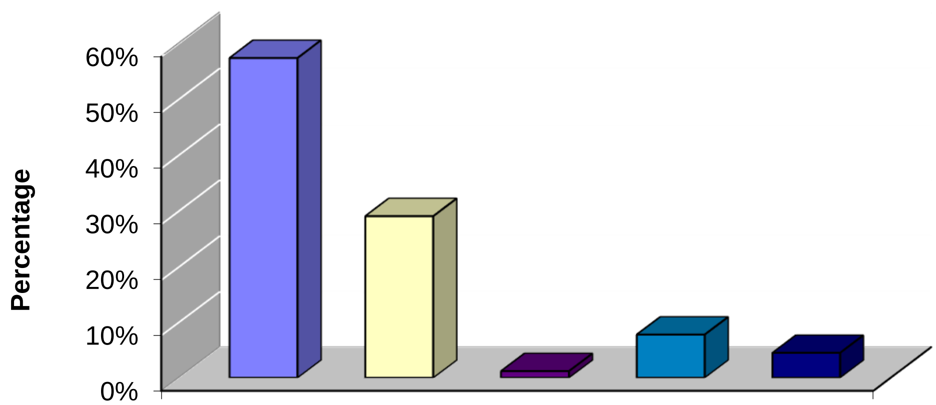
	July 1, 2024	July 1, 2023
Assets		
Cash	$ 36,325,610	$ 11,997,313
Investments at Fair Value	22,586,839,307	21,186,406,193
Investments Sold	90,075,541	45,033,390
Contributions Receivable	27,622,605	8,750,074
Interest and Dividends Receivable	81,050,479	73,400,797
Assets Used in Plan Operations, Net	5,250,221	4,846,769
Retiree Payroll in Process	103,212,426	98,003,890
Other Prepaids	-	35,000
Total Assets	$ 22,930,376,189	$ 21,428,473,426
Liabilities		
Accrued Liabilities	$ 17,236,861	$ 17,049,997
Benefits and Refunds Payable	570,485	-
Due to Other Funds	-	-
Investments Purchased	163,140,579	119,122,833
Total Liabilities	$ 180,947,925	$ 136,172,830
Net Assets Held by PERSI	$ 22,749,428,264	$ 21,292,300,596
Allocation of Net Assets Held by PERSI		
Total Assets Held for PERSI Pension Benefits	$ 22,131,762,631	$ 20,695,842,118
Firefighters' Retirement Fund Assets	485,494,091	471,434,942
Judges' Retirement Fund Assets	117,794,977	111,017,104
Idaho Falls Police Retirement Fund Assets	9,126,344	9,159,663
Assets Used in Plan Operations	5,250,221	4,846,769
Net Assets Held by PERSI	$ 22,749,428,264	$ 21,292,300,596
Assets for Use in Valuation of PERSI Pension Benefits		
Market Value of Assets held for PERSI Pension Benefits	$ 22,131,762,631	$ 20,695,842,118

Table 5
Analysis of Investments Held by PERSI

July 1, 2024

	Fair Value	Percentage
Fixed Income Investments		
Domestic	$ 5,804,434,466	25.7%
International	9,450,432	0.0%
Idaho Commercial Mortgages	778,688,640	3.4%
Total Fixed Income	6,592,573,538	29.1%
Short Term Investments	263,556,924	1.2%
Real Estate	1,025,950,063	4.5%
Equity Securities		
Domestic	10,504,223,016	46.5%
International	2,466,224,635	10.9%
Total Equities	12,970,447,651	57.4%
Private Equity	1,734,311,131	7.8%
Total Investments	$ 22,586,839,307	100.0%

This table also includes investments held for the Firefighters' Retirement Fund, the Judges' Retirement Fund, and the Idaho Falls Police Retirement Fund. The allocation of the net assets in the trust is shown at the bottom of Table 4.



Total Equities	Fixed Income	Short-Term Investments	Private Equity	Real Estate
57.4%	29.1%	1.2%	7.8%	4.5%

Table 6
Reconciliation of Assets

	July 1, 2023 to June 30, 2024	July 1, 2022 to June 30, 2023
Additions:		
Contributions		
Members	$ 359,388,202	$ 335,646,335
Employers	554,409,453	513,828,265
Total Contributions	$ 913,797,655	$ 849,474,600
Investment Income		
Net Appreciation/(Depreciation) in Fair Value of Investments	$ 1,446,844,823	$ 1,431,877,181
Interest, Dividends and Other Investment Income	436,597,794	382,732,835
Other Revenue, Net	1,312,299	518,724
Less: Investment Expenses	(60,302,095)	(59,993,746)
Net Investment Income	$ 1,824,452,821	$ 1,755,134,994
Total Additions	$ 2,738,250,476	$ 2,604,609,594
Deductions:		
Benefits and Refunds Paid to Plan Members and Beneficiaries	$ 1,290,539,869	$ 1,249,058,510
Administrative Expense	11,386,642	9,997,170
Total Deductions	$ 1,301,926,511	$ 1,259,055,680
Other:		
Decrease/(Increase) in Assets Used in Plan Operations	$ (403,452)	$ 803,042
Increase/(Decrease) in Market Value of Assets	$ 1,435,920,513	$ 1,346,356,956
Market Value of Assets, Beginning of Year	$ 20,695,842,118	$ 19,349,485,162
Market Value of Assets, End of Year	$ 22,131,762,631	$ 20,695,842,118

Notes:

1. This table only shows assets held for PERSI pension benefits.

Table 7
Analysis of Investment Yield

	July 1, 2023, to June 30, 2024	
	Total Trust	Individual Plan
Investment Return	$ 1,926,070,085	$ 1,884,754,916
Less Investment Expenses	61,622,672	60,302,095
Less Administrative Expenses	11,570,538	11,386,642
Net Return	$ 1,852,876,875	$ 1,813,066,179
Mean Assets for Period	$ 21,089,377,498	$ 20,507,269,285
Annual Yield	8.79%	8.84%

	Summary of Annual Yields for Year Ending June 30, 2024		
Expense Basis	Actuarial Assumption	Total Trust	Individual Plan
Gross – Before Expenses		9.15%	9.21%
Net of Investment Expenses	6.35%	8.84%	8.90%
Net of All Expenses	6.30%	8.79%	8.84%

Notes:

1. See Tables 4, 5, and 6 for data used in this table.
2. Total trust excludes assets used in plan operations.
3. Individual plan only includes assets held for PERSI pension benefits.
4. Mean assets for period = 1/2 (beginning net assets + ending net assets - net return).
5. Annual yield = (net investment return) / mean assets.
6. Mean assets differ for each expense basis, so differences between bases are not comparable.

4. Actuarial Liabilities

In the previous section, an actuarial valuation was compared with an inventory process, and an analysis was given of the inventory of assets of the System as of the valuation date, July 1, 2024. In this section, the discussion will focus on the commitments of the System which are referred to as its actuarial liabilities.

Table 8 contains an analysis of the actuarial present value of all future benefits for contributing members and for former contributing members and their survivors. The analysis is given by type of benefit and by class of membership.

The actuarial liabilities summarized in Table 8 include the actuarial present value of all future benefits expected to be paid with respect to each member. For an active member, this value includes measures of both benefits already earned and future benefits to be earned. For all members, active and retired, the value extends over benefits earnable and payable for the rest of their lives and, if an optional benefit is chosen, for the lives of the surviving beneficiaries.

The economic and demographic assumptions are based on the results of the 2021 Experience Study, which was adopted by the Board effective July 1, 2021.

All liabilities reflect the provisions of governing law (as summarized in Appendix B) and scheduled contribution rates (as summarized in Table 11) in effect as of July 1, 2024. No future changes are considered in determining the liabilities shown (unless stated otherwise).

Table 8
Actuarial Present Value of Future Benefits

(All amounts in millions)

July 1, 2024

Contributing Members	**Fire & Police**	**General Employees**	**Teachers**	**Grand Total**
Service Retirement Including Reduced Early Retirement	$3,430.1	$7,195.9	$6,351.0	$16,977.0
Deferred Vested Retirement	186.7	613.3	310.7	1,110.7
Disability Retirement	119.0	236.9	178.8	534.7
Death	36.4	117.9	62.0	216.3
Refunds of Member Contributions(1)	93.3	217.2	65.1	375.6
Total	$3,865.5	$8,381.2	$6,967.6	$19,214.3
Former Contributing Members & Survivors				
Service Retirement	$1,759.0	$5,908.9	$4,548.4	$12,216.3
Disability Retirement	50.9	181.9	103.9	336.7
Survivors' Benefits	71.3	261.3	158.3	490.9
All Other Benefits	166.3	1,095.1	419.1	1,680.5
Total	$2,047.5	$7,447.2	$5,229.7	$14,724.4
Grand Total	$5,913.0	$15,828.4	$12,197.3	$33,938.7

1. Including all benefits provided by voluntary contributions.

5. Employer Contributions

The previous two sections were devoted to a discussion of the assets and actuarial liabilities of the System. Comparison of Tables 4 and 8 indicates that current assets fall short of meeting the actuarial liabilities (specifically the actuarial present value of future benefits). This is expected in funds with active members still accruing benefits, as future contributions are still anticipated to help pay for those benefits.

In an active system, there is often a difference between the actuarial assets and liabilities. When liabilities exceed assets, this difference has to be made up out of future contributions. An actuarial valuation method sets out a schedule of future contributions that will deal with this difference in an orderly fashion.

The method used to determine the incidence of the contributions in various years is called the actuarial cost method. For this valuation, the individual entry age actuarial cost method has been used. Under this method — or essentially any actuarial cost method — the contributions required to meet the System's needs are allocated each year between two elements:

- A normal cost amount, which ideally is relatively stable as a percentage of salary over the years; and
- The excess of the contribution rate over the normal cost; this excess is used to amortize what is called the unfunded actuarial accrued liability.

The two items described above — the normal cost and unfunded actuarial accrued liability — are the keys to understanding the actuarial cost method.

Normal Cost

The normal cost is the theoretical contribution rate that will meet the ongoing costs of a group of average new employees. Suppose that a group of new employees was covered under a separate fund from which all benefits and to which all contributions and associated investment returns were paid. Under the individual entry age actuarial cost method, the normal cost contribution rate is that level percentage of pay that would be exactly right to maintain this fund on a stable basis. If experience were to follow the actuarial assumptions precisely, the fund would be completely liquidated when the last payment to the last survivor of the group has been made.

We have determined the normal cost rates for the System separately by class of employee and by type of benefit. These rates are summarized in Table 10. The normal cost rates in Table 10 reflect the actuarial assumptions adopted by the Board, the plan provisions effective July 1, 2024, and the current total blended contribution rate of 20.96%.

Unfunded Actuarial Accrued Liability

The term "fully funded" is often applied to a system in which contributions for everyone at the normal cost rate are sufficient to pay for the benefits of existing employees as well as for those of new employees. Many systems are not fully funded, either because of past benefit improvements that have not been completely paid for or because of actuarial deficiencies that have occurred because experience has not been as favorable as anticipated. Under these circumstances, an unfunded actuarial accrued liability (UAAL) exists. However, even if a system does not have a positive UAAL, a portion or all of the normal cost contribution payments will need to be continued in order to have sufficient funds to pay future benefits. The use of the term “fully funded” may imply no further contributions are required at all. Therefore, a better term is a “well-funded” plan. This occurs when the value of the assets exceeds the actuarial accrued liability and the difference is referred to in the PERSI funding policy as the Funding Reserve.

Table 9 shows how the UAAL or Funding Reserve was derived for the System. Line A shows the total actuarial liability for all future benefits. The portion of the future liability expected to be paid from future normal cost contributions, both employer and employee, is shown on Line B. The difference between lines A and B is the System's actuarial accrued liability as of the actuarial valuation date.

The UAAL at any date after establishment of a system is affected by any actuarial gains or losses arising when the actual experience of the system varies from the experience anticipated by the actuarial assumptions used in the valuations. To the extent actual experience, as it develops, differs from that expected according to the assumptions used, so also will the emerging costs differ from the estimated costs disclosed in this report.

ORP Contributions

Under Idaho Code 33-107A each institution participating in the optional retirement program (ORP) is required to pay an amount equal to 1.49% of salaries of their ORP participants to PERSI. This amount is to be paid until July 1, 2025. Likewise, under Idaho Code 33-107B each community college and post-secondary vocational education institution was required to pay an amount equal to 3.83% of salaries of their ORP participants to PERSI. This amount was paid until July 1, 2011, and has since expired. These payments from the ORP employers are in lieu of amortization payments and withdrawal contributions otherwise required under PERSI. Table 10 Line D shows the present value of these future ORP contributions. The difference between the future ORP contributions and the computed actuarial accrued liability is the portion of the actuarial accrued liability that is expected to be funded by PERSI assets and contributions.

Line F in Table 9 indicates the market value of assets. The excess of the actuarial accrued liability for PERSI in Line E over the assets is the UAAL for PERSI, as shown on Line G.

Funding Adequacy

A key consideration in determining the adequacy of the funding of the System is how the UAAL is being serviced. If the UAAL amount is positive, that is the actuarial accrued liability to be funded is greater than the assets, then the UAAL must be amortized. Idaho law calls for the UAAL to be paid off in no more than 25 years. Table C-5 (Appendix C) illustrates, for historical comparison purposes only, the contribution rates on a 30-year amortization basis through 1992 and the contribution rates on the 25-year amortization basis beginning in 1993.

From July 1, 1998, to July 1, 2000, there was no UAAL, and the actuarial value of the assets exceeded the value of the actuarial accrued liability to be funded by PERSI, resulting in a Funding Reserve. However, asset losses for the year ending July 1, 2001, resulted in the re-emergence of a UAAL. The UAAL also grew during the years ending July 1, 2002, and July 1, 2003, due to further asset losses. The UAAL decreased during the years ending July 1, 2004, July 1, 2005, and July 1, 2006, due to asset gains. During the year ending July 1, 2007, the asset gain resulted in a Funding Reserve. During the year ending July 1, 2008, the asset loss resulted in the re-emergence of a UAAL. The UAAL grew further during the year ending July 1, 2009, due to asset losses. The UAAL decreased during the years ending July 1, 2010, and July 1, 2011, due to asset gains. During the year ending July 1, 2012, the asset loss resulted in an increase to the UAAL. The UAAL again increased during the year ending June 30, 2013. The UAAL decreased during the year ending June 30, 2014, due primarily to asset gains. The UAAL increased during the years ending June 30, 2015, and June 30, 2016, primarily due to asset losses. The UAAL decreased during the years ending June 30, 2017, June 30, 2018, and June 30, 2019, primarily due to asset gains. The UAAL increased during the year ending June 30, 2020, primarily due to asset losses. The UAAL decreased during the year ending June 30, 2021, primarily due to asset gains. The UAAL increased during the year ending June 30, 2022, primarily due to asset losses. The UAAL decreased during the years ending June 30, 2023, and June 30, 2024, primarily due to asset gains. The dollar amount of the UAAL as of July 1, 2024, is $3,789.7 million.

Discretionary Postretirement Benefit Increases

The costs of providing future postretirement increases of 1% per year are included in the liabilities shown in this report. These increases are automatic as long as the increase in the CPI-U is at least 1%. The Board may, subject to modification or rejection by the Legislature, grant discretionary increases of up to an additional 5% per year, provided that the total percentage increase does not exceed the percentage change in the CPI and that the increase can be supported by the assets of the System. Any future discretionary PAAs will increase the costs of the plan above the liabilities shown in this report. See Section 7 Risk Disclosures for more details.

Gain Sharing

Beginning in 2000, under Section 59-1309, Idaho Code, the Board may allocate all or a portion of "extraordinary gains" to active and retired members and employers as Gain Sharing. Extraordinary gains are defined as the excess, if any, at the close of the fiscal year of the Assets over Actuarial Accrued Liabilities plus an amount necessary to absorb a one standard deviation market event without increasing contribution rates, as determined by the Board. Under the Board's current investment policy, assets in excess of a 113% funded ratio are considered extraordinary gains. Since the funding ratio as of July 1, 2024, is less than 113%, no assets are available for consideration for Gain Sharing. Note that the values shown in this report, do not reflect any future Gain Sharing allocations. If any are granted, this will increase the costs of the plan above the liabilities shown in this report.

Funding Policy

Table 11 shows the current contribution rates and scheduled increases (if any). These reflect the statutory requirements that member contribution rates must always be a fixed percentage of the employer contribution rate (72% for fire and police and 60% for other employees). There are two exceptions to this:

- The cost of the fire and police line of duty death benefit is paid entirely by fire and police employers. This is currently 0.10% of pay.
- The cost of the fire and police line of duty disability benefits (including catastrophic disability benefits) are paid entirely by fire and police members. This is currently 0.36% of pay.

In addition, the Board must satisfy the statutory requirement that contribution rates are sufficient to amortize the UAAL in no more than 25 years. As shown in Table 12, as of July 1, 2024, the current contribution rates schedule does meet this requirement. Therefore, the Board is not required to increase contribution rates.

The Board's current Funding Guidelines were adopted January 18, 2022, and establish guidelines for the Board in making annual funding decisions. It outlines the following Board priorities and principles:

- Align actuarial assumptions,
- Maintain predictable rates of contribution,
- Address the purchasing power of retiree benefits, and
- Consider the allocation of extraordinary gains.

These priorities and principles are listed in no particular order of importance. They are regularly evaluated and considered with the goal of maintaining the sustainability of the System.

Idaho Statute and the Board's Funding Guidelines are consistent with the plan accumulating assets adequate to make benefit payments when due.

Table 9
Unfunded Actuarial Accrued Liability

(All amounts in millions)

	Valuation Date:	July 1, 2024	July 1, 2023
A.	Actuarial Present Value of all Future Benefits	$ 33,938.7	$ 32,107.9
B.	Actuarial Present Value of Total Future Normal Costs	8,010.7	7,381.0
C.	Actuarial Accrued Liability [A - B]	$ 25,928.0	$ 24,726.9
D.	Present Value of Future ORP Contributions	6.5	12.0
E.	Actuarial Accrued Liability Funded by PERSI Contribution [C - D]	25,921.5	24,714.9
F.	Market Value of Assets Available for Benefits	22,131.8	20,695.8
G.	UAAL (Funding Reserve) [E - F]	$ 3,789.7	$ 4,019.1
H.	Amortization Period(1)	10.8 years	13.5 years
I.	Funded Ratio [F/E]	85.4%	83.7%

1. The amortization period is based on the scheduled contribution rates shown in Table 11. For the July 1, 2023, valuation, the ultimate total blended contribution rate was 26.97%. For the July 1, 2024, valuation, the ultimate total blended contribution rate is 27.02%.

Table 10
Normal Cost Rates

July 1, 2024[1]

	Fire & Police	General Employees	Teachers	Total Rate
Service Retirement Including Reduced Early Retirement	16.25%	11.46%	14.74%	13.29%
Deferred Vested Retirement	1.84	2.01	1.57	1.84
Disability Retirement	0.98	0.54	0.60	0.63
Death	0.25	0.22	0.19	0.21
Refunds of Member Contributions	1.47	1.21	0.69	1.10
Total	20.79%	15.44%	17.79%	17.07%
Less Member Contributions	10.83	7.18	8.08	8.07
Employer Normal Cost Rate	9.96%	8.26%	9.71%	9.00%

Analysis of Member Contributions

	Fire & Police	General Employees	Teachers	Total Rate
Member Contributions	10.83%	7.18%	8.08%	8.07%
Less Expected Refunds	1.47	1.21	0.69	1.10
	9.36%	5.97%	7.39%	6.97%

1. *Total Normal Cost Rates are based on the Individual Entry Age Normal Cost Method adopted by the Board for the July 2013 Actuarial Valuation.*

Table 11
Current Contribution Rates

	Rates as of July 1, 2024	Rates as of July 1, 2025	Rates as of July 1, 2026	Rates as of July 1, 2027
1. **Fire & Police**				
A. Total Contribution Rate (set by Board)	25.48%	27.98%	31.73%	30.59%
B. Benefits Paid Entirely by Employers	0.10%	0.10%	0.10%	0.10%
C. Benefits Paid Entirely by Members	0.36%	0.36%	0.36%	0.36%
D. Shared Portion of Contribution Rate [A - B - C]	25.02%	27.52%	31.27%	30.13%
E. Employer Portion of Shared Contributions [D ÷ 1.72]	14.55%	16.00%	18.18%	17.52%
F. Member Portion of Shared Contributions [D - E]	10.47%	11.52%	13.09%	12.61%
G. Total Employer Contribution Rate [B + E]	**14.65%**	**16.10%**	**18.28%**	**17.62%**
H. Total Member Contribution Rate [C + F]	**10.83%**	**11.88%**	**13.45%**	**12.97%**
I. Projected FY25 Salary (millions)	$748.0	$748.0	$748.0	$748.0
J. Projected FY25 Employer Contributions (millions) [G x I]	109.6	120.4	136.7	131.8
K. Projected FY25 Member Contributions (millions) [H x I]	81.0	88.9	100.6	97.0
2. **General Employees**				
A. Total Contribution Rate (set by Board)	19.14%	21.64%	25.39%	25.39%
B. Total Employer Contribution Rate [A ÷ 1.60]	**11.96%**	**13.53%**	**15.87%**	**15.87%**
C. Total Member Contribution Rate [A - B]	**7.18%**	**8.11%**	**9.52%**	**9.52%**
D. Projected FY25 Salary (millions)	$2,330.8	$2,330.8	$2,330.8	$2,330.8
E. Projected FY25 Employer Contributions (millions) [B x D]	278.8	315.4	369.9	369.9
F. Projected FY25 Member Contributions (millions) [C x D]	167.4	189.0	221.9	221.9
3. **Teachers**				
A. Total Contribution Rate (set by Board)	21.56%	24.06%	27.81%	27.81%
B. Total Employer Contribution Rate [A ÷ 1.60]	**13.48%**	**15.04%**	**17.38%**	**17.38%**
C. Total Member Contribution Rate [A - B]	**8.08%**	**9.02%**	**10.43%**	**10.43%**
D. Projected FY25 Salary (millions)	$1,427.1	$1,427.1	$1,427.1	$1,427.1
E. Projected FY25 Employer Contributions (millions) [B x D]	192.4	214.6	248.0	248.0
F. Projected FY25 Member Contributions (millions) [C x D]	115.3	128.7	148.8	148.8
4. **Total Aggregate Rate**				
A. Projected FY25 Salary (millions) [1I + 2D + 3D]	$4,505.9	$4,505.9	$4,505.9	$4,505.9
B. Projected FY25 Employer Contributions (millions) [1J + 2E + 3E]	580.7	650.4	754.7	749.7
C. Projected FY25 Member Contributions (millions) [1K + 2F + 3F]	363.7	406.6	471.3	467.8
D. Aggregate Employer Contribution Rate [B ÷ A]	**12.89%**	**14.43%**	**16.75%**	**16.64%**
E. Aggregate Member Contribution Rate [C ÷ A]	**8.07%**	**9.02%**	**10.46%**	**10.38%**
F. Total Aggregate Contribution Rate [E + F]	**20.96%**	**23.45%**	**27.21%**	**27.02%**

Notes:

1. Projected FY25 salaries and contributions shown in this exhibit do not include projected salaries for future members hired after the valuation date of July 1, 2024.
2. Calculations were done using unrounded values, so results may differ slightly from those performed using the rounded values displayed above.

Table 12
Minimum Contribution Rates

Valuation Date		July 1, 2024					July 1, 2023
Funding Basis		Actual Contribution Rates				Minimum Contribution Rate(1)	Actual Contribution Rate
Group		Fire & Police	General Employees	Teachers	Total	Total	Total
A.	Employer Contribution Rate	14.65%	11.96%	13.48%	12.89%	13.43%(3)	11.98%
B.	Member Contribution Rate	10.83%	7.18%	8.08%	8.07%	8.41%(3)	7.49%
C.	**Total Contribution Rate [A + B]**	**25.48%**	**19.14%**	**21.56%**	**20.96%**	**21.84%(3)**	**19.47%**
D.	Total Normal Cost Rate	20.79%	15.44%	17.79%	17.07%	17.14%(3)	16.89%
E.	Amount Available to Amortize Liability [C - D]	4.69%	3.70%	3.77%	3.89%	4.70%(3)	2.58%
F.	Dollar Amount of UAAL in Millions (if negative, Funding Reserve)(2)				$3,789.7	$3,877.9	$4,019.1
G.	Amortization Period(5)				10.8 years	25.0 years(4)	13.5 years

1. Per Idaho Statute, the UAAL (if applicable) is amortized over a 25-year period. The minimum contribution rate permitted by statute would not permit the total rate to be less than the normal cost rate.

2. Reflects only the amount funded by PERSI contributions. Excludes the present rate of 1.49% of salaries of university members in the Optional Retirement Plan (ORP) until 2025. The present value of these expected contributions as of July 1, 2024, is $6.5 million.

3. The Minimum Contribution Rate column shows the adjusted contribution rates (and resulting normal cost rate) as of January 1, 2026, while the other columns all show the current contribution rates (and resulting normal cost rate) as of the valuation date.

4. Calculated as of July 1, 2024, assuming contributions stay at the July 1, 2024, levels through December 31, 2025, and then are changed to the Minimum Contribution Rate effective January 1, 2026. (Note that this calculation ignores the scheduled contribution rate changes shown in Table 11.)

5. The amortization period is based on the scheduled contribution rates shown in Table 11. For the July 1, 2023, valuation, the ultimate total blended contribution rate was 26.97%. For the July 1, 2024, valuation, the ultimate total blended contribution rate is 27.02%.

6. Supplemental Information

Cash Flow Projections

Table 13 summarizes the historical cash flows for PERSI and the projected cash flows for the next 10 years. Contributions include both employer and member contributions. The table shows that net cash flow has been decreasing in recent years. This is a typical pattern in the maturing of a retirement system. Beginning in 2007, contributions were less than benefits and the System began drawing on the fund that has been built. The cash flow is projected to be negative in each of the next ten years.

The projected cash flows include PERSI contributions and benefits. They are based on the actuarial assumptions as stated in Appendix A and the contribution rate schedule shown in Table 11. Any other changes in contribution rates would change net cash flow. The projected cash flows do not include future discretionary PAA payments or future discretionary Gain Sharing allocations.

ASOP No. 4 Reasonable ADC Rate

Actuarial Standards of Practice Number 4 (ASOP No. 4) requires the actuary to calculate and disclose a "reasonable" actuarially determined contribution (ADC), which considers that the actuarial methods and actuarial assumptions follow actuarial standards of practice. However, this disclosure is in no way intended to imply that PERSI's current funding policies are unreasonable. Idaho Statute and the Board's Funding Guidelines give the Board significant flexibility and allow for discretion to provide for additional stability while still maintaining sustainability. This has served PERSI well, and, as stated in Section 5, we believe it is consistent with the plan accumulating assets adequate to make benefit payments when due. The ASOP No. 4 Reasonable ADC is intended to illustrate another option that focuses on a prescriptive funding policy rather than a flexible one.

We believe that a contribution rate calculated using the following assumptions and methods meets the "reasonable" standards set forth in ASOP No. 4 and reflects a balance among benefit security for Plan members, intergenerational equity among stakeholders, and stability of periodic costs. However, note that there are many other options that would also meet the requirements of ASOP No. 4.

	Assumption or Method	Discussion
Inflation and Expected Return	2.30% inflation + 4.50% real return - 0.05% administrative expense = 6.75% expected return	• PERSI's current inflation and expected return assumption are reasonable and reflect a degree of conservatism. • For the ASOP No. 4 Reasonable ADC, it is appropriate to use a value at the 50th percentile of our expectations without reflecting any conservatism. • This assumption is the average 50th percentile, 30-year return from Milliman's capital market assumptions over the past five years.
Postretirement Allowance Adjustments (PAAs)	1.50% annually	• PERSI prefunds only the 1.00% automatic PAA. Discretionary PAAs are granted on an ad-hoc basis if the Board feels there have been sufficient actuarial gains such that a discretionary PAA does not threaten the sustainability of the System. • ASOP No. 4 encourages actuaries to reflect both automatic PAAs and a reasonable assumption for future discretionary PAAs when calculating the ASOP No. 4 Reasonable ADC. • Starting in 2020, the Board has consistently communicated to all stakeholders to expect few discretionary PAAs. This was demonstrated in 2021. At a time the Plan was nearly 100% funded, the Board only granted 2.5% out of the 4.6% of discretionary PAAs that were available. • Based on this, a 0.50% annual discretionary PAA assumption is appropriate for this purpose.

	Assumption or Method	Discussion
Asset Smoothing	5-year smoothing of investment gains and losses limited to a 20% corridor around the market value of assets	• Under Idaho Statute, the Board has significant flexibility with contribution rates, so the Board has elected to use a market value of assets. • However, a prescriptive funding policy would not have flexibility, so asset smoothing is important to add stability to our calculation.
Contribution Lag	2-years	• Historically, the Board has proposed rate increases to be effective no fewer than 2 years out from the valuation date. • A 2-year lag between the valuation date and the ADC Rate effective date is appropriate for this purpose.
Amortization of UAAL	Initial July 1, 2023, UAAL amortized over a fixed period ending June 30, 2048 10-year rolling amortization for all future gains and losses	• Idaho Statute requires a maximum amortization period of 25-years, as measured on a rolling basis. • One of the standards in ASOP No. 4 is that each UAAL base should be either amortized over a reasonable fixed time period or reduced by a reasonable amount each year. • This method fully amortizes the initial July 1, 2023, UAAL by June 30, 2048. In addition, this method reduces the UAAL from any losses occurring after July 1, 2023, by a reasonable amount each year.
All else	PERSI's valuation assumptions and methods	• The remainder of PERSI's significant assumptions and methods are appropriate for this purpose.

The following table displays the resulting ASOP No. 4 Reasonable ADC Rate.

	ASOP No. 4 Reasonable ADC Rate
Actuarial Accrued Liability	$25,849.4 million
Actuarial Value of Assets[1]	$22,142.4 million
Unfunded Actuarial Accrued Liability	$3,707.0 million
Actuarially Determined Contribution Rate[2]	
Employer	12.29%
Employee	7.70%
Total	19.99%
Normal Cost Rate[2]	16.16%
Measurement Date	July 1, 2024
Effective Date	July 1, 2026
Full Amortization Date[2]	June 30, 2048

1. The Actuarial Value of Assets recognizes only 80% of the FY2021 investment gain of $3,596.6 million, 60% of the FY2022 loss of $3,500.0 million, 40% of the FY2023 gain of $490.6 million, and 20% of the FY2024 gain of $469.6 million (subject to a 20% corridor around the market value of assets). Investment gains and losses were measured using an expected rate of return, net of all expenses, of 6.55% for FY2021, FY2022, FY2023, and FY2024.

2. The original July 1, 2023, UAAL rolled forward to July 1, 2025, was $4.340 billion, of which $4.340 billion remains as of July 1, 2025. This is amortized over the period July 1, 2025, to June 30, 2048. The remainder of the UAAL is amortized over the period July 1, 2026, to June 30, 2036. This produces the following contribution rate schedule (prior to July 1, 2026, PERSI's currently scheduled contribution rates are used).

	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2036	July 1, 2048
Contribution Rate	20.96%	23.45%	19.99%	21.85%	15.86%
Normal Cost Rate	16.23%	16.41%	16.16%	16.30%	15.86%

Table 13
Cash Flow History and Projections

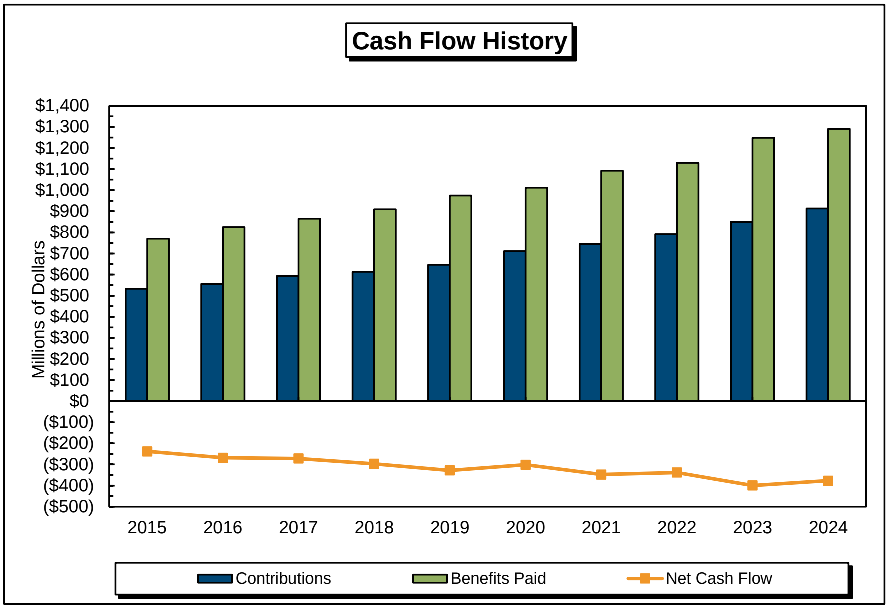
(All dollar amounts in millions)

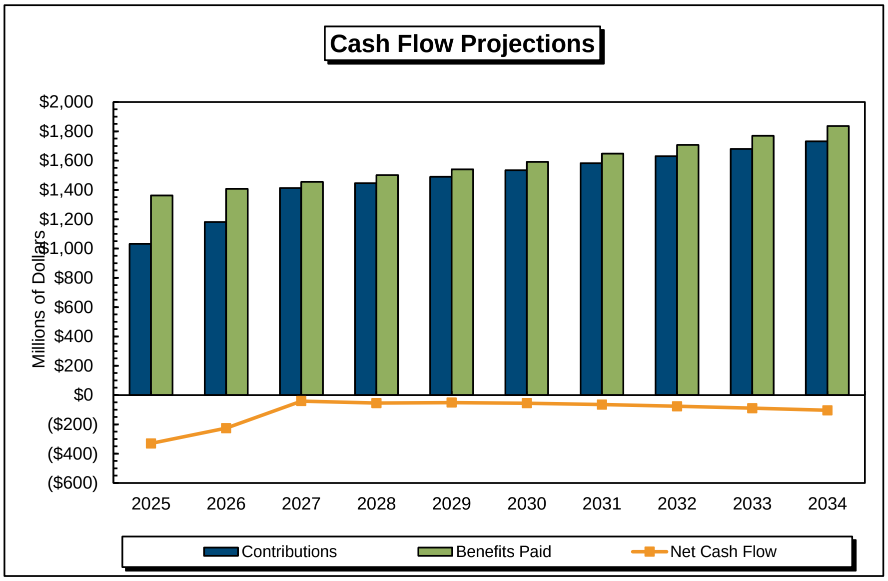
Year Ending June 30	Historical Cash Flows: Contributions	Benefits Paid	Net Cash Flow
2015	$ 532.7	$ 770.6	$ (237.9)
2016	556.5	824.5	(268.0)
2017	593.4	864.8	(271.4)
2018	613.1	909.7	(296.6)
2019	647.1	975.2	(328.1)
2020	711.4	1,012.5	(301.1)
2021	745.0	1,092.4	(347.4)
2022	791.6	1,129.4	(337.8)
2023	849.5	1,249.1	(399.6)
2024	913.8	1,290.5	(376.7)

Year Ending June 30	Projected Cash Flows: Contributions	Benefits Paid	Net Cash Flow
2025	$ 1 031.0	$ 1,361.6	$ (330.6)
2026	1,181.3	1,407.4	(226.1)
2027	1,412.5	1,454.2	(41.7)
2028	1,445.5	1,500.8	(55.3)
2029	1,489.5	1,540.9	(51.4)
2030	1,535.0	1,590.7	(55.7)
2031	1,581.8	1,647.3	(65.5)
2032	1,630.0	1,706.6	(76.6)
2033	1,679.8	1,769.6	(89.8)
2034	1,731.0	1,835.4	(104.4)

Notes:

1. This table only shows cash flows for PERSI pension benefits.
2. Projected contributions are based on the currently scheduled contribution rates.
3. A negative cash flow means a portion of the Plan's investment income will need to be used to cover expected benefit payments. This could impact the Plan's future asset allocations and asset liquidity needs.
4. Projected benefits paid only includes benefits paid to members included in this valuation. No adjustments are made for benefits paid to future new members. Also, these projected benefits paid don't include future payments to members who terminated prior to the valuation date with a non-vested benefit but have not yet taken a refund of their employee contributions.





Notes:

1. This table only shows cash flows for PERSI pension benefits.
2. Projected contributions are based on the currently scheduled contribution rates.
3. A negative cash flow means a portion of the Plan's investment income will need to be used to cover expected benefit payments. This could impact the Plan's future asset allocations and asset liquidity needs.
4. Projected benefits paid only includes benefits paid to members included in this valuation. No adjustments are made for benefits paid to future new members. Also, these projected benefits paid don't include future payments to members who terminated prior to the valuation date with a non-vested benefit but have not yet taken a refund of their employee contributions.

7. Risk Disclosure

The purpose of this section is to identify, assess, and provide illustrations of risks that are significant to the Plan, and in some cases to the Plan's members.

In addition, as plans mature, they accumulate larger pools of assets and liabilities. This increases the potential risk to plan funding and the finances of those who are responsible for plan funding. As shown by the Asset Volatility Ratio discussed later in this section, the System's assets are now much larger compared to payroll than in the past. The Asset Volatility Ratio example shows that because of this, a 10% investment loss on assets today costs about fifteen times as much, when measured as a percent of payroll, than a 10% investment loss would have cost in 1968. Since pension plans make long-term promises and rely on long-term funding, it is important to consider how mature the plan is today, and how mature it may become in the future.

The results of any actuarial valuation are based on one set of assumptions. Although we believe the current assumptions for the System provide a reasonable estimate of future expectations, it is almost certain that future experience will differ from the assumptions to some extent. It is therefore important to consider the potential impacts of these potential differences between assumptions and experience when making decisions that may affect the future financial health of the Plan, or of the Plan's participants.

Actuarial Standard of Practice No. 51 (ASOP 51) addresses these issues by providing actuaries with guidance for assessing and disclosing the risk associated with measuring pension liabilities and the determination of pension plan contributions. Specifically, it directs the actuary to:

- Identify risks that may be significant to the plan.
- Assess the risks identified as significant to the plan. The assessment does not need to include numerical calculations.
- Disclose plan maturity measures and historical information that are significant to understanding the plan's risks.

This Section uses the framework of ASOP 51 to communicate important information about significant risks to the System, the System's maturity, and relevant historical Plan data.

Identification of Risks

There are a number of factors that affect future valuation results. To the extent actual experience for these factors varies from the assumptions, this will likely cause either increases or decreases in the plan's future funding level and calculated contribution rates. Examples of factors that can have a significant impact on valuation results are:

- Investment return as this will impact the level of assets available to pay benefits.
- PAAs as discretionary PAAs increase the cost of the System.
- Payroll variation as this will impact the ability to finance unfunded amounts as a percent of future pay.
- Salary variation as this will impact the size of benefits members receive as a percent of final earnings.
- Mortality as this will impact how long retirees receive benefits.
- Service retirement as this will impact: how long retirees receive benefits, the size of retiree benefits, the amount of time to receive employer and employee contributions, and the amount of time for investment earnings to accumulate on those contributions.
- Termination (members leaving active employment for reasons other than death, disability, or service retirement) as this will impact the size of those members' benefits.

Investment Return

Of the factors listed above, we believe the factor with the greatest potential risk is future investment returns. For example, based on current assumptions, including a 6.30% investment return (net of all expenses), the UAAL is expected to be fully paid off over the next 10.8 years – well within the statutory limit of 25 years. However, if the Plan has a low investment return year in 2025, this could quickly change. Specifically, an asset return of -12.8% in fiscal year 2025 would raise that amortization period to the 25 year statutory limit. Anything less than that would put the Plan above the limit and require a contribution rate increase. Assuming returns are normally distributed with a mean of 6.30% and a standard deviation of 13.00%, we calculate that there is a 7% probability of the asset return in 2025 being less than -12.8%. Table C-11, in the Appendices of this report, shows how investment returns have varied since 1968.

The plan's target allocation represents a balance of risk and return. Investing in lower-returning asset classes should reduce future investment returns and therefore increase future contribution rates, but the lower risk levels might result in lower year-over-year volatility in contribution rates. Conversely, investing in higher-returning asset classes should increase future investment returns and therefore reduce future contribution rates, but might also increase the volatility of those contribution rates.

If the plan were invested in a low-default-risk portfolio (e.g.,100% in the Bond Buyer GO 20-Bond Municipal Index), it would impact the investment earnings assumption and therefore the Actuarial Accrued Liability, Funded Ratio, and ultimately the contribution rates; the volatility of the contribution rates would also change based on the risk level of the portfolio:

July 1, 2024	Bond Buyer Index[1]	Plan's Current Assumption
Investment Earnings Assumption[2]	3.88%	6.30%
Actuarial Accrued Liability[3]	$35.5 billion[4]	$25.9 billion

[1] This would be considered a "low-default-risk obligation measure (LDROM)" using the language of ASOP No. 4.
[2] Net of all expenses including 0.05% of assumed administrative expenses.
[3] Excludes the present value of expected contributions from ORP members.
[4] Calculated using the same actuarial assumptions and methods that were used for this valuation, except for the interest rate.

The Bond Buyer Index example helps the reader understand the cost of investing in an all-bond portfolio and significantly lowering expected long-term investment returns. The plan's current assumption reflects the actual investment portfolio. Benefit security for members of the plan relies on a combination of the assets in the plan, the investment returns generated on those assets, and the promise of future contributions from the plan sponsors.

Since the assets of the system are not invested in an all-bond portfolio, the Bond Buyer Index example does not indicate the funding status or progress, nor provide information on necessary plan contributions or the security of participant benefits. The difference between the plan's current assumption and the Bond Buyer Index example can be thought of as representing the expected taxpayer savings from investing in the plan's diversified portfolio compared to investing only in high quality bonds.

Postretirement Benefit Increases (Postretirement Allowance Adjustments or PAAs)

PERSI members receive an automatic PAA each year of up to 1.00%. If CPI-U is greater than 1.00% in a year, the Board has the authority to grant a discretionary PAA to make up the difference (see Appendix B for more details). Considering the risk disclosures recommended by ASOP 51, we include the following hypothetical to illustrate the sensitivity of a higher PAA assumption. If the annual PAA assumption used in the liabilities and costs calculated in this report were raised from 1.00% to 2.00% per year (i.e., 2% annual PAA for the entirety of the Plan's life), we estimate that it would increase the UAAL as of July 1, 2024, by $2.6 billion above the $3.8 billion shown in this report.

Demographic Experience

While investment returns and discretionary PAAs have historically caused the greatest deviation from expected experience, there are many other assumptions made in an actuarial valuation. For these assumptions, differences between actual and assumed experience will also result in actuarial gains and losses. Table 2, in Section 1 of this report, provides a look at the impact in recent years of actual experience deviating from assumed.

Asset Volatility Ratios and Liability Volatility Ratios

The magnitude of any contribution rate increase or decrease is affected by the System's maturity level. As systems mature, they accumulate larger pools of assets. Gains and losses on these larger pools of assets create more volatility in the contributions needed to fund the System.

One indicator of this potential volatility is the Asset Volatility Ratio (AVR), which is equal to the market value of assets divided by total payroll. As assets grow compared to payroll, any percentage gain or loss on those assets will be larger compared to payroll. This causes any resulting changes in required contributions from those gains or losses to also be larger when measured as a percent of payroll. Therefore, plans with a high AVR will be subject to a greater level of volatility in required contributions. The AVR is a current measure since it is based on the current level of assets and will vary from year to year. The current AVR for PERSI is 4.8, which is significantly higher than the AVR in 1968 of 0.3.

Another measure of a system's maturity is the Liability Volatility Ratio (LVR), which is equal to the AAL divided by the total payroll. This ratio provides an indication of the longer-term potential for contribution volatility for any given level of liability volatility. In addition, this ratio provides an indication of the potential contribution volatility due to liability experience (gains and losses) and liability re-measurements (assumption changes). For PERSI, the current LVR is 5.7.

Historical and Projected Cash Flows

One way to assess future risks is to look at historical measurements. Table 13, in Section 6 of this report, summarizes the System's historical cash flows for the last 10 years and the projected cash flows for the next 10 years. Additional historical information can be found in Appendix C.

Appendix A Actuarial Procedures and Assumptions

The actuarial procedures and assumptions used in this valuation are described in this section. The economic, mortality, and demographic assumptions were changed as of July 1, 2021, based on our 2021 Experience Study.

The mortality assumptions are based on the Pub 2010 Mortality Tables with generational mortality improvement adjustments, as described in this section.

The actuarial assumptions used in the valuations are intended to estimate the future experience of the members of the System and of the System itself in areas that affect the projected benefit flow and anticipated investment earnings. Any variations in future experience from that expected from these assumptions will result in corresponding changes in the estimated costs of the System's benefits.

Table A-1 summarizes the assumptions. The mortality rates are taken from the sources listed. The other rates were developed from the experience of the System and are illustrated in Tables A-2 through A-9, as noted.

Tables A-2 and A-3 present the expected annual percentage increase in salaries. Table A-9 presents the probability of refund of contributions upon termination. The other tables in this section give rates of decrement expressed as percentages.

Actuarial Cost Method

The actuarial valuation is prepared using the individual entry age actuarial cost method. In August 2013 the Board adopted this new cost method. Under the principles of this method, the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of the individual's projected compensation between entry age and assumed exit. The portion of this actuarial present value allocated to a valuation year is called the normal cost. The portion of this actuarial present value not provided for at a valuation date by the sum of (a) the actuarial value of the assets, and (b) the actuarial present value of future normal costs is called the unfunded actuarial accrued liability (UAAL). The UAAL, if positive, is amortized as a level percentage of the projected salaries of present and future members of the System (and ORP) during various amortization periods. In effect, this means that UAAL amortization payments are assumed to grow at the same rate as the General Wage increase assumption (currently 3.05%).

The normal cost rates used in this valuation were calculated based on all current active members as of July 1, 2024. The normal cost and projected salaries for fiscal year 2025 for all active members were calculated. The ratio of the two is the aggregate normal cost rate. Separate normal cost rates for each type of employee are shown in Table 10.

Records and Data

The data used in this valuation consist of financial information and the age, service, and income records for contributing and former contributing members and their survivors. All of the data were supplied by the System and are accepted for valuation purposes without audit but were reviewed for reasonableness. See table C-10 for a summary of adjustments made to the data supplied by PERSI as part of the valuation.

Growth in Membership

For benefit determination purposes, no growth in the membership of the System is assumed. For funding purposes, the total payroll of covered members is assumed to grow at 3.05% annually due to the combined effects of future wage increases of current active members and the replacement of the current active members by new employees. No growth in the total number of active members is assumed.

Employer Contributions

The employer contribution rate has been set by the Retirement Board effective July 1, 2024, at 14.65% for fire and police members, 11.96% for general members, and 13.48% for teachers. These are assumed to change according to the schedule shown in Table 11.

ORP Contributions

Until July 1, 2025, 1.49% of the university ORP members' salaries will be used to finance the actuarial accrued liability.

Member Contributions

The member contribution rate is set by law to be 60% of the employer contribution rate for all members except fire and police members, whose member contribution rate is set at 72% of the employer rate (prior to the 0.10% increase for the death benefit for fire and police members). After the 72% is applied, the safety member rates are increased by 0.36% for the member-paid duty disability benefit. As of July 1, 2024, the member contribution rates are 10.83% for fire and police members, 7.18% for general members, and 8.08% for teachers. These are assumed to change according to the schedule shown in Table 11.

Valuation of Assets

All assets are valued at market as of the valuation date. The market-value valuation basis for all assets was effective July 1, 1994.

Investment Earnings and Expenses

The future investment earnings of the assets of the System are assumed to accrue at an annual rate (net of investment expenses) of 6.35%, compounded annually. Investment earnings of 0.05% are assumed sufficient to cover the general administrative expenses of the System giving an investment earning assumption (net of all expenses) of 6.30%. These rates were adopted July 1, 2021.

Postretirement Benefit Increases

A nondiscretionary postretirement increase of 1% per year is assumed for the primary valuation.

The purpose of this report is to calculate the statutorily required minimum contribution rates and to compare the current contribution rates to this statutory minimum. Per statute, when calculating this minimum, the cost of additional PAAs (above the 1.00% automatic) are not included in the liabilities until they are granted by the Board. This also allows the Board to consider the cost of each potential additional PAA one year at a time. Therefore, in this valuation report, we assume that future PAAs will be 1.00% per year.

Cash Refund Benefits

Members receiving retirement benefits will not receive less than each member’s accumulated member contributions at retirement. For the fraction of active and inactive members who are assumed to elect a joint annuity benefit, this is approximated in the valuation using a three year certain period.

Interest on Employee Contributions

The credited interest rate on employee contributions is assumed to be 8.50%. The actual credited interest rate will depend on the returns earned by the System’s assets. The Board’s current policy is to credit interest during each calendar year equal to the greater of: 1) 90% of PERSI’s actual rate of return, net of expenses for the prior fiscal year (ending June 30), or 2) 1.0%.

Future Salaries

The rates of annual salary increase assumed for the purpose of the valuation are illustrated in Tables A-2 and A-3. The current assumptions for promotions and longevity were adopted July 1, 2021. In addition to increases in salary due to promotions and longevity, 3.05% per annum rate of increase in the general wage level of the membership is assumed, adopted July 1, 2021.

Retirement

After members attain age 55 (50 for fire and police) and have five years of service, they may retire early with a reduced benefit. These early retirement rates are shown in Table A-6.

During the year after first satisfying the age and service requirements for unreduced benefits, whether for service or early retirement, members are assumed to retire at the rates shown in Table A-4. After the first year of eligibility, members are assumed to retire at the rates shown in Table A-5.

All general members who attain or who have attained age 75 in active service and all other members who have attained age 70 in active service are assumed to retire immediately (regardless of service).

The assumptions regarding termination of employment, early retirement, and unreduced service retirement are treated as a single set of decrements with regard to a particular member. For example, a teacher member hired at age 30 could be expected to possibly withdraw from the System due to death, disability, or other termination of employment until age 55. After age 55, the member could still withdraw due to death or disability. From age 55-60, the member could also withdraw with an early retirement and a reduced benefit, as shown in Table A-6. At age 60 (Rule of 90), the member is first eligible to retire with an unreduced benefit. The probability of retiring at age 60 is shown in Table A-4. Thereafter, the probabilities of retirement for this member are indicated in Table A-5. Thus, in no year during the member's projected employment would more than one of the decrements shown in Tables A-8, A-4, A-5, or A-6 be applied.

Tables A-4, A-5, and A-6 were revised July 1, 2021.

Disability

The rates of disability used in the valuation are illustrated in Table A-7. These rates were revised July 1, 2021.

Mortality

Several different sets of mortality rates are used in the valuation for contributing members, members retired for service, and beneficiaries. These rates were adopted July 1, 2021.

Group	Base Mortality Tables + Adjustments
General Male Annuitant & Male Beneficiaries	Pub-2010, amount-weighted, general, male, annuitant table increased 11%
General Male Non-Annuitant	Pub-2010, amount-weighted, general, male, employee table
General Female Annuitant & Female Beneficiaries	Pub-2010, amount-weighted, general, female, annuitant table increased 21%
General Female Non-Annuitant	Pub-2010, amount-weighted, general, female, employee table
Teacher Male Annuitant	Pub-2010, amount-weighted, teacher, male, annuitant table increased 12%
Teacher Male Non-Annuitant	Pub-2010, amount-weighted, teacher, male, employee table
Teacher Female Annuitant	Pub-2010, amount-weighted, teacher, female, annuitant table increased 21%
Teacher Female Non-Annuitant	Pub-2010, amount-weighted, teacher, female, employee table
Fire & Police Male Annuitant	Pub-2010, amount-weighted, safety, male, annuitant table increased 21%
Fire & Police Male Non-Annuitant	Pub-2010, amount-weighted, safety, male, employee table
Fire & Police Female Annuitant	Pub-2010, amount-weighted, safety, female, annuitant table increased 26%
Fire & Police Female Non-Annuitant	Pub-2010, amount-weighted, safety, female, employee table
Disabled Male	Pub-2010, amount-weighted, general, male, disabled table increased 38%
Disabled Female	Pub-2010, amount-weighted, general, female, disabled table increased 36%

All mortality tables are adjusted with generational projection scales. The projection scales are calculated at each age as the 60-year geometric average of the mortality improvement rates reported by the Social Security Administration from 1957 through 2017 (blended 50% female, 50% male).

Other Employment Terminations

Table A-8 shows the rates assumed in this valuation for future withdrawal from active service for reasons other than death, disability, or retirement with an unreduced benefit. These rates were revised July 1, 2021.

Terminating employees may withdraw their contributions immediately upon termination of employment and forfeit the right to further benefits, or they may leave their contributions with the System. Former contributing members whose contributions are on deposit may later elect to receive a refund, may return to work, or may remain inactive until becoming eligible to receive a retirement benefit. Table A-9 shows the assumed probability, for this valuation, that a member will choose to retain their membership in the System by not withdrawing their contributions upon termination of service. This is referred to as the probability of vesting.

All terminating members who are not eligible for vested benefits are assumed to withdraw their contributions immediately.

Death Benefit Elections

If death occurs in active or disability retirement status, 15% of all members are assumed to have eligible surviving spouses that elect to receive an annuity death benefit (the other 85% are assumed to be paid a lump sum death benefit). Male members are assumed to have a female spouse that is two years younger, and female members are assumed to have a male spouse that is 2 years older.

Form of Payment

Upon commencement, members are assumed to elect annuity payment forms at the following rates:

- 29% will elect a 100% contingent annuitant allowance
- 14% will elect a 50% contingent annuitant allowance
- 57% will elect a regular retirement allowance

These rates were adopted July 1, 2021.

Fire and Police Duty - Death and Disability

For the Fire and Police active members, 5% of deaths are assumed to be duty related. 25% of disabilities are assumed to be duty related, with half of these assumed to be catastrophic disabilities. These assumptions were adopted July 1, 2021.

Inactive Members

For vested inactive members not currently receiving benefits, the present value of benefits is determined based on the estimated benefit payable for retirement at the later of the member’s current age or age 62 (age 55 for fire and police members). This assumption was adopted July 1, 2021.

For non-vested inactive members not currently receiving benefits, the present value of benefits is equal to the accumulated member contributions.

Return to Work

We assume retired members will not return to work with the following exceptions:

Idaho Statute 59-1356(4), which allows certain teachers to return to work and continue receiving their benefit, likely has had an impact on teacher retirement patterns which are built into the retirement rates in Tables A-4, A-5, and A-6. We have made no adjustments to the valuation for the additional employer contributions that will be collected during this return to work period.

Idaho Statute 59-1356(6), which allows certain fire and police members to return to work and continue receiving their benefit through June 30, 2027, is likely to have an impact on retirement patterns. It was passed since the last experience study, so the following adjustments are made to the fire and police retirement rates to anticipate its impact:

- For fiscal year beginning 2023, all fire and police retirement rates for ages 50-59 for members eligible for unreduced benefits (Tables A-4 and A-5) are increased by a factor of 4.0 (but no greater than 100%).
- For fiscal years beginning 2024-2026, fire and police retirement rates for ages 50-59 in the first year a member becomes eligible for unreduced retirement (Table A-4) are increased by a factor of 4.0 (but no greater than 100%).
- For fiscal years beginning 2024-2026, fire and police retirement rates for ages 50-59 for the second and later years a member is eligible for unreduced retirement (Table A-5) are increased by a factor of 2.0 (but no greater than 100%).

- These factors are based on the assumption that as soon as active fire and police members become eligible for unreduced retirement and this statute, they will utilize it at very high rates. We assume a drop-off in the rates if they don't return to work the first year they meet the criteria of this statute. It's also based on the assumption that the younger eligible members are those most likely to utilize this statute, so we limited the increased retirement rates to members under age 60.

In addition, fire and police members who return to work under Idaho Statute 59-1356(6), are assumed continue working until the earlier of July 1, 2027, or age 60, at which point they will cease working to continue receiving their retirement benefits. We have reduced the active member liabilities for the future normal cost rates that are anticipated to be covered by employer and member contributions due to future retirees utilizing this statute.

Table A-1
Summary of Valuation Assumptions

July 1, 2024

I. Economic Assumptions

A.	General wage increases	3.05%
B.	Investment earnings (net of expenses)	6.30
C.	Payroll growth	3.05
D.	Postretirement benefit increases	1.00
E.	Inflation	2.30
F.	Credited interest rate on employee contributions	8.50

II. Demographic Assumptions

A.	Salary increases	Table A-2, A-3
B.	Retirement	Table A-4, A-5, A-6
C.	Disability	Table A-7
D.	Mortality among contributing members, service retired members, and beneficiaries	

Group	Base Mortality Tables + Adjustments
General Male Annuitant & Male Beneficiaries	Pub-2010, amount-weighted, general, male, annuitant table increased 11%
General Male Non-Annuitant	Pub-2010, amount-weighted, general, male, employee table
General Female Annuitant & Female Beneficiaries	Pub-2010, amount-weighted, general, female, annuitant table increased 21%
General Female Non-Annuitant	Pub-2010, amount-weighted, general, female, employee table
Teacher Male Annuitant	Pub-2010, amount-weighted, teacher, male, annuitant table increased 12%
Teacher Male Non-Annuitant	Pub-2010, amount-weighted, teacher, male, employee table
Teacher Female Annuitant	Pub-2010, amount-weighted, teacher, female, annuitant table increased 21%
Teacher Female Non-Annuitant	Pub-2010, amount-weighted, teacher, female, employee table
Fire & Police Male Annuitant	Pub-2010, amount-weighted, safety, male, annuitant table increased 21%
Fire & Police Male Non-Annuitant	Pub-2010, amount-weighted, safety, male, employee table
Fire & Police Female Annuitant	Pub-2010, amount-weighted, safety, female, annuitant table increased 26%
Fire & Police Female Non-Annuitant	Pub-2010, amount-weighted, safety, female, employee table
Disabled Male	Pub-2010, amount-weighted, general, male, disabled table increased 38%
Disabled Female	Pub-2010, amount-weighted, general, female, disabled table increased 36%

All mortality tables are adjusted with generational projection scales. The projection scales are calculated at each age as the 60-year geometric average of the mortality improvement rates reported by the Social Security Administration from 1957 through 2017 (blended 50% female, 50% male).

E.	Other terminations of employment	Table A-8
F.	Probability of Vesting	Table A-9

Table A-2
Future Salaries

Years of Service	Annual Increase in Salary Due to Promotions and Longevity				
	Fire and Police	General Employees		Teachers	
		Men	Women	Men	Women
0	19.84%	17.50%	19.05%	23.70%	23.71%
1	8.74	6.55	7.75	6.46	6.50
2	5.30	3.81	4.57	4.16	4.27
3	4.65	3.13	3.88	4.15	4.06
4	3.85	2.67	3.31	4.15	3.82
5	3.53	2.51	3.04	4.06	3.82
6	3.20	2.34	2.77	3.96	3.82
7	2.87	2.17	2.50	3.87	3.82
8	2.55	2.01	2.23	3.77	3.82
9	2.22	1.84	1.96	3.68	3.82
10	1.94	1.63	1.85	3.29	3.52
11	1.66	1.43	1.75	2.90	3.22
12	1.38	1.22	1.64	2.51	2.91
13	1.10	1.01	1.54	2.12	2.61
14	0.82	0.80	1.43	1.73	2.31
15	0.82	0.80	1.30	1.53	1.97
16	0.82	0.80	1.17	1.33	1.64
17	0.82	0.80	1.04	1.13	1.30
18	0.82	0.80	0.91	0.93	0.97
19	0.82	0.80	0.78	0.73	0.63
20	0.81	0.75	0.78	0.68	0.63
21	0.80	0.69	0.78	0.64	0.63
22	0.78	0.63	0.78	0.59	0.63
23	0.77	0.57	0.78	0.54	0.63
24	0.76	0.52	0.78	0.50	0.63
25 or more	0.67	0.52	0.65	0.38	0.43

In addition to increases in salary due to promotions and longevity, 3.05% per annum rate of increase in the general wage level of the membership is assumed.

Table A-3
Future Salaries
(including general wage increases)

Years of Service	Fire and Police	General Employees Men	General Employees Women	Teachers Men	Teachers Women
	Total Annual Increase in Salary(1)				
0	23.49%	21.09%	22.68%	27.48%	27.48%
1	12.05	9.80	11.03	9.70	9.75
2	8.51	6.98	7.75	7.34	7.45
3	7.84	6.28	7.05	7.33	7.24
4	7.02	5.81	6.46	7.33	6.99
5	6.68	5.63	6.18	7.23	6.99
6	6.35	5.46	5.90	7.13	6.99
7	6.01	5.29	5.63	7.04	6.99
8	5.67	5.12	5.35	6.94	6.99
9	5.34	4.95	5.07	6.84	6.99
10	5.05	4.73	4.96	6.44	6.68
11	4.76	4.52	4.85	6.04	6.36
12	4.47	4.31	4.74	5.64	6.05
13	4.19	4.09	4.64	5.24	5.74
14	3.90	3.88	4.53	4.83	5.43
15	3.90	3.88	4.39	4.63	5.08
16	3.90	3.88	4.26	4.42	4.74
17	3.90	3.88	4.12	4.22	4.39
18	3.90	3.88	3.99	4.01	4.05
19	3.90	3.88	3.85	3.80	3.70
20	3.89	3.82	3.85	3.76	3.70
21	3.87	3.76	3.85	3.71	3.70
22	3.86	3.70	3.85	3.66	3.70
23	3.84	3.64	3.85	3.61	3.70
24	3.83	3.58	3.85	3.56	3.70
25 or more	3.74	3.58	3.72	3.44	3.49

1. The total expected increase in salary is the increase due to promotions and longevity, shown in Table A-2, adjusted for an assumed 3.05% per annum increase in the general wage level of the membership. The total result is compounded rather than additive.

Table A-4
Immediate Retirement

	Retirement Rates in First Year Eligible for Unreduced Benefits				
	Fire and	General Employees		Teachers	
Age	Police	Men	Women	Men	Women
55[(1)]	29%	20%	19%	32%	33%
56	25	24	19	32	33
57	27	25	22	34	36
58	24	18	19	27	40
59	24	21	23	40	39
60	14	21	29	36	32
61	16	22	25	32	44
62	16	30	37	56	56
63	16	35	27	42	55
64	16	31	30	59	55
65	34	31	36	36	44
66	34	17	22	20	38
67	34	17	22	20	38
68	34	17	22	20	38
69	34	17	22	20	38
70	(2)	14	18	(2)	(2)
71		14	18		
72		14	18		
73		14	18		
74		14	18		
75		(2)	(2)		

1. 47% rate assumed for fire and police members eligible for age 50, 26% for age 51, 24% for age 52, 23% for age 53, and 28% for age 54.

2. For all ages older than the age indicated, retirement is assumed to occur immediately.

Table A-5
Service Retirement

	Retirement Rates Among Persons Who Have Been Eligible for Unreduced Benefits for At Least One Year				
	Fire and	General Employees		Teachers	
Age	Police	Men	Women	Men	Women
55(1)	24%	N/A	N/A	N/A	N/A
56	16	17%	13%	14%	27%
57	20	8	15	18	31
58	18	14	13	23	22
59	20	15	14	21	22
60	25	14	16	33	27
61	16	18	19	21	24
62	26	31	29	51	46
63	21	24	24	40	37
64	17	24	28	41	32
65	37	43	43	41	49
66	33	27	33	37	41
67	27	20	25	32	36
68	35	20	22	26	30
69	31	22	21	22	29
70	(2)	21	25	(2)	(2)
71		20	21		
72		21	20		
73		22	25		
74		22	19		
75		(2)	(2)		

1. 14% rate assumed for fire and police members eligible from age 51, 23% for age 52, 20% for age 53, and 19% for age 54.

2. For all ages older than the age indicated, retirement is assumed to occur immediately.

Table A-6
Early Retirement

	Retirement Rates Among Persons Eligible for Reduced Early Retirement Benefits				
	Fire and	General Employees		Teachers	
Age	Police	Men	Women	Men	Women
50	4.0%				
51	4.3				
52	4.1				
53	5.7				
54	5.4	(1)	(1)	(1)	(1)
55	6.3	2.2%	2.6%	2.1%	3.2%
56	6.6	2.4	2.2	3.1	3.2
57	6.3	2.8	2.6	4.2	3.8
58	5.7	3.4	2.8	5.2	5.3
59	9.3	3.7	4.2	7.0	6.3
60		4.8	5.7	9.1	9.9
61		6.6	6.7	8.1	10.8
62		16.8	17.0	18.8	18.6
63		11.5	12.7	14.9	14.4
64		13.6	14.2	15.5	16.8

1. Not eligible for retirement.

Table A-7
Disability

	Annual Rates				
	Fire and	General Employees		Teachers	
Age	Police	Men	Women	Men	Women
20	0.012%	0.007%	0.010%	0.006%	0.028%
25	0.012	0.007	0.010	0.006	0.028
30	0.021	0.007	0.010	0.006	0.028
35	0.047	0.049	0.025	0.027	0.026
40	0.075	0.057	0.060	0.055	0.031
45	0.123	0.091	0.098	0.064	0.097
50	0.285	0.180	0.185	0.150	0.164
55	0.400	0.319	0.261	0.191	0.296
60	0.000	0.392	0.323	0.227	0.324

Table A-8
Other Terminations of Employment

Years of Service	Annual Rates				
	Fire and Police	General Employees		Teachers	
		Men	Women	Men	Women
0	17.1%	21.0%	21.7%	12.8%	12.4%
1	12.8	16.3	18.9	12.8	12.4
2	9.4	13.2	15.0	9.9	10.9
3	8.7	10.9	12.3	7.4	8.6
4	7.5	10.3	11.2	6.4	7.4
5	6.8	9.2	10.4	5.8	6.7
6	6.2	8.1	9.5	5.2	6.0
7	5.5	7.0	8.7	4.6	5.3
8	4.8	5.9	7.8	4.0	4.6
9	4.2	4.8	7.0	3.4	3.9
10	3.9	4.7	6.5	3.2	3.6
11	3.7	4.6	6.0	3.0	3.3
12	3.5	4.5	5.5	2.8	2.9
13	3.2	4.5	5.0	2.5	2.6
14	3.0	4.4	4.5	2.3	2.3
15	2.7	4.0	4.2	2.1	2.1
16	2.4	3.6	3.9	1.9	1.9
17	2.1	3.1	3.6	1.7	1.7
18	1.8	2.7	3.3	1.4	1.5
19	1.5	2.3	3.0	1.2	1.3
20	1.5	2.3	3.0	1.2	1.3
21	1.4	2.3	2.9	1.2	1.2
22	1.4	2.3	2.8	1.1	1.2
23	1.3	2.3	2.8	1.1	1.2
24	1.3	2.3	2.7	1.1	1.1
25	1.3	1.8	2.4	0.9	0.9

Table A-9
Probability of Vesting

	Probabilities of Vesting				
	Fire and	General Employees		Teachers	
Age	Police	Men	Women	Men	Women
25	60%	68%	71%	90%	78%
30	57	72	76	84	87
35	60	76	76	80	86
40	69	75	74	83	84
45	76	78	79	85	88
50	N/A	82	87	91	93
55	N/A	N/A	N/A	N/A	N/A

Appendix B Provisions of Governing Law

All actuarial calculations are based on our understanding of the statutes governing the Public Employee Retirement System of Idaho, as contained in Sections 59-1301 through 59-1399, inclusive, of the Idaho Code, with amendments effective through July 1, 2024. The benefit and contribution provisions of this law are summarized briefly below, along with corresponding references to the Idaho Code. This summary does not attempt to cover all the detailed provisions of the law. Only those benefits in effect through July 1, 2024, are considered in this valuation. The items in parentheses are the provisions applicable to firefighters and police officers.

Effective Date

The effective date of the Retirement System was July 1, 1965.

Member Contribution Rate

The member contribution rate effective July 1, 2024, is 10.83% for fire and police members, 7.18% for general members, and 8.08% for teachers.

The member contribution rate is fixed at 60% (72%) of the employer contribution rate. For firefighters and police officers, the 72% adjustment is applied after reducing the employer rate by 0.10% for the 2003 addition of a $100,000 death benefit for fire and police members who die in the line of duty. After the 72% is applied, the resulting rate is increased by 0.36% for the duty disability benefit. Member contributions have been “picked up” on a pre-tax basis by the employer since June 30, 1983 (Sections 59-1331 and 59-1332).

Employer Contribution Rate

The employer contribution rate is set by the Retirement Board (Section 59-1322). The current rates are 14.65% for firefighters and police officers, 11.96% for general members, and 13.48% for teachers.

Service Retirement Allowance

Eligibility

Age 65 (60) with five years of service, including six months of membership service (Section 59-1341).

Amount of Allowance

For each year of credited service, the annual service retirement allowance is 2.0% (2.3%) of the highest 42-month average salary (Section 59-1342).

Minimum Benefit

$60 ($72) annual allowance for each year of service. The dollar amounts increase after 1974 according to the PAAs (Section 59-1342).

Maximum Benefit

In no case may a member's regular retirement benefit exceed the highest three-year average salary of the member (Section 59-1342).

Plus-Up Benefits *(a.k.a., late retirement increases)*

For each month of service an active member accrues after age 70 with five years of service, the member’s benefit is increased by an amount determined by the Board (Section 59-1342(7)). The current administrative rules are to increase benefits by 0.6% per month. This increase is applied after the application of the minimum and maximum benefits.

Normal Form

Straight life retirement allowance plus any death benefit (Section 59-1351).

Optional Form

Members can elect a 100% or 50% Contingent Annuitant Allowance. They may also choose to have their benefit be adjusted such that they receive a greater amount prior to social security normal retirement age and a reduced amount after such age, such that the difference in the two amounts is approximately equal to the social security benefit to be payable at such age. These optional forms are calculated to be actuarial equivalent to the normal form under the options available, according to the mortality and interest basis adopted by the Board (Section 59-1351).

Early Retirement Allowance

Eligibility

Age 55 (50) with five years of service, including six months of membership service (contributing members only) (Section 59-1345).

Amount of Allowance

Full accrued service retirement allowance if age plus service equals 90 (80); otherwise, the accrued service retirement allowance, reduced by 3% for each of the first five years by which the early retirement date precedes the date the member would be eligible to receive the full accrued benefit, and by 5.75% for each additional year (Section 59-1346).

Vested Retirement Allowance

Eligibility

Former contributing members with five years of membership service are entitled to receive benefits after attaining age 55 (50) (Section 59-1345).

Amount of Allowance

Same as early retirement allowance (Section 59-1345).

Disability Retirement Allowance

Eligibility

Five years of membership service. For a police officer or a firefighter hired after July 1, 1993, who is disabled from an occupational cause, there is no service requirement (Section 59-1352).

Amount of Allowance

Projected service retirement allowance based on accrued service plus service projected to age 65 (60) (latter limited to excess of 30 years over accrued service) less any amount payable under workers' compensation law (Section 59-1353).

Normal Form

Temporary annuity to age 65 (60) plus any death benefit. Service retirement allowance becomes payable in the same amount at age 65 (60) (Section 59-1354).

Fire and Police Member Line of Duty Disability Benefit

Fire and Police members who are disabled in the line of duty are eligible for a $100,000 lump sum benefit, in addition to the annuity benefits discussed above (Section 59-1352A).

Those whose disability is deemed to be "Catastrophic" are instead eligible for a $500,000 lump sum benefit. In addition, they get an annuity of the greater of the amount described above, or $75,000. The $75,000 is adjusted every four years per changes in average public safety officer benefits since July 1, 2021. If the member receives this alternative $75,000 annuity, their benefit will increase per the indexing described in the prior sentence instead of the regular PERSI postretirement allowance adjustments. In addition, a catastrophically disabled member's annuity is paid out as a 100% Contingent Annuitant Allowance without the usual reduction (Section 59-1352B).

Death Benefits

After Retirement

Under the normal form of the retirement allowance, the excess, if any, of the member's accumulated contributions with interest at retirement over all payments received. Otherwise, payable according to the option elected (Section 59-1361).

Before Retirement

A. If a member with at least five years of service, a lump sum payment is made equal to twice the accumulated contributions with interest:

or

B. If the member had an eligible spouse at the time of their death, the spouse may elect to forego the lump sum and instead receive an immediate lifetime annuity. The annuity is calculated as the amount the member would have received if they had retired immediately prior to their death and elected the 100% Contingent Annuitant Allowance payment form. If the member was not yet eligible for retirement, then the annuity amount is reduced such to make it actuarially equivalent to an annuity deferred to the earliest eligible retirement age of the member (calculated as if they had separated from service immediately prior to their death) (Section 59-1361).

Fire and police members are entitled to an additional $100,000 payment if death occurs in the line of duty. (Section 59-1361 A).

Withdrawal Benefits

Accumulated contributions with interest (Section 59-1358). The interest rate is determined by the Board (Section 59-1301(26)).

Postretirement Increases

Postretirement Allowance Adjustments (PAAs) are based on changes in the Consumer Price Index. The measurement period for changes in the CPI-U is from August to August. The PAA changes are implemented effective on the March 1 following the measurement period.

If the CPI-U increases by at least 1%, the PAA is at least 1%. If the CPI-U increases by more than 1%, an additional postretirement increase of up to 5% each year (but not more than the increase in the CPI-U) may be authorized by the Board, subject to the approval of the Legislature.

If the CPI-U increases by less than 1% or decreases, the PAA is automatic, based on the change in the CPI-U. If a negative PAA is applicable, the negative PAA cannot decrease benefits by more than 6%. Additionally, a negative PAA cannot decrease a member's benefit below the amount of the benefit at the initial benefit date.

If a PAA is implemented that is less than the increase in the CPI-U, members' benefits will not retain their full inflation-adjusted purchasing power. In such cases, the Board may implement a retro PAA at a later date to bring those members closer to 100% of inflation-adjusted purchasing power. As with a discretionary PAA, a retro PAA is subject to approval of the Legislature (Section 59-1355).

Gain Sharing

Beginning in 2000, under Section 59-1309, Idaho Code, the Board may allocate all or a portion of "extraordinary gains" to active and retired members and employers as Gain Sharing.

Extraordinary gains are defined as the excess, if any, at the close of the fiscal year of the Assets over Actuarial Accrued Liabilities plus an amount necessary to absorb a one standard deviation market event without increasing contribution rates, as determined by the Board. Under the Board's current investment policy, assets in excess of a 113% funded ratio are considered extraordinary gains. The Board has the authority to rescind the Gain Sharing up to the date of distribution.

Return to Work

Under Section 59-1356, Idaho Code, if a retired member is reemployed by a PERSI employer, their retirement benefits cease, contributions (both employer and member) restart, and the member begins accruing a new benefit. Section 59-1356 lays out the following exceptions to this rule.

If a retired member becomes re-employed, at least 6 months after retirement, as a result of being elected to public office (other than an office held prior to retirement) the member may elect to continue receiving retirement benefits. In which case, no contributions will be made by the member or employer, and the member will not accrue additional benefits.

If a teacher who retired (without a promise of reemployment) after age 60 or a public safety officer is reemployed as a teacher at least 90 days after their retirement and was receiving an unreduced service retirement benefit, the member may elect to continue receiving retirement benefits. In which case, no contributions will be made by the member (the employer still makes contributions), and the member will not accrue additional benefits.

If a member who retired (without a promise of reemployment) after age 55 and before January 1, 2022, is reemployed at least 90 days after their retirement, the member may elect to continue receiving retirement benefits. In which case, no contributions will be made by the member (the employer still makes contributions), and the member will not accrue additional benefits. This exception expires on July 1, 2026.

Effective July 1, 2023, if a police officer or firefighter who retired (without a promise of reemployment) after age 50, is reemployed at least 30 days after their retirement, the member may elect to continue receiving retirement benefits. In which case, contributions restart (both employer and member) at the fire and police rate (even if reemployed as a teacher or general member), but the member will not accrue additional benefits. This exception expires on July 1, 2027.

Appendix C Valuation Data and Comparative Schedules

This valuation is based on the membership of the System as of June 30, 2024. We relied on data supplied by the System. If there are material defects in the data, it is possible they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

The membership of the System includes employees of the State of Idaho and participating political subdivisions. The membership is divided into three categories:

1. Fire and Police
   Firefighters, Idaho state police, county law enforcement, city law enforcement, conservation officers, employees of the department of correction, employees of the adjutant general and military division, magistrates of the district courts, court employees responsible for court security or transportation of prisoners, employees certified by the Idaho department of health and welfare as an emergency medical technician, criminal investigators of the attorney general's or prosecuting attorney's office, and the director of security and the criminal investigators of the Idaho state lottery (Section 59-1302(16) and 59-1303)

2. Teachers
   Any employee of any school district or charter school employed as instructional staff, pupil service staff, or professionally endorsed staff, any staff holding a teacher certificate, school bus drivers, and resource officers (Section 59-1302(31A))

3. General Employees
   All other employees eligible for participation in the System including other state employees and general employees of the political subdivisions, local school districts, and colleges and universities

The data for all contributing members, former contributing members, and their survivors are summarized in Table C-1. Table C-2 summarizes their age and service statistics. Table C-3 summarizes the active members by age groups.

Detailed statistics regarding the distributions of members receiving service or disability retirement benefits, beneficiaries of deceased members, and active members in each category of membership have been reported separately to the System.

Tables C-4 through C-7 summarize the experience of the System since June 30, 1968. Earlier data are not comparable, since the Idaho Teachers' Retirement System merged with the Public Employee Retirement System of Idaho just prior to that date.

Table C-4 shows a summary of the active members and the annuitants covered as of the various valuation dates.

Table C-5 summarizes the contribution rates, the amortization period, and the UAAL determined at each annual actuarial valuation.

Table C-6 presents a brief history of the financial experience of the System's investments.

Any review of these comparative schedules should be made in light of Tables C-7 and C-8, which show the significant changes affecting the actuarial valuations in recent years.

Table C-9 summarizes changes in status for active and inactive numbers and annuitants between July 1, 2023, and July 1, 2024.

Table C-10 reconciles the member records received from PERSI with the records used in the valuation and summarizes adjustments made to records with missing data.

The total salaries paid to ORP members who are contributing 1.49% for the year ending June 30, 2024, was $437.5 million. As of July 1, 2012, the ORP members who had been contributing 3.83% of salary are no longer required to contribute anything. These contributions are used to finance the UAAL.

Table C-11 summarizes the yields for various historical periods, net of investment expenses.

Table C-12 shows a history of the funded status of the plan.

Table C-1
Summary of Membership Data

	Active Members			Annuitants		
	Number[1]	Annual Salaries in Thousands	Average Annual Salaries	Number	Annual Benefits in Thousands	Average Annual Benefits
July 1, 2023						
Fire and Police	8,834	$682,639	$77,274	4,333	$152,472	$35,189
General Employees:						
Male	18,576	1,040,669	56,022	13,874	277,161	19,977
Female	28,758	1,216,814	42,312	21,378	307,578	14,388
Teachers:						
Male	5,176	359,812	69,515	4,681	159,134	33,996
Female	15,324	937,340	61,168	10,414	295,615	28,386
Total	76,668	$4,237,274	$55,268	54,680	$1,191,960	$21,799
July 1, 2024						
Fire and Police	9,237	$754,870	$81,722	4,509	$163,501	$36,261
General Employees:						
Male	18,650	1,094,144	58,667	14,122	286,663	20,299
Female	28,498	1,265,619	44,411	22,092	326,140	14,763
Teachers:						
Male	5,550	389,618	70,201	4,720	161,831	34,286
Female	16,419	1,037,567	63,193	10,641	305,066	28,669
Total	78,354	$4,541,818	$57,965	56,084	$1,243,201	$22,167

1. Not included in these figures are the following:

	Vested Inactive Members Not Currently Receiving Benefits					
	Number	Annual Benefits in Thousands[2]	Average Annual Benefits	Non-Vested Inactive Members	Other Inactive Members[3]	Total Inactive Members
2023	16,082	$148,283	$9,220	35,968	24	52,074
2024	16,519	$156,031	$9,446	38,508	27	55,054

2. At normal retirement date.

3. These members were active with at least 5 years of service as of the valuation date, but PERSI reported their salary as zero. They were treated as vested inactive members.

Note: In 2024, 60 vested annuitants of the Firefighters' Retirement Fund were not eligible for a PERSI benefit. In 2023, 66 were not eligible.

Table C-2
Summary of Age and Service Statistics

	Active Members					Inactive Members Not Currently Receiving Benefits	Members Receiving Service or Early Retirement Benefits			
	Vested	Non-vested	Total	Average Current Age	Average Current Service		Number	Average Current Age	Average Retirement Age	Average Service
July 1, 2023										
Fire and Police	5,493	3,341	8,834	39.8	9.5	1,036	4,333	68.8	57.0	20.1
General Employees:										
Male	10,268	8,308	18,576	46.9	8.6	4,377	13,874	73.9	63.3	18.9
Female	14,806	13,952	28,758	46.4	8.0	7,130	21,378	73.7	62.7	18.1
Teachers:										
Male	3,768	1,408	5,176	45.8	12.6	887	4,681	74.7	61.3	25.6
Female	10,292	5,032	15,324	44.3	11.1	2,652	10,414	73.5	61.3	23.7
Total	44,627	32,041	76,668	45.3	9.3	16,082	54,680	73.4	62.0	20.2
July 1, 2024										
Fire and Police	5,594	3,643	9,237	39.4	9.3	1,085	4,509	68.9	56.9	20.3
General Employees:										
Male	10,268	8,382	18,650	46.6	8.5	4,497	14,122	74.2	63.4	18.9
Female	14,577	13,921	28,498	46.3	8.0	7,273	22,092	73.9	62.7	18.2
Teachers:										
Male	3,907	1,643	5,550	46.4	12.1	912	4,720	75.0	61.3	25.5
Female	10,883	5,536	16,419	44.6	10.9	2,752	10,641	73.8	61.3	23.6
Total	45,229	33,125	78,354	45.2	9.2	16,519	56,084	73.7	62.0	20.2

Note: The averages shown in this table are for general information purposes. The valuation results depend upon the personnel data underlying the averages, rather than upon the averages themselves.

Table C-3
Age Distribution of Active Members

	Age Groups					
	0-29	30-39	40-49	50-59	60+	Total
July 1, 2023						
Fire and Police	1,769	2,769	2,395	1,568	333	8,834
General Employees:						
Male	2,021	3,744	4,547	4,673	3,591	18,576
Female	3,166	5,560	7,552	7,621	4,859	28,758
Teachers:						
Male	372	1,156	1,587	1,575	486	5,176
Female	1,807	3,315	4,848	4,064	1,290	15,324
Total	9,135	16,544	20,929	19,501	10,559	76,668
Percentage of Total	11.92%	21.58%	27.30%	25.44%	13.77%	100.00%
July 1, 2024						
Fire and Police	2,011	2,836	2,445	1,613	332	9,237
General Employees:						
Male	2,158	3,700	4,636	4,699	3,457	18,650
Female	3,236	5,513	7,550	7,526	4,673	28,498
Teachers:						
Male	425	1,194	1,630	1,646	655	5,550
Female	1,892	3,484	5,244	4,378	1,421	16,419
Total	9,722	16,727	21,505	19,862	10,538	78,354
Percentage of Total	12.41%	21.35%	27.45%	25.35%	13.45%	100.00%

Total percentages may not add due to rounding.

Table C-4
Membership Data

Valuation Date (July 1)	Active Members: Number	Active Members: Annual Salaries in Millions	Active Members: Average Annual Salary	Active Members: Average Age	Active Members: Average Years of Service	Annuitants: Number	Annuitants: Annual Benefits in Thousands	Annuitants: Average Annual Benefit	Annuitants: Average Age
1968	16,014	$ 95	$ 5,906	(1)	(1)	2,498	$3,207	$ 1,284	(1)
1969	19,796	124	6,247	(1)	(1)	2,977	4,351	1,462	(1)
1970	21,048	140	6,672	(1)	(1)	3,565	5,261	1,476	(1)
1971	23,505	160	6,805	(1)	(1)	4,298	6,442	1,499	(1)
1972	29,648	203	6,832	(1)	(1)	4,862	7,255	1,492	(1)
1973	30,174	219	7,255	(1)	(1)	5,659	8,494	1,501	(1)
1974	30,603	243	7,953	41.6	6.3	6,301	12,993	2,062	69.7
1975	32,545	286	8,771	41.2	6.2	7,058	15,098	2,139	69.7
1976	35,658	342	9,596	40.3	6.7	7,745	16,981	2,193	69.3
1977	37,559	381	10,135	40.1	6.7	8,573	20,172	2,353	69.5
1978	38,122	418	10,967	40.8	6.7	9,235	23,176	2,510	70.8
1979	38,848	459	11,826	40.9	6.8	9,982	26,593	2,664	71.0
1980	39,510	497	12,580	41.1	7.0	10,606	29,876	2,817	71.2
1981	40,722	550	13,518	41.2	7.0	11,279	34,073	3,021	71.3
1982	40,537	596	14,700	41.4	7.3	12,035	39,103	3,249	72.3
1983	40,495	630	15,557	41.6	7.6	12,766	44,597	3,493	71.5
1984	41,779	678	16,234	41.8	7.7	13,336	48,784	3,658	71.8
1985	42,626	739	17,336	42.0	7.9	13,955	54,583	3,911	71.9
1986	43,030	768	17,855	42.2	8.1	14,615	59,182	4,049	72.1
1987	43,843	797	18,187	42.4	8.2	15,281	64,558	4,225	72.3
1988	45,262	859	18,969	42.6	8.3	15,801	69,416	4,393	72.5
1989	46,106	911	19,763	42.9	8.4	16,344	74,809	4,572	72.7
1990	48,251	961	19,919	43.0	8.4	16,880	82,262	4,873	72.9
1991	49,854	1,039	20,842	43.1	8.4	17,464	92,040	5,270	73.2
1992	51,557	1,134	21,994	43.3	8.6	17,847	100,854	5,651	73.3

1. Not calculated.

	Active Members					Annuitants			
Valuation Date (July 1)	Number	Annual Salaries in Millions	Average Annual Salary	Average Age	Average Years of Service	Number	Annual Benefits in Thousands	Average Annual Benefit	Average Age
1993	52,532	$1,191	$22,663	43.7	8.9	18,283	$111,545	$6,101	73.5
1994	53,763	1,254	23,322	43.9	9.0	18,683	124,254	6,651	73.4
1995	55,811	1,388	24,866	43.9	9.0	19,272	136,327	7,074	73.6
1996	56,802	1,452	25,558	44.1	9.2	19,903	148,740	7,473	73.5
1997	57,237	1,511	26,403	44.3	9.5	20,499	160,908	7,850	73.2
1998	57,528	1,562	27,156	44.6	9.7	21,134	173,519	8,210	73.2
1999	59,248	1,673	28,243	44.8	9.8	21,756	193,441	8,891	73.1
2000	60,388	1,798	29,778	45.0	9.8	22,456	209,549	9,332	73.1
2001	62,125	1,924	30,976	45.1	9.7	23,253	235,269	10,118	72.7
2002	62,376	2,036	32,641	45.4	10.0	24,018	255,374	10,633	72.7
2003	62,385	2,064	33,079	45.7	10.2	24,991	279,219	11,173	72.5
2004	63,385	2,124	33,510	45.9	10.2	26,043	307,410	11,804	72.3
2005	64,391	2,197	34,126	46.0	10.2	27,246	343,077	12,592	72.1
2006	64,762	2,294	35,427	46.2	10.4	28,438	381,677	13,421	72.0
2007	65,800	2,397	36,436	46.2	10.3	29,619	422,196	14,254	71.8
2008	66,765	2,541	38,052	46.2	10.3	30,912	459,077	14,851	71.8
2009	67,813	2,645	38,999	46.5	10.4	32,197	491,946	15,279	71.8
2010	67,020	2,622	39,130	46.7	10.6	33,625	526,020	15,644	71.3
2011	65,798	2,572	39,090	46.9	10.8	35,334	567,933	16,073	71.5
2012	65,270	2,568	39,339	46.9	10.8	37,150	611,045	16,448	71.6
2013	65,535	2,635	40,201	46.8	10.7	38,947	651,466	16,727	71.6
2014	66,223	2,676	40,414	46.6	10.5	40,776	694,946	17,043	71.7
2015	67,008	2,757	41,143	46.5	10.4	42,657	754,201	17,681	71.6
2016	68,517	2,833	41,353	46.8	10.1	44,181	793,277	17,955	71.8
2017	70,073	3,041	43,393	46.6	9.9	45,468	836,201	18,391	72.1
2018	71,112	3,188	44,835	46.1	10.0	46,907	884,827	18,863	72.3
2019	72,502	3,356	46,295	45.9	9.8	48,120	922,112	19,163	72.7
2020	73,657	3,521	47,799	45.8	9.7	49,573	999,793	20,168	72.9
2021	73,563	3,654	49,677	45.7	9.7	50,891	1,043,514	20,505	73.2
2022	74,409	3,890	52,283	45.5	9.5	53,190	1,140,827	21,448	73.2

	Active Members					Annuitants			
Valuation Date (July 1)	Number	Annual Salaries in Millions	Average Annual Salary	Average Age	Average Years of Service	Number	Annual Benefits in Thousands	Average Annual Benefit	Average Age
2023	76,668	$4,237	$55,268	45.3	9.3	54,680	$1,191,960	$21,799	73.4
2024	78,354	4,542	57,965	45.2	9.2	56,084	1,243,201	22,167	73.7

1. Not calculated.

Table C-5
Contribution Rates

	Calculated Statutory Minimum Employer Rates				Actual Rates			Prior to Subsequent Year PAA Adjustment	
	25/30-Year Funding (8)					Employee (1)			
Valuation Date (July 1)	Current Normal Cost Rate(1)	Amortization Payment Rate	Total Rate(2)	GASB Determined ARC(9)	Employer(2)	Fire & Police	General & Teacher(12)	Amortization Period (Years)	Unfunded Actuarial Accrued Liability(5) (in Millions)
1968	2.01%	4.68%	6.69%	NA	7.25%	(3)	(4)	under 30(6)	$ 72.2
1969	2.53	5.17	7.70	NA	7.25	(3)	(4)	under 50(6)	106.4
1970	2.51	4.71	7.22	NA	7.25	(3)	(4)	under 30(6)	110.1
1971	3.26	4.96	7.33	NA	6.80	(3)	(4)	41	132.1
1972	3.40	3.65	7.05	NA	6.80	(3)	(4)	36	123.0
1973	3.31	3.43	6.74	NA	6.78	(3)	(4)	30	125.0
1974	2.45	4.09	6.54	NA	6.80	5.40	4.50	28	216.3
1975	2.43	4.14	6.57	NA	6.80	5.40	4.50	28	256.5
1976	3.38	3.58	6.96	NA	6.81	5.40	4.50	28	306.8
1977	5.76	4.11	9.87	NA	7.11	5.40	4.50	-- (7)	392.2
1978	4.92	4.04	8.96	NA	7.11	5.40	4.50	28	423.1
1979	4.93	4.02	8.95	NA	8.36	5.40	4.50	27	462.9
1980	5.20	4.43	9.63	NA	9.50	5.60	4.67	31	553.1
1981	5.20	4.21	9.41	NA	9.50	5.80	4.84	29	582.8
1982	5.07	4.39	9.46	NA	9.05	6.05	5.05	32	653.5
1983	5.11	4.22	9.33	NA	8.75	6.30	5.26	34	664.6
1984	5.09	4.30	9.39	NA	8.82	6.35	5.30	35	729.4
1985	6.02	3.29	9.31	NA	8.89	6.40	5.34	35	614.8
1986	5.97	2.84	8.84	NA	8.89	6.40	5.34	29	555.7
1987	5.97	2.60	8.67	NA	8.89	6.40	5.34	26	526.7
1988	5.85	3.21	9.01	NA	8.89	6.40	5.34	32	699.1
1989	5.86	2.53	8.54	NA	8.89	6.40	5.34	24	589.1
1990	6.07	2.34	8.41	NA	8.89	6.40	5.34	22	578.7
1991	6.07	2.34	8.41	NA	8.89	6.40	5.34	22	622.7
1992	6.77	2.44	9.21	NA	9.75	7.02	5.84	21	677.3

	Calculated Statutory Minimum Employer Rates				Actual Rates			Prior to Subsequent Year PAA Adjustment	
	25/30-Year Funding [8]					Employee [1]			
Valuation Date (July 1)	Current Normal Cost Rate[1]	Amortization Payment Rate	Total Rate[2]	GASB Determined ARC[9]	Employer[2]	Fire & Police	General & Teacher[12]	Amortization Period (Years)	Unfunded Actuarial Accrued Liability[5] (in Millions)
1993	7.13%	2.94%	10.07%	NA	10.65%	7.82%	6.38%	18	$ 740.0
1994	7.47	3.91	11.38	NA	11.63	8.53	6.97	22	1,040.6
1995	7.68	3.23	10.91	NA	11.63	8.53	6.97	18	952.1
1996	8.37	2.25	10.62	10.413	11.64	8.53	6.97	13	639.5
1997	8.98	0.45	9.43	9.80	11.64[10]	8.53[10]	6.97[10]	2	128.9
1998	9.22	(1.40)	9.22	7.82	11.03[10]	8.10[10]	6.60[10]	N/A	(493.9)
1999	9.44	(2.06)	9.44	7.38	11.03[10]	8.10[10]	6.60[10]	N/A	(704.0)
2000	10.04	(2.72)	10.04	7.32	9.80	7.21	5.86	N/A	(998.3)
2001	8.94	0.50	9.44	9.44	9.80	7.21	5.86	10	186.3
2002	7.37	2.94	10.31	10.31	9.80	7.21	5.86	39	1,075.7
2003	7.27	3.23	10.50	10.50	11.04[11]	8.09[11]	6.60[11]	19	1,214.6
2004	7.88	1.80	9.68	9.68	11.66[11]	8.53[11]	6.97[11]	8	671.1
2005	8.03	1.34	9.37	9.37	11.66[11]	8.53[11]	6.97[11]	6	508.6
2006	8.53	1.13	9.66	9.66	10.43	7.65	6.23	10	461.7
2007	9.33	(1.24)	9.33	8.09	10.44	7.65	6.23	N/A	(573.4)
2008	8.37	1.63	10.00	10.00	10.44	7.65	6.23	16	748.9
2009	8.17	6.16	14.33	12.99	10.44	7.69	6.23	Over 100	3,026.6
2010	6.55	5.62	12.17	12.17	13.70[11]	10.04[11]	8.19[11]	18	2,555.8
2011	7.51	2.85	10.36	10.36	13.70[11]	10.04[11]	8.19[11]	8	1,232.6
2012	7.08	4.80	11.88	11.88	13.69[11]	10.03[11]	8.18[11]	15	2,043.5
2013	7.05	4.52	11.57	11.57	13.69[11]	10.03[11]	8.18[11]	13	2,074.1
2014	7.97	2.14	10.11	NA	11.36[11]	8.36[11]	6.79[11]	11.6	1,052.3
2015	7.66	3.10	10.76	NA	11.36[11]	8.36[11]	6.79[11]	17.4	1,490.2
2016	7.66	4.47	11.98	NA	11.38	8.36	6.79	36.6	2,206.1
2017	7.90	3.26	11.16	NA	11.38	8.36	6.79	16.2	1,766.6

	Calculated Statutory Minimum Employer Rates				Actual Rates			Prior to Subsequent Year PAA Adjustment	
	25/30-Year Funding [8]					Employee [1]			
Valuation Date (July 1)	Current Normal Cost Rate[1]	Amortization Payment Rate	Total Rate[2]	GASB Determined ARC[9]	Employer[2]	Fire & Police	General & Teacher[12]	Amortization Period (Years)	Unfunded Actuarial Accrued Liability[5] (in Millions)
2018	8.13%	2.78%	10.91%	NA	11.38%	8.36%	6.79%	13.9	$1,580.1
2019	8.41	2.07	10.48	NA	11.99	8.81	7.16	10.6	1,391.2
2020	7.72	3.93	11.65	NA	11.99	8.81	7.16	20.5	2,433.2
2021	10.17	0.00	10.17	NA	11.99	9.13	7.16	0.4	49.0
2022	8.20	5.88	14.08	NA	11.98[11]	9.83[11]	6.71/7.62[11]	Over 100	4,077.2
2023	8.44	5.47	13.91	NA	16.62[11]	12.97[11]	9.52/10.43[11]	13.5	4,019.1
2024	8.73	4.70	13.43	NA	16.64[11]	12.97[11]	9.52/10.43[11]	10.8	3,789.7

Notes on Table C-5

1. Normal cost rates and employee rates prior to 1986 are based on actual employer rates. They would vary from the rates shown if employer rates were changed.
2. Excludes additional administrative contributions required before 1980. Aggregate weighted employer rate since 1993. Cannot be less than the normal cost rate.
3. 3.6% of annual salary up to $4,800, plus 7.2% of excess.
4. 3.0% of annual salary up to $4,800, plus 6.0% of excess.
5. Calculated as of the valuation date, prior to any PAA adjustment or Gain Sharing allocation. Beginning in 1991, amounts funded by ORP contributions are not included in the UAAL.
6. For actuarial valuations prior to 1971, an explicit amortization period was not calculated. The current employer contribution rate was compared to a contribution rate based on either a 30 or 50 year amortization period.
7. Based on the results of the 1977 experience study, the valuation results indicated that the employer contribution rate in effect at the time of the valuation would be insufficient to amortize the UAAL over a reasonable period. Subsequent increases in the employer contribution rate in 1979 and 1980 resulted in a reasonable amortization period.
8. Amortization rates in 1992 and before represent 30-year funding. Amortization rates in 1993 and after represent 25-year funding.
9. GASB required an ARC to be computed for all plan years after June 15, 1996. As long as a positive UAAL exists and is being amortized over a reasonable period of time, generally less than 30 years, the ARC is equal to the actual contribution rate set by the Board. If a Funding Reserve exists, GASB requires the amortization of the reserve and a calculated ARC less than the normal cost rate. The actual PERSI rate cannot be less than the normal cost rate under the statutory requirements. The ARC calculated as of the valuation date is applicable to the employer fiscal year commencing October 1 of the calendar year following the valuation date. The ARC includes the discretionary PAA increases if approved by the Board prior to the completion of the valuation report.

   Beginning with the 2014 valuation, the ARC will no longer be reported. A separate accounting valuation report will be issued in accordance to the new GASB 67 and 68 reporting standards.
10. Permanent rate is shown; temporary rate of 9.80% was effective November 1, 1997 until Board adopted permanent 9.80% rate April 2000.
11. The latest scheduled contribution rate that is reflected in the valuation is shown.
12. Effective July 1, 2023, general members and teachers pay different contribution rates. This was first reflected in our July 1, 2022, valuation. Therefore, starting in the 2022 row, the rates in this column are listed in the following format: general rate/teacher rate.

Table C-6
Investments

(Dollar Amounts in Millions)

Valuation Date (July 1)	Total Investments Held on Valuation Date		Yield Net of Investment Expenses During Previous Year	
	Market Basis	Valuation Basis	Market Basis	Valuation Basis
1968	$ 30.6	$ 30.6	8.09%	8.09%
1973	102.4	111.0	(7.39)	4.85
1978	211.2	213.0	1.61	2.80
1983	658.5	628.6	40.36	16.33
1988	1,294.4	1,265.7	(0.60)	(5.60)
1993	2,531.7	2,525.0	12.60	10.66
1994	2,674.7	2,674.7	2.50	2.76
1995	3,237.9	3,237.9	14.34	14.34
1996	3,853.8	3,853.8	17.83	17.83
1997	4,728.5	4,728.5	19.11	19.11
1998	5,741.0	5,741.0	17.19	17.19
1999	6,450.9	6,450.9	11.18	11.18
2000	7,285.3	7,285.3	12.93	12.93
2001	6,732.4	6,732.4	(6.40)	(6.40)
2002	6,256.3	6,256.3	(7.36)	(7.36)
2003	6,544.8	6,544.8	3.32	3.32
2004	7,702.0	7,702.0	17.63	17.63
2005	8,707.5	8,707.5	10.34	10.34
2006	9,800.2	9,800.2	11.79	11.79
2007	11,505.1	11,505.1	19.54	19.54
2008	11,010.0	11,010.0	(4.60)	(4.60)
2009	8,983.7	8,983.7	(16.35)	(16.35)
2010	9,969.1	9,969.1	12.01	12.01
2011	11,754.3	11,754.3	20.25	20.25
2012	11,725.2	11,725.2	1.22	1.22
2013	12,496.2	12,496.2	8.69	8.69
2014	14,230.4	14,230.4	16.77	16.77
2015	14,428.4	14,428.4	2.70	2.70
2016	14,344.6	14,344.6	1.48	1.48
2017	15,713.2	15,713.2	12.25	12.25
2018	16,763.8	16,763.8	8.47	8.47
2019	17,717.5	17,717.5	8.09	8.09
2020	17,836.5	17,836.5	2.71	2.71
2021	22,364.9	22,364.9	27.49	27.49
2022	19,791.7	19,791.7	(9.61)	(9.61)

	Total Investments Held on Valuation Date		Yield Net of Investment Expenses During Previous Year	
Valuation Date (July 1)	**Market Basis**	**Valuation Basis**	**Market Basis**	**Valuation Basis**
2023	$21,186.4	$21,186.4	9.17%	9.17%
2024	22,586.8	22,586.8	8.84	8.84

Notes:

1. Investments held and yields shown here are for the total trust (excluding assets used in plan operations).
2. Yields shown here are net of investment expenses but not net of administrative expenses.

Table C-7
Changes Affecting Actuarial Valuations – Statistics

Valuation Date [1]	Minimum Benefit[2]	Postretirement Increase[1] Maximum	Postretirement Increase[1] Granted	Regular Interest[3]
1967	N/A	N/A	N/A	4.00%
1968	N/A	N/A	N/A	4.25
1969	N/A	3.0%	3.0%	4.375
1970	N/A	3.0	3.0	4.75
1971	N/A	3.0	3.0	5.00
1972	N/A	3.0	3.0	5.00
1973	N/A	3.0	3.0	5.50
1974	$5.00	3.0	3.0	6.00
1975	5.15	3.0	3.0	6.00
1976	5.30	3.0	3.0	6.00
1977	5.62	5.3	6.0 [4]	6.50
1978	5.96	6.0	6.0	6.50
1979	6.32	6.0	6.0	6.50
1980	6.70	6.0	6.0	6.50
1981	7.10	6.0	6.0	7.00
1982	7.53	6.0	6.0	7.50
1983	7.92	5.1	5.1	8.00
1984	8.14	2.9	2.9	8.50
1985	8.48	4.2	4.2	9.00
1986	8.57	3.2	1.0	9.00
1987	8.70	1.5	1.5	7.50
1988	8.78	4.5	1.0	6.50
1989	8.87	4.2	1.0	6.50
1990	9.29	4.7	4.7	7.00
1991	9.81	5.6	5.6	7.37
1992	10.59	3.8	3.8	5.75
1993	12.48	3.1	3.1	4.25
1994	14.43	2.8	2.8	4.00
1995	14.85	2.9	2.9	4.75
1996	15.23	2.6	2.6	5.75
1997	15.67	2.9	2.9	5.13
1998	16.02	2.2	2.2	5.38
1999	18.06	1.6	1.6	5.00
2000	18.47	2.3	2.3	7.93
2001	19.10	3.4	3.4	11.985
2002	19.62	2.7	2.7	8.84
2003	19.81	1.8	1.0	3.36
2004	20.25	2.2	2.2	2.56
2005	20.96	2.7	3.5 [5]	10.365
2006	21.71	3.6	3.6	13.875
2007	22.54	3.8	3.8	10.965
2008	$22.99	2.0%	2.0%	14.602%
2009	23.22	5.4	1.0	9.257
2010	23.44	-1.48	1.0 [6]	1.000
2011	23.68	1.15	1.0	5.90

Valuation Date [1]	Minimum Benefit[2]	Postretirement Increase[1] Maximum	Postretirement Increase[1] Granted	Regular Interest[3]
2012	23.92	3.77	1.0	14.52
2013	24.15	1.69	1.0	9.63
2014	24.39	1.52	1.0	4.41
2015	25.37	1.70	4.0 [7]	11.40
2016	25.62	0.20	1.0 [8]	8.71
2017	25.90	1.1	1.1	1.84
2018	26.40	1.9	1.9	6.16
2019	26.66	2.7	1.0	9.30
2020	28.40	1.7	6.54 [9]	7.40
2021	28.69	1.3	1.0	4.78
2022	29.69	5.3	3.5	12.99
2023	29.99	6.0	1.0	12.22
2024	30.29	3.7	1.0	4.54

1. Valuations as of July 1. Postretirement increase effective previous January 1 for years prior to 1987, previous March 1 for 1987 and after.

2. Minimum monthly benefit per year of service; benefit levels for fire and police members are 20% greater than amount shown.

3. Average rate credited on member contributions during year prior to valuation date, actual rates may vary during the year.

4. 5.3% for 1976 retirees.

5. The March 1, 2005 PAA was 2.70% with retro-PAA of 0.80% for a net PAA of 3.50%.

6. The March 1, 2010 PAA was -1.48% with a retro-PAA of 2.48% for a net PAA of 1%.

7. The March 1, 2015 PAA was 1.70% with a retro-PAA of 2.3% for a net PAA of 4%.

8. The March 1, 2016 PAA was 0.20% with a retro-PAA of 0.80% for a net PAA of 1%.

9. The March 1, 2020 PAA was 1.70% with a retro-PAA of 4.76% for a net PAA of 6.54%

Table C-8
Changes Affecting Actuarial Valuations - Descriptions

Valuation Date	Change
1968	Actuarial assumptions were revised to reflect actual experience for the study period from inception to June 30, 1967.
1969	Discretionary PAA increases and death benefit provisions were adopted.
1971	Vesting, early retirement, and death benefits were improved.
1974	Major changes in actuarial assumptions and a new retirement benefit formula were adopted.
1976	Actuarial assumptions for investment earnings, future salaries, and service retirement were changed. Changes in the compulsory retirement provisions, death benefit eligibility, and the maximum discretionary PAA, including funding for an automatic 1% annual increase in postretirement benefits.
1977	Major changes in actuarial assumptions as a result of a study of the System's actual experience. These revisions were tentative, made on the basis of limited experience data.
1978	The termination of employment and the retired mortality assumptions were revised based on an update of the study of the System's actual experience.
1979	Reflects the maximum 40-year funding period enacted in 1979 legislation.
1980	Actuarial assumptions for investment earnings, salary growth, and disabled members' mortality assumptions were changed. Reduction factors for early retirement were modified and employee contribution rates were increased. The bond valuation method was revised, generating a one-time investment gain.
1982	Actuarial assumptions were revised to reflect the results of the System's experience over the three-year period ending June 30, 1981. The early retirement "Rule of 90(80)" and graded increase in both employee and employer contribution rates were implemented.
1983	The asset valuation method for mortgages was changed.
1985	Actuarial assumptions were revised based on the experience study for the period July 1, 1981 through June 30, 1984.
1988	Actuarial assumptions were revised based on the experience study for the period July 1, 1984 through June 30, 1987.
1992	Actuarial assumptions were revised based on the 1992 Investigation of Experience Study. Benefits and contributions were increased effective October 1, 1992. The benefit percentage factor was increased, the averaging period used in determining average monthly salary was decreased, and the early retirement reduction factors were decreased.
1993	Disability eligibility provisions for fire and police members were changed and contribution rates were increased to reflect this change. Benefits and contributions were increased effective October 1, 1993. The benefit percentage factor was increased, the averaging period used in determining average monthly salary was decreased, and the early retirement reduction factors were decreased.

Valuation Date	Change
1994	Actuarial assumptions were revised based on the 1994 Investigation of Experience Study. Benefits and contributions were increased effective October 1, 1994. The benefit percentage factor was increased, the averaging period used in determining average monthly salary was decreased, and the early retirement reduction factors were decreased.
1996	Actuarial assumptions were revised based on the 1996 Investigation of Experience Study.
1998	Mortality and Salary increase assumptions were revised based on the 1998 Investigation of Experience Study. The benefits for all annuitants were restored to 100% of purchasing power at the original retirement date.
2000	The permanent total contribution rate was reduced effective November 1, 2000. Benefits were increased and disability eligibility service requirements were reduced effective July 1, 2000. The interest crediting rate on employee contributions was changed to the actual return of the System. Retirement and disability assumptions were revised based on the 2000 Investigation of Experience Study.
2001	A Gain Sharing allocation of $155.4 million was granted by the Board.
2002	Salary increase and termination of employment assumptions were revised based on the 2002 Investigation of Experience Study.
2003	Scheduled contribution rate increases at July 1, 2004 and July 1, 2005 reflected. $100,000 death benefit for Fire and Police duty deaths added along with 0.1% increase in Fire and Police Employer Contribution rate.
2004	Scheduled contribution rate increases at July 1, 2006 reflected. Assumption changes based on 2004 Investigation of Experience Study.
2005	Contribution rate increases scheduled for July 1, 2005 and July 1, 2006, were delayed to July 1, 2008 and July 1, 2009. In addition to a full 2.7% PAA, retirees received a 0.8% retro-PAA benefit on March 1, 2005, to restore the portion of the March 1, 2003 PAA that was not originally granted.
2006	The mortality assumptions were changed to generational mortality as described in the 2006 Investigation of Experience report (dated May 15, 2006). Future scheduled rate increases are not included in the ARC or in the valuation results except where noted.
2007	Final Average Earnings (FAE) used to calculate benefits was changed to the greater of current FAE (provided by the PERSI) and estimated FAE. Future scheduled rate increases are not included in the ARC or in the valuation results.
	The contribution rate for university members of the optional retirement plan (ORP) was changed to 1.49% of members’ salaries through July 1, 2025. In the previous valuation, the rate was 3.03% to be paid through July 1, 2015.
2008	Demographic actuarial assumptions were revised based on the 2009 Investigation of Experience Study.
2009	The contribution rate for Fire & Police Members was changed from 7.65% to 7.69%. $100,000 disability benefit for Fire and Police duty disabilities added.

Valuation Date	Change
2010	Mortality and economic actuarial assumptions were revised based on the 2010 Investigation of Experience Study. Contribution rate increases were added at July 1, 2011, July 1, 2012, and July 1, 2013.
	Retirees received a 2.48% retro-PAA benefit on March 1, 2010, to restore a portion of the March 1, 2009 PAA that was not originally granted.
2011	New Contingent Annuitant actuarial equivalence factors were adopted for members retiring on or after July 1, 2011. Scheduled contribution rate increases on July 1, 2011, July 1, 2012, and July 1, 2013, were all delayed one year.
2012	Demographic and Economic actuarial assumptions were revised based on the 2012 Active Experience Study.
2013	Change in the actuarial cost method, from aggregate entry age to individual entry age.
2014	Mortality assumptions were revised based on the 2014 Investigation of Experience Study. Scheduled contribution rate increases were canceled.
	Retirees were granted a 2.30% retro-PAA benefit, effective on March 1, 2015, to restore a portion of the prior years' PAAs that were not originally granted.
2015	No changes to assumptions or plan provisions.
2016	Demographic actuarial assumptions were revised based on the 2016 Active Experience Study.
	Retirees were granted a 0.80% retro-PAA benefit, effective on March 1, 2016, to restore a portion of the prior years' PAAs that were not originally granted.
2017	Retirees were granted a 0.10% Discretionary PAA, effective on March 1, 2017.
	A contribution rate increase was put in place, scheduled to take effect July 1, 2018. This rate change will increase the total (employer plus member) blended contribution rate from 18.42% to 19.42%.
2018	Retirees were granted a 0.90% Discretionary PAA, effective on March 1, 2018.
	The contribution rate increase scheduled to take effect July 1, 2018, was delayed one year to July 1, 2019.
2019	The scheduled contribution rate increase took effect on July 1, 2019.
2020	Retirees were granted a 0.70% Discretionary PAA and a 4.76% retro-PAA benefit, effective March 1, 2020.
2021	Demographic and economic actuarial assumptions were revised based on the 2021 Experience Study.
	Catastrophic line of duty disability benefit added for Fire and Police along with a 0.32% increase in Fire and Police member contribution rate.
2022	Retirees were granted a 2.50% Discretionary PAA, effective on March 1, 2022.
	A contribution rate increase was put in place, scheduled to take effect July 1, 2023. This rate change will separate the teacher contribution rate from that charged for general members to make each class's contribution rate more in line with the cost of benefits for that class, while limiting the change in weighted total contribution rate. The change is scheduled to increase the total (employer plus member) blended contribution rate from 19.44% to 19.45%.

Valuation Date	Change
2023	Contribution rate increases were added as follows: 1.25% effective July 1, 2024; an additional 2.50% effective July 1, 2025; and an additional 3.75% effective July 1, 2026. Idaho senate bill 1054, signed into law March 20, 2023, provides fire and police members of PERSI, who are at least age 50, the opportunity to return to work (RTW) after retiring and continue receiving retirement benefits through June 30, 2027. During the RTW period, the employer and employee must make contributions and benefit accruals are frozen.
2024	The scheduled 1.25% contribution rate increase took effect on July 1, 2024. A contribution rate increase was put in place as a response to the 2023 return to work law for safety members. This is a temporary 1.14% increase in Safety contributions rates for July 1, 2024, to June 30, 2027

Table C-9
Changes in Status

	Active Contributing Members	Non-Contributing Members	Annuitants	Total
July 1, 2023 Valuation	76,668	52,074	54,680	183,422
Termination without Refund	(6,117)	6,117	0	0
Service Retirement	(1,867)	(786)	2,653	0
Disability Retirement	(11)	(11)	22	0
Death with Beneficiary [1]	(17)	(3)	20	0
Other Death or Departure [2]	(1,159)	(2,412)	(1,299)	(4,870)
New Entrants	9,074	1,573	0	10,647
Rehires	1,576	(1,560)	(16)	0
Other	207	62	24	293
Total Change	1,686	2,980	1,404	6,070
July 1, 2024 Valuation	78,354	55,054	56,084	189,492

1. Only deaths of active members and vested inactive members are shown.

2. Includes events such as Termination with Refund and Death without Beneficiary.

Table C-10
Reconciliation of Data Records

	Active	Vested Inactive	Non-Vested Inactive	Annuitants
Original Records Received	78,736	16,866	48,948	57,577
Duplicated Member IDs and Deceased Members	-	(340)	(383)	(1,283)
Annuitants of Firefighters' Retirement Fund Not Eligible for a PERSI Benefit	-	-	-	(60)
Idaho Falls Police Annuitants Not Eligible for a PERSI Benefit	-	-	-	(22)
Vested Inactive with Age Over 100	-	(1)	-	-
Other Vested Inactive or Annuitant Records with Zero PERSI Benefit	-	(6)	-	(128)
Non-Vested Inactive Records with Zero Accumulated Employee Contributions	-	-	(10,131)	-
Active Records with Zero Salary that were Treated as Inactive for the Valuation	(101)	27	74	-
Active Records with Zero Salary and Zero Accumulated Employee Contributions	(281)	-	-	-
Records Used for Valuation	78,354	16,546	38,508	56,084

Adjustments for missing data.

Retired Member Data:

- Contingent annuitant gender information was missing from 724 surviving beneficiaries and 1,066 spouses of living retirees. We assumed male members had female spouses and vice versa.
- Gender information was missing from 13 retiree records. We assumed these were male members.
- Class information was missing from 9 retired members. We assumed these were general members.
- Contingent annuitant date of birth information was missing from 2 surviving beneficiaries and 40 spouses of living retirees. We assumed female spouses were two years younger and male spouses were two years older than the member.

Non-retired Member Data:

- Member date of birth information was missing from 1 active member. We calculated a date of birth based on their date of hire and an assumption that they were hired at 35 years of age.
- Member gender information was missing (or labeled as other) from 152 active members and 13 vested inactive members. Gender information was available in last year's valuation data for 85, so that was used in these cases. The other 80 we treated as females for the valuation.
- Class information was missing from 42 active members and 981 vested inactive members. We assumed these were general members.

Table C-11
Yields for Various Historical Periods, Net of Investment Expenses

Period Ended	1 Year	10 Years	20 Years	Since 1968
1968	8.1%			
1969	6.3			
1970	2.9			
1971	3.0			
1972	12.6			
1973	4.9			
1974	-12.4			
1975	-12.6			
1976	14.4			
1977	7.9	3.1%		
1978	2.8	2.6		
1979	7.2	2.7		
1980	18.2	4.1		
1981	12.1	5.0		
1982	7.5	4.5		
1983	16.3	5.6		
1984	6.0	7.6		
1985	22.8	11.4		
1986	17.2	11.6		
1987	12.0	12.1	7.5%	
1988	-5.6	11.1	6.8	
1989	17.6	12.1	7.3	
1990	10.6	11.4	7.7	
1991	7.9	11.0	7.9	
1992	8.1	11.0	7.7	
1993	10.7	10.5	8.0	
1994	2.8	10.1	8.9	
1995	14.3	9.4	10.4	
1996	17.8%	9.4%	10.5%	
1997	19.1	10.1	11.1	
1998	17.2	12.5	11.8	

Period Ended	1 Year	10 Years	20 Years	Since 1968
1999	11.2	11.9	12.0	
2000	12.9	12.1	11.7	
2001	-6.4	10.5	10.7	
2002	-7.4	8.8	9.9	
2003	3.3	8.1	9.3	
2004	17.6	9.5	9.8	
2005	10.3	9.2	9.3	
2006	11.8	8.6	9.0	
2007	19.5	8.6	9.3	
2008	-4.6	6.4	9.4	
2009	-16.4	3.4	7.6	
2010	12.0	3.3	7.6	
2011	20.3	6.0	8.2	
2012	1.2	6.9	7.9	
2013	8.7	7.4	7.8	
2014	16.8	7.4	8.5	
2015	2.7	6.6	7.9	
2016	1.5	5.6	7.1	
2017	12.3	4.9	6.8	
2018	8.5	6.3	6.3	
2019	8.1	9.0	6.2	
2020	2.7	8.1	5.7	
2021	27.5	8.7	7.3	
2022	-9.6	7.5	7.2	
2023	9.2	7.5	7.5	
2024	8.8	6.8	7.1	7.7%

Notes:

3. Yields shown here are for the total trust (excluding assets used in plan operations).
4. Yields shown here are net of investment expenses but not of administrative expenses.

Table C-12
Funded Ratio History

Period Ended	MVA	AVA	UAAL	AVA Funded Ratio
1968	$30.5	$30.5	$72.2	29.7%
1969	40.1	42.5	106.4	28.6
1970	42.7	53.5	110.1	32.7
1971	68.6	66.1	132.1	33.3
1972	93.7	89.8	123.0	42.2
1973	100.6	108.9	125.0	46.6
1974	99.6	110.7	216.3	33.9
1975	128.2	112.8	256.5	30.5
1976	157.2	150.2	306.8	32.9
1977	183.4	182.8	392.2	31.8
1978	208.6	210.3	423.1	33.2
1979	254.0	248.5	462.9	34.9
1980	307.5	324.1	553.1	36.9
1981	385.5	417.5	582.8	41.7
1982	423.5	490.5	653.5	42.9
1983	641.9	613.2	664.6	48.0
1984	642.3	688.9	729.4	48.6
1985	832.8	892.4	614.8	59.2
1986	1,071.9	1,090.7	555.7	66.2
1987	1,224.9	1,262.2	526.7	70.6
1988	1,274.3	1,246.8	699.1	64.1
1989	1,487.7	1,513.4	589.1	72.0
1990	1,691.7	1,723.8	578.7	74.9
1991	1,854.9	1,921.9	622.7	75.5
1992	2,096.6	2,128.1	677.3	75.9
1993	2,444.3	2,437.8	740.0	76.7
1994	2,591.1	2,591.1	1,040.6	71.3
1995	3,079.0	3,079.0	952.1	76.4
1996	3,766.0	3,766.0	639.5	85.5
1997	4,608.8	4,608.8	128.9	97.3
1998	5,480.8	5,480.8	(493.9)	109.9
1999	6,158.1	6,158.1	(704.0)	112.9
2000	7,032.9	7,032.9	(998.3)	116.5
2001	6,492.8	6,492.8	186.3	97.2
2002	6,062.1	6,062.1	1,075.7	84.9
2003	6,297.8	6,297.8	1,214.6	83.8
2004	7,420.2	7,420.2	671.1	91.7
2005	8,208.8	8,208.8	508.6	94.2
2006	9,177.1	9,177.1	461.7	95.2

Period Ended	MVA	AVA	UAAL	AVA Funded Ratio
2007	$10,945.8	$10,945.8	$(573.4)	105.5 %
2008	10,402.0	10,402.0	748.9	93.3
2009	8,646.0	8,646.0	3,026.6	74.1
2010	9,579.8	9,579.8	2,555.8	78.9
2011	11,360.1	11,360.1	1,232.6	90.2
2012	11,306.2	11,306.2	2,043.5	84.7
2013	12,053.5	12,053.5	2,074.1	85.3
2014	13,833.1	13,833.1	903.4	93.9
2015	13,956.7	13,956.7	1,558.7	90.0
2016	13,884.2	13,884.2	2,206.1	86.3
2017	15,296.7	15,296.7	1,766.6	89.6
2018	16,274.8	16,274.8	1,580.1	91.2
2019	17,239.5	17,239.5	1,391.2	92.5
2020	17,392.1	17,392.1	2,433.2	87.7
2021	21,770.7	21,770.7	49.0	99.8
2022	19,349.5	19,349.5	4,077.2	82.6
2023	20,695.8	20,695.8	4,019.1	83.7
2024	22,131.8	22,131.8	3,789.7	85.4

Note:

Some historical data in this table was estimated and may not exactly match historical reports.

Appendix D Glossary

The following definitions are largely excerpts from a list adopted in 1981 by the major actuarial organizations in the United States. In some cases, the definitions have been modified for specific applicability to the Public Employee Retirement System of Idaho. Defined terms are capitalized throughout this Appendix.

Accrued Benefit

The amount of an individual's benefit (whether or not vested) as of a specific date, determined in accordance with the terms of a pension plan and based on compensation and service to that date.

Actuarial Accrued Liability

That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs such as: mortality, withdrawal, disability, and retirement; changes in compensation; rates of investment earnings and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; and other relevant items.

Actuarial Cost Method

A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Accrued Liability.

Actuarial Gain (Loss)

A measure of the difference between actual experience and that expected based on a set of Actuarial Assumptions during the period between two Actuarial Valuation dates as determined in accordance with a particular Actuarial Cost Method.

Actuarial Present Value

The value of an amount or series of amounts payable or receivable at various times determined as of a given date by the application of a particular set of Actuarial Assumptions.

Actuarial Valuation

The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

Actuarial Value of Assets

The value of cash, investments, and other property belonging to a pension plan as used by the actuary for the purpose of an Actuarial Valuation.

Actuarially Equivalent

Of equal Actuarial Present Value determined as of a given date with each value based on the same set of Actuarial Assumptions.

Amortization Payment

That portion of the pension plan contribution that is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Amortization Period

The amount of time required for the Amortization Payments to fully pay off the Unfunded Actuarial Accrued Liability.

Entry Age Actuarial Cost Method

A method under which the Actuarial Present Value of the Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this Actuarial Present Value allocated to a valuation year is called the Normal Cost. The portion of this Actuarial Present Value not provided for at a valuation date by the Actuarial Present Value of future Normal Costs is called the Actuarial Accrued Liability.

Funding Reserve

The excess of the Actuarial Value of Assets over the Actuarial Accrued Liability. Standard actuarial terminology defines this as the "Funding Excess." PERSI uses the term Funding Reserve.

Normal Cost

That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

Projected Benefits

Those pension plan benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits.

Unfunded Actuarial Accrued Liability

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.

Appendix D – Sample GASB 67 Report

Florida Retirement System Pension Plan

GASB 67 Disclosure as of June 30, 2024 Measurement Date
Fiscal Year: July 1, 2023 to June 30, 2024

Prepared by:

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November 14, 2024

Table of Contents

Certification

Actuarial computations presented in this report under Statement No. 67 of the Governmental Accounting Standards Board are for purposes of assisting the Florida Department of Management Services in fulfilling its financial accounting requirements. No attempt is being made to offer any accounting opinion or advice. This report is for fiscal year July 1, 2023 to June 30, 2024. The reporting date for determining plan assets and obligations is June 30, 2024. The calculations enclosed in this report have been made on a basis consistent with our understanding of the plan provisions. Determinations for purposes other than meeting financial reporting requirements may be significantly different than the results contained in this report. Accordingly, additional determinations may be needed for other purposes, such as judging benefit security or meeting employer funding requirements.

In preparing this report, we relied, without audit, on information as of June 30, 2023 and June 30, 2024 furnished by the Florida Department of Management Services. This information includes, but is not limited to, statutory provisions, member census data, and financial information. Please note that this report is based on the June 30, 2024 assets for the program as reported to us by the Florida State Board of Administration. Please see Milliman's funding valuation report to be published in December 2024 for more information on the plan's participant group as of July 1, 2024 as well as a summary of the plan provisions and a summary of the actuarial methods and assumptions used for funding purposes.

We performed a limited review of the census and financial information used directly in our analysis and have found them to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

This valuation report is only an estimate of the Plan's financial condition as of a single date. It can neither predict the Plan's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of Plan benefits, only the timing of Plan contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as, but not limited to, the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; 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. Due to the limited scope of the actuarial assignment, we did not perform an analysis of the potential range of such future measurements.

Certification

Milliman's work is prepared solely for the internal use and benefit of the Florida Department of Management Services. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions: (a) the Plan Sponsor may provide a copy of Milliman's work, in its entirety, to the Plan Sponsor's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the Plan; and (b) the Plan Sponsor may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their specific needs.

The consultants who worked on this assignment are retirement actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

The valuation results were developed using models intended for valuations that use standard actuarial techniques. We have reviewed the models, including their inputs, calculations and outputs for consistency, reasonableness, and appropriateness to the intended purpose and compliance with generally accepted actuarial practice and relevant actuarial standards of practice.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board and the *Code of Professional Conduct* and *Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States* published by the American Academy of Actuaries. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained

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Principal and Consulting Actuary

Kathryn M. Hunter, FSA, EA, MAAA
Consulting Actuary

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Overview of GASB 67 and GASB 68

In 2012, the Governmental Accounting Standards Board (GASB) released GASB Statements No. 67 and 68 for public pension plans and participating employers.

GASB 67 applies to financial reporting for public pension plans. Under GASB 67, enhancements to the financial statement disclosures are required, along with certain required supplementary information.

GASB 68 governs the specifics of accounting for public pension plan obligations for participating employers. GASB 68 requires a liability for pension obligations, known as the Net Pension Liability, to be recognized on the balance sheets of participating employers. Changes in the Net Pension Liability will be immediately recognized as Pension Expense on the income statement or reported as deferred inflows/outflows of resources depending on the nature of the change.

Relationship Between Valuation Date and Measurement Date

Relationship Between Valuation Date and Measurement Date

The Valuation Date is July 1, 2024. This is the date as of which the actuarial valuation is performed. The Measurement Date is June 30, 2024.

Schedule of Employer Contributions

Fiscal Year Ending June 30	Actuarially Determined Contribution	Actual Employer Contribution	Contribution Deficiency (Excess)	Covered Payroll[1]	Contribution as a % of Covered Payroll
2015	$2,438,084,925	$2,438,084,925	$0	$32,726,034,000	7.45%
2016	2,438,659,458	2,438,659,458	0	33,214,217,000	7.34%
2017	2,603,246,196	2,603,246,196	0	33,775,800,000	7.71%
2018	2,849,919,659	2,849,919,659	0	34,675,000,000	8.22%
2019	3,100,721,573	3,100,721,573	0	35,571,200,000	8.72%
2020	3,322,556,872	3,322,556,872	0	36,898,200,000	9.00%
2021	3,809,567,951	3,809,567,951	0	37,590,100,000	10.13%
2022	4,267,181,943	4,267,181,943	0	38,679,800,000	11.03%
2023	4,810,643,175	4,810,643,175	0	41,958,000,000	11.47%
2024	5,662,633,286	5,662,633,286	0	44,621,000,000	12.69%

[1] For the fiscal years ending 2015 and later, covered payroll shown includes the payroll for Investment Plan members and other payroll on which only statutory UAL rates are charged.

Actuarial Methods and Assumptions Used for Funding Policy

The following actuarial methods and assumptions were used in the July 1, 2024 funding valuation. Please see the actuarial valuation report for funding purposes to be published in December 2024 for further details.

Valuation Timing	Actuarially determined contribution rates for a given plan year are calculated in the valuation conducted as of the beginning of the preceding plan year (e.g., rates for the 2025-2026 plan year are calculated in the 7/1/2024 actuarial valuation).
Actuarial Cost Method	Individual Entry Age
Amortization Method	
Level percent or level dollar	Level percent
Closed, open, or layered periods	Closed, layered
Amortization period	Effective July 1, 2021: New bases are amortized over 20 years Bases established prior to July 1, 2021: amortized over maximum of 20 years.
2019 actuarial cost method change	Amortized over 30 years as level percentage of Tier I pay
Payroll growth rate	3.50%
Asset Valuation Method	
Smoothing period	5 years
Recognition method	Asymptotic
Corridor	80% - 120% of fair market value
Inflation	2.40%
Salary Increases	Varies by membership class and length of service; details in funding actuarial valuation report
Investment Rate of Return	6.70%
Cost of Living Adjustments	3% for pre-July 2011 benefit service; 0% thereafter
Retirement Age	Varies by tier, membership class, age, and sex; details in funding actuarial valuation report
Turnover	Varies by membership class, length of service, age, and sex; details in funding actuarial valuation report
Mortality	PUB-2010 base table varies by member category and sex, projected generationally with Scale MP-2021, details in funding actuarial valuation report

Statement of Fiduciary Net Position

	June 30, 2023	June 30, 2024
Assets		
Cash and cash equivalents	$109,634,268	$113,586,435
State treasury investment pool	120,444,559	116,190,464
Total cash and cash equivalents	230,078,827	229,776,899
Investments:		
Certificates of deposit	700,085,998	100,064,250
U.S. government and federally guaranteed obligations	12,409,772,768	17,932,296,445
Federal agencies	7,459,318,923	8,359,530,102
Commercial paper	2,345,295,166	2,745,016,816
Repurchase agreements	1,400,000,000	1,600,000,000
International bonds and notes	2,871,904,690	3,322,254,691
Bonds and notes	8,986,547,464	13,200,144,072
Real estate contracts	16,137,411,842	15,577,634,924
Mutual funds	0	0
Short-term investment funds	27,250,141	28,089,531
Domestic equity / domestic equity commingled	54,961,305,181	57,446,035,169
Alternative investments	42,147,124,177	43,893,436,096
International equity	37,434,739,441	35,233,379,668
Other Investments	43,325,168	21,422,435
Total investments	186,924,080,959	199,459,304,199
Receivables:		
Contributions receivable	464,250,830	468,426,031
Pending investment sales	814,912,044	2,984,889,222
Forward contracts receivable	0	0
Other receivables	852,854,717	1,127,889,703
Total receivables	2,132,017,591	4,581,204,956
Security lending collateral	444,639,418	251,217,625
Prepaid items; furniture & equipment net accumulated depreciation	(377,474)	(2,341,854)
Right-of-use lease	17,205,111	17,205,111
Total assets	189,747,644,432	204,536,366,936
Deferred outflows: other postemployment benefits	4,059,415	4,866,375
Liabilities		
Accrued DROP liability[1]	253,833,655	190,614,686
Obligations under security lending agreements	462,576,371	251,237,412
Pending investment purchases	1,942,475,105	4,683,449,708
Pending spot for trades payable	215,524,896	214,651,152
Lease liability	15,669,781	14,853,899
Other liabilities and payables	495,370,559	493,345,012
Total liabilities	3,385,450,367	5,848,151,869
Deferred inflows: other postemployment benefits	8,887,512	7,495,408
Deferred inflows: pension amounts	0	0
Fiduciary Net Position		
Held in trust for pension benefits	$186,357,365,968	$198,685,586,034

[1] Per our understanding, the accrued DROP liability represents lump sum DROP exit payments made early in the subsequent plan year for members exiting the DROP on or shortly before the asset measurement date.

Statement of Changes in Fiduciary Net Position

	June 30, 2023	June 30, 2024
Additions		
Member contributions	$788,862,819	$808,465,064
Employer contributions	4,810,643,175	5,662,633,286
Total contributions	5,599,505,994	6,471,098,350
Transfers from the Investment Plan	68,745,863	81,756,252
Investment income (loss):		
Interest	1,068,640,460	1,380,794,764
Dividends	1,919,827,441	1,764,063,350
Net increase in fair value of investments	8,458,236,081	13,462,665,417
Securities lending income	42,840,515	47,695,409
Net real estate operating income	549,693,995	654,549,476
Other investment income	2,093,210,936	2,369,295,905
Less investment expenses:		
Direct investment expense	743,346,239	765,468,034
Securities lending expense	24,394,269	23,998,799
Net investment income	13,364,708,920	18,889,597,488
Other income	3,094,148	4,906,565
Total additions	19,036,054,925	25,447,358,655
Deductions		
Benefit payments[1]	12,252,171,171	12,358,262,025
Transfers to the Investment Plan	590,051,076	690,364,553
Refunds of member contributions	35,823,940	41,496,720
Administrative expenses	27,047,577	29,015,291
Total deductions	12,905,093,764	13,119,138,589
Net increase (decrease)	$6,130,961,161	$12,328,220,066
Net position restricted for pensions		
Beginning of year	$180,226,404,807	$186,357,365,968
End of year	$186,357,365,968	$198,685,586,034

[1] Includes transfers to other funds and general revenue-funded benefit payments net of general revenue contributions.

Money-Weighted Rate of Return

Fiscal Year Ending June 30	Net Money-Weighted Rate of Return
2015	3.77%
2016	0.57%
2017	13.59%
2018	9.28%
2019	5.98%
2020	3.35%
2021	30.41%
2022	-7.20%
2023	7.58%
2024	10.33%

Calculation of Money-Weighted Rate of Return

The money-weighted rate of return considers the changing amounts estimated as invested during a period and weights the amount of pension plan investments by the proportion of time they are available to earn a return during that period. Cash flows are estimated on a monthly basis and are assumed to occur at the beginning of each month. Cash inflows are netted with cash outflows, resulting in a net cash flow in each month. The money-weighted rate of return is calculated net of investment expenses.

	Net External Cash Flows	Periods Invested	Period Weight	Net External Cash Flows with Interest
Beginning value - July 1, 2023	$186,357,365,968	12	1.00	$205,613,877,543
Monthly net external cash flows:				
July	(547,190,332)	12	1.00	(603,732,111)
August	(547,190,332)	11	0.92	(599,001,358)
September	(547,190,332)	10	0.83	(593,723,555)
October	(547,190,332)	9	0.75	(589,071,227)
November	(547,190,332)	8	0.67	(584,455,355)
December	(547,190,332)	7	0.58	(579,305,717)
January	(547,190,332)	6	0.50	(574,766,365)
February	(547,190,332)	5	0.42	(570,262,583)
March	(547,190,332)	4	0.33	(565,237,998)
April	(547,190,332)	3	0.25	(560,808,879)
May	(547,190,332)	2	0.17	(556,414,465)
June	(547,190,332)	1	0.08	(551,511,896)
Ending value - June 30, 2024				198,685,586,034
Money-weighted plan rate of return	10.33% [1]			

[1]The money-weighted plan rate of this return is an estimate using estimated level monthly net external cash flows. It can differ from the more precise return calculated by the Florida State Board of Administration.

Long-Term Expected Rate of Return

The long-term expected rate of return assumption of 6.7% used in GASB discount rate calculations consists of two building block components: 1) a long-term average annual inflation assumption of 2.4% as most recently adopted in October 2024 by the FRS Actuarial Assumption Conference; 2) an inferred real (in excess of inflation) return of 4.2%. Geometrically combining those building blocks using the formula (1 + .024) x (1+ .042) - 1 generates an expected nominal return of 6.7%. In our opinion, both building block components and the overall 6.7% return assumption are reasonable and appropriate per Actuarial Standards of Practice.

For reference, the table below contains a summary of return assumptions for various asset classes based on the long-term target asset allocation. The six specific asset classes displayed are per system request and are summarized results of a more detailed market outlook model with additional asset classes. Each asset class assumption is based on a consistent set of underlying real return assumptions from Milliman's model combined with the FRS Actuarial Assumption Conference's 2.4% inflation assumption. The Milliman assumptions are not based on historical returns, but instead are based on a forward-looking capital market economic model.

Asset Class	Policy Allocation*	Annual Arithmetic Return	Compound Annual (Geometric) Return	Annual Standard Deviation
Cash Equivalents	1.0%	3.3%	3.3%	1.1%
Fixed income	29.0%	5.7%	5.6%	3.9%
Global equity	45.0%	8.6%	7.0%	18.2%
Real estate	12.0%	8.1%	6.8%	16.6%
Private equity	11.0%	12.4%	8.8%	28.4%
Strategic investments	2.0%	6.6%	6.2%	8.7%
Assumed inflation - mean			2.4%	1.5%

*Summarized current target allocation policy, as provided to us by Aon Hewitt Investment Consulting via email on October 8, 2024.

Depletion Date Projection

In order to determine if the plan's fiduciary net position is projected to be sufficient to make projected benefit payments, we have prepared a depletion date projection using the following techniques and assumptions:

- Current active members contribute the required employee contribution amounts.

- The employer contributes the actuarially determined contribution amounts based on the 6.70% investment rate of return assumption selected by the 2024 FRS Actuarial Assumption Conference.

- Benefit payments are projected based on the actuarial assumptions and the current plan provisions.

- Members are assumed to receive pay increases, terminate, retire, become disabled, die, and so forth according to the actuarial assumptions used for the July 1, 2024 valuation.

- Terminating and retiring members are replaced in a manner such that new entrant payroll is allocated to each plan as follows:

  Special Risk members: 75% elect or default into the Pension Plan, 25% into the Investment Plan.
  Non-Special Risk members: 25% elect into the Pension Plan, 75% elect or default into the Investment Plan.

- All cash flows are assumed to occur on average halfway through the year.

- In the depletion date test's projections, the actual return achieved each year on invested assets is 6.70%.

- The funding policy used to determine actuarially determined contributions does not change.

- The actuarial assumptions do not change.

- Once the system is projected to reach a surplus position (smoothed actuarial value of assets greater than actuarial liability) the UAL Rate contribution is set to 0.00% for purposes of this exhibit, rather than modeling a contribution rate offset credit. Please note that this is projected to occur inside the 20-year period for amortizing unfunded liability that is current Conference policy.

The following pages show the first 30 years of the depletion date projection, which includes the entirety of the period in which statutory UAL rates are projected to be charged under the modeling assumptions. Subsequent years are omitted for brevity. Given that future service benefits are fully funded by normal cost contributions and that no UAL remains beyond 30 years under the modeling assumptions, no projected depletion occurs at any point.

Projection of Payroll Measures
($ millions)

Fiscal Year Ending June 30	Current Member Non-DROP PP Payroll	Future Member Non-DROP PP Payroll	Total Member Non-DROP PP Payroll	Payroll for Statutory UAL Rate Contributions	DROP PP Payroll
2025	$26,944.3	$263.2	$27,207.5	$46,165.0	$3,025.5
2026	26,476.6	752.0	27,228.6	47,780.7	3,027.9
2027	25,822.0	1,488.7	27,310.7	49,453.1	3,037.0
2028	25,183.3	2,236.1	27,419.4	51,183.9	3,049.1
2029	24,532.3	3,009.2	27,541.5	52,975.4	3,062.7
2030	23,858.2	3,814.7	27,672.9	54,829.5	3,077.3
2031	23,157.1	4,653.2	27,810.3	56,748.5	3,092.6
2032	22,420.1	5,533.2	27,953.3	58,734.7	3,108.5
2033	21,635.9	6,461.4	28,097.3	60,790.5	3,124.5
2034	20,823.8	7,426.6	28,250.4	62,918.1	3,141.5
2035	20,006.2	8,417.2	28,423.4	65,120.3	3,160.7
2036	19,186.7	9,429.7	28,616.4	67,399.5	3,182.2
2037	18,360.6	10,464.3	28,824.9	69,758.4	3,205.4
2038	17,523.4	11,526.2	29,049.6	72,200.0	3,230.4
2039	16,694.7	12,610.7	29,305.4	74,727.0	3,258.8
2040	15,880.4	13,725.6	29,606.0	77,342.4	3,292.2
2041	15,086.3	14,869.4	29,955.7	80,049.4	3,331.1
2042	14,281.8	16,057.2	30,339.0	82,851.1	3,373.8
2043	13,509.3	17,274.8	30,784.1	85,750.9	3,423.2
2044	12,771.3	18,520.4	31,291.7	88,752.2	3,479.7
2045	12,068.2	19,795.5	31,863.7	91,858.5	3,543.3
2046	11,332.3	21,128.6	32,460.9	95,073.6	3,609.7
2047	10,547.9	22,516.7	33,064.6	98,401.2	3,676.8
2048	9,705.7	23,967.1	33,672.8	101,845.2	3,744.5
2049	8,788.8	25,492.7	34,281.5	105,409.8	3,812.2
2050	7,806.3	27,089.3	34,895.6	109,099.1	3,880.5
2051	6,823.4	28,710.5	35,533.9	112,917.6	3,951.4
2052	5,892.3	30,323.4	36,215.7	116,869.7	4,027.3
2053	5,071.6	31,912.5	36,984.1	120,960.2	4,112.7
2054	4,344.7	33,489.9	37,834.6	125,193.8	4,207.3

Projection of Crossover Test-Eligible Contributions
($ millions)

Fiscal Year Ending June 30	Current Non-DROP Member: Member Contributions	Current Non-DROP Member: Employer Normal Cost Contributions	UAL Contributions: Blended Statutory UAL Rate	UAL Contributions: Statutory UAL Rate Contributions	DROP Payroll Normal Cost Contributions	Net NC Contributions from Future Employees[1]	Total Test-Eligible Contributions
2025	$808.3	$2,524.7	6.72%	$3,102.3	$256.0	$0	$6,691.3
2026	794.3	2,498.0	6.78%	3,239.5	283.7	0	6,815.5
2027	774.7	2,451.2	6.90%	3,412.3	286.3	0	6,924.5
2028	755.5	2,404.0	6.79%	3,475.4	289.0	0	6,923.9
2029	736.0	2,353.8	6.69%	3,544.1	291.7	0	6,925.6
2030	715.7	2,299.7	6.62%	3,629.7	294.4	0	6,939.5
2031	694.7	2,241.8	6.66%	3,779.5	297.0	0	7,013.0
2032	672.6	2,178.6	6.55%	3,847.1	299.6	0	6,997.9
2033	649.1	2,108.9	6.53%	3,969.6	302.2	0	7,029.8
2034	624.7	2,035.4	6.52%	4,102.3	304.9	0	7,067.3
2035	600.2	1,960.6	6.52%	4,245.8	307.7	0	7,114.3
2036	575.6	1,885.8	7.22%	4,866.2	310.8	0	7,638.4
2037	550.8	1,811.5	7.23%	5,043.5	314.0	0	7,719.8
2038	525.7	1,736.8	7.25%	5,234.5	317.5	0	7,814.5
2039	500.8	1,662.9	7.26%	5,425.2	321.4	0	7,910.3
2040	476.4	1,588.0	7.28%	5,630.5	325.8	0	8,020.7
2041	452.6	1,512.4	3.76%	3,009.9	330.8	0	5,305.7
2042	428.5	1,433.3	0.00%	0.0	336.2	0	2,198.0
2043	405.3	1,353.5	0.00%	0.0	342.2	0	2,101.0
2044	383.1	1,273.8	0.00%	0.0	348.9	0	2,005.8
2045	362.0	1,193.8	0.00%	0.0	356.3	0	1,912.1
2046	340.0	1,109.1	0.00%	0.0	363.9	0	1,813.0
2047	316.4	1,021.5	0.00%	0.0	371.7	0	1,709.6
2048	291.2	929.6	0.00%	0.0	379.8	0	1,600.6
2049	263.7	830.8	0.00%	0.0	388.1	0	1,482.6
2050	234.2	726.2	0.00%	0.0	396.7	0	1,357.1
2051	204.7	625.4	0.00%	0.0	405.8	0	1,235.9
2052	176.8	535.2	0.00%	0.0	415.6	0	1,127.6
2053	152.1	457.3	0.00%	0.0	426.6	0	1,036.0
2054	130.3	389.5	0.00%	0.0	438.4	0	958.2

[1] Net normal cost contributions exist if the interest rate assumption adopted by the Actuarial Assumption Conference for funding purposes differs from the GASB discount rate. For this year's valuation, the funding interest rate assumption and the GASB discount rate both equal 6.70%.

Projection of Fiduciary Net Position
($ millions)

Fiscal Year Ending June 30	Projected Beginning Fiduciary Net Position	Projected Test-Eligible Contributions	Projected Payments for Current PP Members	Projected Administrative Expenses	Projected Investment Earnings	Projected Ending Fiduciary Net Position
2025	$198,685.6	$6,691.3	$12,719.8	$29.0	$13,113.2	$205,741.3
2026	205,741.3	6,815.5	13,284.1	29.6	13,571.4	212,814.5
2027	212,814.5	6,924.5	14,169.6	30.2	14,019.8	219,559.0
2028	219,559.0	6,923.9	15,287.1	30.8	14,434.9	225,599.9
2029	225,599.9	6,925.6	16,375.0	31.4	14,803.8	230,922.9
2030	230,922.9	6,939.5	16,153.0	32.0	15,168.1	236,845.5
2031	236,845.5	7,013.0	17,004.8	32.7	15,539.4	242,360.4
2032	242,360.4	6,997.9	17,455.0	33.3	15,893.5	247,763.5
2033	247,763.5	7,029.8	17,517.9	34.0	16,254.5	253,495.9
2034	253,495.9	7,067.3	18,051.0	34.7	16,622.2	259,099.7
2035	259,099.7	7,114.3	18,647.9	35.4	16,979.6	264,510.3
2036	264,510.3	7,638.4	19,233.4	36.1	17,340.1	270,219.3
2037	270,219.3	7,719.8	19,766.9	36.8	17,707.7	275,843.1
2038	275,843.1	7,814.5	20,247.6	37.5	18,071.6	281,444.1
2039	281,444.1	7,910.3	20,672.2	38.3	18,436.2	287,080.1
2040	287,080.1	8,020.7	21,068.9	39.1	18,804.5	292,797.3
2041	292,797.3	5,305.7	21,440.9	39.8	19,085.5	295,707.8
2042	295,707.8	2,198.0	21,742.6	40.6	19,168.1	295,290.7
2043	295,290.7	2,101.0	22,007.1	41.4	19,128.5	294,471.7
2044	294,471.7	2,005.8	22,214.3	42.3	19,063.7	293,284.6
2045	293,284.6	1,912.1	22,433.5	43.1	18,973.7	291,693.8
2046	291,693.8	1,813.0	22,549.5	44.0	18,860.1	289,773.4
2047	289,773.4	1,709.6	22,611.1	44.9	18,726.0	287,553.0
2048	287,553.0	1,600.6	22,633.0	45.8	18,572.8	285,047.6
2049	285,047.6	1,482.6	22,748.7	46.7	18,397.4	282,132.2
2050	282,132.2	1,357.1	22,862.8	47.6	18,194.1	278,773.0
2051	278,773.0	1,235.9	22,980.0	48.6	17,961.3	274,941.6
2052	274,941.6	1,127.6	23,112.2	49.5	17,696.5	270,604.0
2053	270,604.0	1,036.0	23,211.0	50.5	17,399.6	265,778.1
2054	265,778.1	958.2	23,129.1	51.5	17,076.4	260,632.1

Net Pension Liability

Net Pension Liability	June 30, 2023	June 30, 2024
Total pension liability	$226,204,201,000	$237,370,289,000
Fiduciary net position	186,357,365,968	198,685,586,034
Net pension liability	39,846,835,032	38,684,702,966
Fiduciary net position as a % of total pension liability	82.38%	83.70%
Covered payroll	41,958,000,000	44,621,000,000
Net pension liability as a % of covered payroll	94.97%	86.70%

The total pension liability was determined by an actuarial valuation as of the valuation date, calculated based on the discount rate and actuarial assumptions below. The total pension liability is calculated using the Individual Entry Age Normal cost allocation method.

Discount Rate

Discount rate	6.70%	6.70%
Long-term expected rate of return, net of investment expense	6.70%	6.70%
Municipal bond rate	N/A	N/A

The plan's fiduciary net position was projected to be available to make all projected future benefit payments of current active and inactive employees if future experience follows assumptions and the Actuarially Determined Contribution (ADC) is contributed in full each year. Therefore, the discount rate for calculating the total pension liability is equal to the long-term expected rate of return. The 6.7% rate of return assumption used in the June 30, 2024 calculations in Milliman's professional opinion is reasonable and appropriate per Actuarial Standard of Practice Number 27 (ASOP 27).

Other Key Actuarial Assumptions

The actuarial assumptions that determined the total pension liability as of June 30, 2024 were based on the results of an actuarial experience study for the July 1, 2018 - June 30, 2023 experience observation period.

Valuation date	July 1, 2023	July 1, 2024
Measurement date	June 30, 2023	June 30, 2024
Inflation	2.40%	2.40%
Salary increases including inflation	3.25%	3.50%
Mortality	PUB-2010 base table varies by member category and sex, projected generationally with Scale MP-2018	PUB-2010 base table varies by member category and sex, projected generationally with Scale MP-2021*
Actuarial cost method	Individual Entry Age	Individual Entry Age

* See July 1, 2024 Actuarial Valuation Report for funding purposes for details

Changes in Net Pension Liability

Changes in Net Pension Liability	Total Pension Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances as of June 30, 2023	$226,204,201,000	$186,357,365,968	$39,846,835,032
Changes for the year:			
Service cost	3,047,443,178		3,047,443,178
Interest on total pension liability	14,931,144,439		14,931,144,439
Effect of plan changes	0		0
Effect of economic/demographic gains or losses	1,475,374,429		1,475,374,429
Effect of assumptions changes or inputs	4,720,493,000		4,720,493,000
Benefit payments[1]	(13,008,367,046)	(13,008,367,046)	0
Employer contributions		5,662,633,286	(5,662,633,286)
Member contributions		808,465,064	(808,465,064)
Net investment income		18,894,504,053	(18,894,504,053)
Administrative expenses		(29,015,291)	29,015,291
Balances as of June 30, 2024	237,370,289,000	198,685,586,034	38,684,702,966

[1] Benefit payments shown above include outbound transfers to the Investment Plan and returns of contributions, net of $81,756,252 inbound transfers from the Investment Plan, plus general revenue-funded benefit payments net of general revenue contributions.

Sensitivity Analysis

The following presents the net pension liability of the Pension Plan, calculated using the discount rate of 6.70%, as well as what the Pension Plan's net pension liability would be if it were calculated using a discount rate that is one percentage point lower (5.70%) or one percentage point higher (7.70%) than the current rate.

	1% Decrease 5.70%	Current Discount Rate 6.70%	1% Increase 7.70%
Total pension liability	$266,730,624,000	$237,370,289,000	$212,774,781,000
Fiduciary net position	198,685,586,034	198,685,586,034	198,685,586,034
Net pension liability	68,045,037,966	38,684,702,966	14,089,194,966

Schedule of Changes in Net Pension Liability and Related Ratios [1]

(in 1,000s)

	Fiscal Year Ending June 30				
	2024	2023	2022	2021	2020
Total Pension Liability					
Service cost	$3,047,443	$2,770,121	$2,635,672	$2,648,469	$2,647,456
Interest on total pension liability	14,931,144	14,331,551	14,012,135	13,713,166	13,458,929
Effect of plan changes	0	1,332,907	99,285	0	0
Effect of economic/demographic gains or (losses)	1,475,374	3,144,482	1,243,179	349,779	448,646
Effect of assumption changes or inputs	4,720,493	0	2,437,637	0	1,738,139
Benefit payments	(13,008,367)	(12,809,300)	(12,629,514)	(11,985,107)	(11,395,766)
Net change in total pension liability	11,166,088	8,769,760	7,798,395	4,726,307	6,897,405
Total pension liability, beginning	226,204,201	217,434,441	209,636,046	204,909,739	198,012,334
Total pension liability, ending (a)	237,370,289	226,204,201	217,434,441	209,636,046	204,909,739
Fiduciary Net Position					
Employer contributions	$5,662,633	$4,810,643	$4,267,182	$3,809,568	$3,322,557
Member contributions	808,465	788,863	769,228	756,530	748,455
Investment income net of investment expenses	18,894,504	13,367,803	(14,240,179)	47,954,667	5,339,908
Benefit payments	(13,008,367)	(12,809,300)	(12,629,514)	(11,985,107)	(11,395,766)
Administrative expenses	(29,015)	(27,048)	(22,495)	(21,741)	(21,556)
Net change in plan fiduciary net position	12,328,220	6,130,961	(21,855,778)	40,513,917	(2,006,402)
Fiduciary net position, beginning	186,357,366	180,226,405	202,082,183	161,568,265	163,574,667 [2]
Fiduciary net position, ending (b)	198,685,586	186,357,366	180,226,405	202,082,183	161,568,265
Net pension liability, ending = (a) - (b)	$38,684,703	$39,846,835	$37,208,036	$7,553,863	$43,341,474
Fiduciary net position as a % of total pension liability	83.70%	82.38%	82.89%	96.40%	78.85%
Covered payroll [3]	$44,621,000	$41,958,000	$38,679,800	$37,590,100	$36,898,200
Net pension liability as a % of covered payroll	86.70%	94.97%	96.20%	20.10%	117.46%

[1] Amounts shown in exhibit are rounded to the nearest thousand. As such, sums may differ from amounts displayed due to rounding.

[2] There was a restatement of the fiduciary net position at June 30, 2019. The 2019 ending FNP is before restatement; the 2020 beginning FNP is after restatement.

[3] For the fiscal years ending 2015 and later, covered payroll shown includes the payroll for Investment Plan members and other payroll on which only statutory UAL rates are charged.

Schedule of Changes in Net Pension Liability and Related Ratios [1]
(in 1,000s)

	Fiscal Year Ending June 30				
	2019	2018	2017	2016	2015
Total Pension Liability					
Service cost	$2,523,070	$2,423,987	$2,073,754	$2,132,906	$2,114,047
Interest on total pension liability	13,194,902	12,847,930	12,484,167	12,109,114	11,721,563
Effect of plan changes	11,404	0	92,185	32,310	0
Effect of economic/demographic gains or (losses)	247,482	554,811	1,412,462	980,192	1,620,863
Effect of assumption changes or inputs	1,585,626	2,235,654	10,398,344	1,030,667	0
Benefit payments	(10,867,549)	(10,377,575)	(9,859,319)	(10,624,925)	(10,201,501)
Net change in total pension liability	6,694,935	7,684,807	16,601,593	5,660,264	5,254,972
Total pension liability, beginning	191,317,399	183,632,592	167,030,999	161,370,735	156,115,763
Total pension liability, ending (a)	198,012,334	191,317,399	183,632,592	167,030,999	161,370,735
Fiduciary Net Position					
Employer contributions	$3,100,722	$2,849,920	$2,603,246	$2,438,659	$2,438,085
Member contributions	752,814	746,370	744,839	710,717	698,304
Investment income net of investment expenses	9,410,440	13,955,233	18,801,917	820,582	5,523,287
Benefit payments	(10,867,549)	(10,377,575)	(9,859,319)	(10,624,925)	(10,201,501)
Administrative expenses	(19,580)	(20,178)	(18,340)	(18,507)	(18,074)
Net change in plan fiduciary net position	2,376,846	7,153,770	12,272,342	(6,673,473)	(1,559,898)
Fiduciary net position, beginning	161,196,881	154,043,110	141,780,921	148,454,394	150,014,292
Fiduciary net position, ending (b)	163,573,726 [2]	161,196,881 [2]	154,053,263 [2]	141,780,921	148,454,394
Net pension liability, ending = (a) - (b)	$34,438,608 [2]	$30,120,518	$29,579,329 [2]	$25,250,078	$12,916,341
Fiduciary net position as a % of total pension liability	82.61%	84.26%	83.89%	84.88%	92.00%
Covered payroll [3]	$35,571,200	$34,675,000	$33,775,800	$33,214,217	$32,726,034
Net pension liability as a % of covered payroll	96.82%	86.87%	87.58% [2]	76.02%	39.47%

[1] Amounts shown in exhibit are rounded to the nearest thousand. As such, sums may differ from amounts displayed due to rounding.

[2] There was a restatement of the fiduciary net position at June 30, 2019. The 2019 ending FNP is before restatement; the 2020 beginning FNP is after restatement. There was a restatement of the fiduciary net position at June 30, 2017. The 2017 ending FNP is before restatement; the 2018 beginning FNP is after restatement.

[3] For the fiscal years ending 2015 and later, covered payroll shown includes the payroll for Investment Plan members and other payroll on which only statutory UAL rates are charged.

Glossary

Actuarially Determined Contribution
A target contribution to a defined benefit pension plan for the reporting period, determined based on the funding policy and the most recent actuarial measurement available when the contribution for the reporting period was adopted.

Deferred Inflows/Outflows of Resources
Portion of changes in net pension liability that is not immediately recognized in pension expense. These changes include differences between expected and actual experience, changes in assumptions, and differences between expected and actual earnings on plan investments.

Discount Rate
Single rate of return that, when applied to all projected benefit payments, results in an actuarial present value of projected benefit payments equal to the sum of:

1) The actuarial present value of benefit payments projected to be made in future periods where the plan assets are projected to be sufficient to meet benefit payments, calculated using the Long-Term Expected Rate of Return.
2) The actuarial present value of projected benefit payments not included in (1), calculated using the municipal bond rate.

Fiduciary Net Position
Equal to market value of assets.

Long-Term Expected Rate of Return
Long-term expected rate of return on pension plan investments expected to be used to finance the payment of benefits, net of investment expenses.

Money-Weighted Rate of Return
The internal rate of return on pension plan investments, net of investment expenses.

Municipal Bond Rate
Yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher.

Net Pension Liability
Total pension liability minus the plan's fiduciary net position.

Projected Benefit Payments
All benefits estimated to be payable through the pension plan to current active and inactive employees as a result of their past service and expected future service.

Service Cost
The portion of the actuarial present value of projected benefit payments that is attributed to a valuation year by the cost allocation method.

Total Pension Liability
The portion of actuarial present value of projected benefit payments that is attributable to past periods of member service using the individual entry age cost allocation method based on the requirements of GASB 67 and 68.

Appendix E – Sample Experience Study Report

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

2022 Experience Study

Prepared by:

Milliman, Inc.

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

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July 24, 2023

Board of Trustees
Oregon Public Employees Retirement System

Re: 2022 Experience Study – Oregon Public Employees Retirement System

Dear Members of the Board:

The results of an actuarial valuation are based on the actuarial methods and assumptions used in the valuation. These methods and assumptions are used in developing employer contribution rates, disclosing employer liabilities pursuant to GASB requirements, and for analyzing the fiscal impact of proposed legislative amendments.

This experience study report has been prepared exclusively for the Oregon Public Employees Retirement System (PERS) and its governing PERS Board (Board). **The study recommends to the Board the actuarial methods and assumptions to be used in the December 31, 2022 and 2023 actuarial valuations of PERS. The latter actuarial valuation will be used to calculate actuarially determined employer contribution rates for the 2025-2027 biennium.**

Except where otherwise noted, the analysis in this study was based on data for the experience period from January 1, 2017 to December 31, 2022 as provided by PERS. PERS is solely responsible for the validity, accuracy, and comprehensiveness of this information; the results of our analysis can be expected to differ and may need to be revised if the underlying data supplied is incomplete or inaccurate.

This analysis also relied, without audit, on information (some oral and some in writing) supplied by PERS staff as well as a capital market outlook provided by Meketa, survey capital market outlook information published by Horizon Actuarial Services, and information presented to the Oregon Investment Council. This information includes, but is not limited to, statutory provisions, employee data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different, and our calculations may need to be revised. In assessing the Milliman capital market outlook presented in this report, per Actuarial Standards of Practice we disclose reliance upon a model developed by Milliman colleagues who are credentialed investment professionals with expertise in capital outlook modeling.

Milliman's work is prepared solely for the use and benefit of the Oregon Public Employees Retirement System.

Milliman does not intend to benefit or create a legal duty to any third-party recipient of this report. No third-party recipient of Milliman's work product should rely upon this report. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are retirement actuaries and, for the analysis of the RHIPA program, healthcare actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board and the *Code of Professional Conduct* and *Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States* published by the American Academy of Actuaries. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein. Assumptions related to the healthcare trend rates for the RHIPA program discussed in this report were determined by Milliman actuaries qualified in such matters.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Table of Contents

1. Executive Summary

This experience study report has been prepared exclusively for the Oregon Public Employees Retirement System (PERS) and the PERS Board (Board) in order to analyze the system's experience from January 1, 2017 through December 31, 2022 and to recommend actuarial methods and assumptions to be used in the December 31, 2022 and 2023 actuarial valuations of PERS.

A summary of the recommended method and assumption changes contained in this report as well as items reviewed at the June 2023 and/or July 2023 Board meetings follows:

Economic Assumptions

- The **current investment return assumption of 6.90%** per year is now lower than the median expectation based on an analysis of PERS's current target asset allocation using several capital market outlook models. The median annualized geometric return for the 20-year outlook developed by the Oregon State Treasury staff in collaboration with Oregon Investment Council advisors Meketa and Aon was 7.6%, with an underlying inflation assumption of 2.5%. The median annualized geometric return for a 10-year time horizon based on Milliman's December 31, 2022 capital market outlook was 7.11% and for a 20-year time horizon was 7.46%. However, these higher expectations are driven by significant recent changes in financial market conditions, and it is currently unknown whether those changes will be temporary or enduring. **We recommend not increasing the assumption.**
- The **system payroll growth assumption could remain at 3.40% or could be lowered modestly for conservatism**.
- Update the assumption for future administrative expenses.
- Update the RHIPA health cost trend (i.e., healthcare cost inflation) assumption.

Demographic Assumptions

- **Most significant recommended updates: Increase the individual member salary increase assumption's merit/longevity component** for all member categories based on observations of the last ten years of experience. The individual member salary increase assumption consists of the sum of inflation, real wage growth, and merit/longevity components, with the latter varying by member. **Also, we recommend assuming additional 2% annual increases in the next two years above the updated long-term assumptions** to estimate the system-wide effect of recently announced bargaining agreements.
- Make a routine update to the mortality improvement scale for all groups, based on 60-year unisex average Social Security experience, and make an adjustment to the base mortality table applied to non-annuitant police & fire males.
- Adjust retirement rates for certain member categories and service bands to more closely align with recent and expected future experience; eliminate the forward-looking assumption of future retirees electing a partial lump sum.
- Update pre-retirement termination of employment assumptions for two member categories.
- Lower assumed rates of ordinary (non-duty) disability and general service duty disability incidence; increase the assumed rates of police & fire duty disability incidence.
- Adjust the Tier One unused vacation cash out assumption for two member categories.
- Adjust the Tier One/Tier Two unused sick leave assumption for most member categories to reflect recently observed experience.
- Decrease the likelihood of program participation for non-disabled retirees in the RHIA retiree healthcare program.

- Decrease the RHIPA likelihood of program participation assumption for most service bands.

Actuarial Methods and Allocation Procedures

- Introduce a contribution lag adjustment component to side account amortization calculations and Pre-SLGRP liability and surplus calculations (including transition liabilities and surpluses). The adjustment reflects the delay between the "as of" date of the amortization calculation and date on which the calculated side account rate offset takes effect.
- Modify the amortization calculation for Pre-SLGRP liabilities and surpluses for SLGRP employers, introducing a revised contribution timing component. Prior methodology amortized balances a December 31 date. Updated methodology will amortize to a June 30 date coinciding with the end of a biennial rate-setting period.

2. Actuarial Methods and Allocation Procedures

Overview

Actuarial methods and allocation procedures are used as part of the valuation to determine actuarial accrued liabilities, to determine normal costs, to allocate costs to individual employers and to amortize unfunded liabilities. The following Board guiding objectives were considered in developing recommended actuarial methods and allocation procedures:

- Transparency of shortfall and funded status calculations
- Predictable and stable employer contribution rates
- Protection of the plan's funded status to enhance benefit security for members
- Equity across generations of taxpayers funding the program
- Actuarial soundness - crafting policy that will fully fund the system if assumptions are met
- Compliance with GASB (Governmental Accounting Standards Board) requirements

The actuarial methods used for the December 31, 2019 actuarial valuation and the changes recommended for the December 31, 2020 and 2021 actuarial valuations are shown in the table below.

Method	December 31, 2021 Valuation	December 31, 2022 and 2023 Valuations
Cost method	Entry Age Normal (EAN)	No change
UAL Amortization method	UAL amortized as a level percent of combined Tier One/Tier Two and OPSRP payroll	No change
UAL Amortization period	▪ UAL bases – Closed amortization from the first rate-setting valuation in which experience is recognized – Tier One/Tier Two – UAL was re-amortized over 22 years effective December 31, 2019 as directed by Senate Bill 1049. Future Tier One/Tier Two UAL gains or losses will be amortized over 20 years. – OPSRP – 16 Years – RHIA/RHIPA charges – 10 years – RHIA/RHIPA credits – amortized over a rolling 20-year period when in actuarial surplus ▪ Newly established side accounts – Aligned with the new Tier One/Tier Two base from the most recent rate-setting valuation ▪ Newly established transition liabilities or surpluses – 18 years from the date joining the SLGRP (State & Local Government Rate Pool)	No change to Tier One/Tier Two, OSPRP and RHIA/RHIPA. Side accounts amortization periods are unchanged but will introduce a lag adjustment to the amortization calculation to reflect the delay between when the calculation occurs and when the new rate is effective. Methodology for transition liabilities or surpluses adjustments will be changed from amortizing to December 31 of the relevant year to the end of the associated biennial rate-setting period 18 months later.

Method	December 31, 2021 Valuation	December 31, 2022 and 2023 Valuations
Asset valuation method	Market value	No change
Exclusion of reserves from valuation assets	Contingency Reserve, Capital Preservation Reserve, and Tier One Rate Guarantee Reserve (RGR) excluded from valuation assets. RGR is not excluded from valuation assets when RGR is negative (i.e., when the RGR is a deficit reserve).	No change
Allocation of Benefits in Force (BIF) Reserve	The BIF is allocated to each rate pool in proportion to the retiree liability attributable to the rate pool.	No change
Rate collar	Change in UAL Rate contribution rate component limited to: • 3% of payroll for Tier One/Tier Two SLGRP (State & Local Government Rate Pool) and Tier One/Tier Two School District Rate Pool • 1% of payroll for OPSRP • 4% of payroll for Tier One/Tier Two UAL Rate of independent employers, but not less than one-third of the difference between the uncollared and collared UAL Rate Additionally, the UAL Rate is not allowed to decrease for a rate pool until the pool's funded percentage excluding side accounts is over 87% and would not reflect the full collar width until reaching 90% funded.	No change
Liability allocation for actives with multiple employers	▪ Allocate Actuarial Accrued Liability 10% (0% for police & fire) based on account balance with each employer and 90% (100% for police & fire) based on service with each employer	Change allocation to 5% (0% for police & fire) based on account balance with each employer and 95% (100% for police & fire) based on service with each employer
	▪ Allocate Normal Cost to current employer	No change
System-average offset for member redirect contributions	▪ 2.40% of Tier One/Tier Two payroll ▪ 0.65% of OPSRP payroll	No change

The methods and procedures are described in greater detail on the following pages.

Actuarial Cost Method

The total contribution cost of the program, over time, will be equal to the benefits paid less actual investment earnings and is not affected directly by the actuarial cost method. The actuarial cost method is simply a tool to allocate projected costs to past, current, or future years and thus primarily affects the timing of cost recognition.

The December 31, 2021 valuation used the Entry Age Normal (EAN) actuarial cost method, which allocates costs as a level percentage of payroll across the full projected working career. EAN is the required method under governmental financial reporting standards, though the Board could choose to use a different method for employer contribution rate calculations. Oregon PERS adopted EAN for all purposes with the December 31, 2012 valuation. Employing a consistent cost allocation method for both financial reporting and contributions is more understandable to interested parties as only one set of liability and normal cost calculations will be made for each member, employer, and rate pool. The EAN approach is widely used in the actuarial and public plan sponsor community because it provides an actuarially sound estimate of the projected long-term contribution costs of a retirement program as a level percentage of payroll if all assumptions are met. The benefits of this method are unchanged from when the Board previously adopted it, and **we recommend continuing to use the EAN actuarial cost method**.

Amortization Method

Unfunded Actuarial Liability

The unfunded actuarial liability (UAL) is amortized as a level percentage of projected combined payroll (Tier One/Tier Two plus OPSRP) in order to better maintain level contribution rates as payroll for the closed group of Tier One/Tier Two members declines and payroll of OPSRP members increases. We recommend this methodology continue.

The Board-selected method in recent years has been to amortize UAL over the following closed periods as a level percent of projected payroll from the first rate-setting valuation in which the experience is recognized:

- Tier One/Tier Two – 20 years
- OPSRP – 16 years
- RHIA/RHIPA charges when funded status is below 100% – 10 years
- RHIA/RHIPA credits when funded status is over 100% – 20 year rolling period

As part of a collection of method changes made with the 2012 Experience Study, the Board made a policy decision to re-amortize all existing Tier One/Tier Two unfunded actuarial liability (UAL) at the December 31, 2013 rate-setting actuarial valuation. Since then, previously unanticipated increases or decreases in Tier One/Tier Two UAL between subsequent rate-setting valuations have been amortized as a level percentage of payroll over a closed 20-year period from the rate-setting valuation in which they were first recognized. Unanticipated UAL increases or decreases can arise from actual experience differing from assumption (experience gain or experience loss) or updates to assumptions and/or methods.

Senate Bill 1049 was signed into law in June 2019 and required a one-time re-amortization of all existing Tier One/Tier Two UAL over a closed 22-year period at the December 31, 2019 rate-setting actuarial valuation which set actuarially determined contribution rates for the 2021-2023 biennium. The remaining amortization period of this closed amortization base will continue to decrease. In the 2020 Experience Study the Board adopted a 20-year closed amortization for the previously unanticipated Tier One/Tier Two UAL arising as of the December 31, 2021 rate-setting actuarial valuation date. **We recommend the Board maintain the 20-**

year closed, layered amortization approach for previously unanticipated increases or decreases in Tier One/Tier Two UAL as of each future rate-setting actuarial valuation date.

RHIA & RHIPA Amortization

Retiree Healthcare (RHIA and RHIPA) benefits are only available to closed groups, since only Tier One/Tier Two members are eligible for the programs (RHIPA is further restricted to state employees). Starting with the 2020 Experience Study, the Board has adopted an amortization period for these programs that differs depending on whether a program is less than 100% funded or over 100% funded.

The UAL for the RHIA and RHIPA as of December 31, 2007 was each amortized as a level percentage of projected combined valuation payroll (Tier One/Tier Two plus OPSRP payroll) over a closed 10-year period. When RHIA or RHIPA are less than 100% funded, previously unanticipated increases or decreases in UAL between subsequent odd-year valuations are amortized as a level percentage of combined valuation payroll over a closed 10-year period from the valuation in which they are first recognized.

If RHIA or RHIPA are in actuarial surplus (over 100% funded), the surplus is amortized over a rolling 20-year period over Tier One/Tier Two payroll. The resulting negative UAL rate can offset the normal cost rate of the program, but not below a net 0.00% contribution rate. If the program subsequently were to fall below 100% funded, the newly arising UAL would then be amortized over combined Tier One/Tier Two and OPSRP payroll following a 10-year closed, layered amortization policy.

We recommend no changes to this policy.

Contribution Time Lag Adjustment

The current funding policy does not apply any contribution time lag adjustment to UAL contribution rates for the 18-month delay between the rate-setting actuarial valuation date at which new contribution rates are calculated and the July 1 date on which rates first take effect. When contribution rates increase, such an adjustment would add a small additional rate increase to account for the fact the new higher contribution rate did not take effect immediately at the actuarial valuation date. When contribution rates decrease, a similar dynamic would lead to an additional rate decrease from the adjustment. Any delay adjustments would not be expected to have a material effect in total if System experience has gains and losses that approximately offset over time.

While the practice of adjusting for a time lag has intuitive appeal, previous experience for Oregon PERS led to the elimination of such an adjustment in the past. Given the complexities of a system with several hundred employers receiving individually determined contribution rates that reflect various combinations of pooled and unpooled individual employer experience, a time lag adjustment would not be one simple calculation for the system. The last time Oregon PERS did employ a time lag adjustment as part of the contribution calculation methodology was in the early 2000s. Our understanding is the experience at that time led to persistent (but typically small) differences in contribution rate components paid by employers in the same experience-sharing pool, increased difficulty for stakeholders in reconciling rate changes from biennium to biennium, and increased difficulty for employers in understanding how their rates were calculated. This experience led to the decision to remove time lag adjustments from contribution rate calculations.

With this experience study, we again reviewed the issue of a possible time lag adjustments and discussed this topic with the Board over several meetings. **Based on this review, our recommendations are:**

- **For regular UAL Rate amortizations**: Continue not to apply a time lag adjustment in the calculation of rates. In our opinion, the additional complexity this would add to the calculation would materially impair the ability of employers to follow and understand their rate calculations and would not provide a sufficient offsetting benefit.
  - For a time lag adjustment to be rigorous, it would involve adjusting each UAL layer established for all rate pools (OPSRP, SLGRP, School Districts, and 120+ Independent Employers). This would be hard to communicate and hard for employers to track the effect on their contribution rates.
  - The absence of a time lag adjustment is not biased and is not expected to significantly affect long-term UAL Rates. Since new layers of UAL will be added every rate-setting valuation, with some credits and some charges, the net effect of the adjustments would sometimes be small increases and sometimes small decreases compared to a policy without a time lag adjustment.
  - Overall, we believe the harm this change would cause to the Board-adopted objective of transparency is not warranted given the lack of an expected commensurate benefit.
- **For Side Account and Pre-SLGRP amounts**: We recommend introducing a time lag adjustment for the contribution rate components tied to side account and Pre-SLGRP amounts. Pre-SLGRP amounts include employer-specific transition liabilities/surpluses along with a specific grouped Pre-SLGRP liability for the state and community colleges and a grouped Pre-SLGRP surplus for employers who participated in the Local Government Rate Pool (LGRP). The reasons for our recommendation are:
  - Unlike regular UAL, side accounts and Pre-SLGRP amounts are single balances that amortize to zero over time, without the addition of new layers related to future experience. The amortization has a fixed end point, instead of cycling through new and offsetting gains and losses in future biennia as is the case for regular UAL.
  - The management of expiring rate adjustments at the end of the amortization period will be meaningfully improved by incorporating a time lag adjustment. Because the time lag adjustment builds in the actual rate offset level in effect for the 18 months following the rate-setting actuarial valuation date, in the situations where recent experience has significantly changed the offset rate this will help mitigate the possibility of balance drawing down to zero well before the intended expiration date of the rate offset.

  The majority of balances for both side accounts and Pre-SLGRP amounts are scheduled to expire on December 31, 2027. As a result, introducing this time lag adjustment in the upcoming valuations would be timely to facilitate a smoother process for expiring contribution rate components. Additional details related to the amortization of side accounts and transition liabilities/surpluses are discussed below.

Side Accounts and Transition Liabilities/Surpluses

Prior to the 2010 Experience Study, side accounts and transition liabilities/surpluses were amortized over a fixed-date period ending on December 31, 2027. To better match the amortization periods for new side accounts and new transition liabilities with the amortization of the Tier One/Tier Two UAL and to avoid issues related to a shortening amortization period, the PERS Board adopted the following amortization procedures which are not tied to a fixed date as part of the 2010 Experience Study:

- In general, newly established side accounts have been amortized over a 20-year period aligned with the new Tier One/Tier Two UAL amortization base from the most recent rate-setting valuation. For example, a side account created in July 2023 would have an amortization period ending on December 31, 2041, which would align with the 20-year Tier One /Tier Two UAL amortization base created in the December 31, 2021 rate-setting valuation that will establish 2023-2025 employer contribution rates. Employers who make lump sum payments in accordance with the rules under OAR 459-009-0086(9) may select a shorter amortization period of either 6, 10, or 16 years since the most recent rate-setting actuarial valuation.
- New transition liabilities/surpluses are amortized over the 18-year period beginning when the employer joins the SLGRP. This amortization period aligns with the last Tier One/Tier Two UAL amortization base established as an independent employer.

With the current Experience Study, we recommend:

- Introducing a time lag adjustment for both side accounts and transition liabilities/surpluses, as discussed above.

- Adjusting the endpoint of the amortization period for all transition liabilities/surpluses and other Pre-SLGRP amounts to expire 18 months after the currently scheduled December 31. For example, balances scheduled to expire on December 31, 2027 will be adjusted to amortize through June 30, 2029. This aligns with the usual biennial rate-setting cycle and will allow PERS staff to handle the expiration of Pre-SLGRP amounts as part of the regular biennial rate-setting process, rather than requiring an off-cycle change in rates. Any new transition liabilities or surpluses in the future will follow similar timing, such that the amortization period will be 19½ years (18 years from when the employer joins the SLGRP, plus 1½ years to align with the rate-setting timing).

- Making no additional “expiration date” changes to the amortization method or periods for side accounts, which will continue to amortize to a fixed period projected to end on December 31. Unlike Pre-SLGRP amounts, side account balances are specifically identified employer assets which PERS can track monthly and which fluctuate with actual investment experience. As a result, PERS can and should manage the side account expiration process separately from the usual biennial cycle. In addition, we understand many employers funded side accounts with Pension Obligation Bonds with repayment schedules that may have been structured around the projected amortization period end date for side account rate offsets. Such employers may prefer to have the projected expiration date remain unchanged to the extent possible.

Asset Valuation Method

Effective December 31, 2004, the Board adopted market value as the actuarial value of assets, replacing the four-year smoothing method previously used to determine the actuarial asset value, which is used for shortfall (UAL) calculations. Although asset smoothing is a common method for smoothing contribution rates in public sector plans, the smoothed asset value provides a less transparent measure of the plan’s funded status and UAL. Market value provides more transparency to members and other interested parties regarding the funded status of the plan. Instead of smoothing the rate calculation’s asset input, a rate collar method (described below) is used to smooth contribution rate output and systematically spread large rate increases across several biennia.

We recommend no change to the asset valuation method.

Excluded Reserves

Statute provides that the Board may establish Contingency and Capital Preservation reserve accounts to mitigate gains and losses of invested capital and other contingencies, including certain legal expenses or judgments. In addition, statute requires the establishment and maintenance of a Rate Guarantee or Deficit reserve to fund earnings crediting to Tier One member regular accounts when actual earnings are below the investment return assumption selected by the Board.

The Contingency and Capital Preservation reserves are excluded from the valuation assets used for employer rate-setting calculations. **We recommend no change to the treatment of the Contingency and Capital Preservation reserves.**

The Rate Guarantee Reserve (RGR) was positive as of December 31, 2021 but can become negative (in deficit status) if, over time, the required crediting on Tier One member accounts exceeds the investment earnings actually achieved on those accounts. The RGR was negative from the December 31, 2008 valuation to the December 31, 2012 valuation. All else being equal, excluding a negative reserve increases the level of valuation assets used in employer rate-setting calculations. This occurs because subtracting a negative amount is mathematically equivalent to adding a positive amount of the same magnitude. If the negative reserve was larger in absolute value than the sum of the other reserves, this approach would lead to the actuarial value of assets used in shortfall (UAL) calculations being larger than the market value of assets.

As part of the 2010 Experience Study, the Board decided to only exclude the RGR from assets when it is in positive surplus position, and not to subtract a negative RGR (which would increase the actuarial value of assets) when it is in deficit status. **We recommend this treatment of the RGR continue.**

Rate Collar Method

Effective December 31, 2004, a rate collar method was adopted that limits biennium to biennium changes in contribution rates to be within a specified “collar” range. The PERS Board reviewed the components of the rate collar methodology over the course of several Board meetings in 2020 and 2021 to determine whether any changes to the parameters of the rate collar would be desirable, which culminated in changes that were adopted with the 2020 Experience Study. **With the current study, we recommend no changes to the rate collar method described below.**

Rate Collar Method: The Unfunded Actuarial Liability (UAL) Rate component for a rate pool (e.g., Tier One/Tier Two SLGRP, Tier One/Tier Two School Districts, OPSRP), is confined to a collared range based on the prior biennium’s collared UAL Rate component (prior to consideration of side account offsets, SLGRP transition liability or surplus rates, pre-SLGRP liability rate charges or offsets, or member redirect offsets). Other parameters of the rate collar are as follows:

- **Collar width:**
  - Tier One/Tier Two State & Local Government Rate Pool (SLGRP) and Tier One/Tier Two School District Rate Pool: 3% of payroll
  - OPSRP: 1% of payroll (experience for the OPSRP UAL Rate is pooled at a state-wide level)
  - Tier One/Tier Two UAL Rates for independent employers: greater of 4% of payroll or one-third of the difference between the employer’s collared and uncollared UAL Rate at the last rate-setting valuation. In addition, the UAL Rate will not be allowed to be less than 0.00% of payroll for any independent employer with a funded status (excluding side accounts) less than 100%.

- **UAL Decrease restrictions:** the UAL Rate component for any rate pool will not decrease from the prior biennium's collared UAL Rate component if the pool's funded status is 87% (excluding side accounts) or lower; the allowable decrease will phase into the full collar width from 87% funded to 90% funded.

The rate collar is applied for each rate pool (or independent employer) prior to any adjustments to the employer contribution rate for side accounts, transition liabilities, or pre-SLGRP pooled liabilities. The rate collar only applies to employer contribution rates for pension benefits. Rates attributable to RHIA and RHIPA (retiree medical) programs are not subject to the collar.

Liability Allocation for Actives with Multiple Employers

Over the course of a member's working career, a member may work for more than one employer covered under the Tier One/Tier Two program. Since employer Tier One/Tier Two contribution rates are developed on an individual employer basis, while also considering any rate pooling structures, the member's liability should be allocated between the member's various Tier One/Tier Two employers. If all of the member's employers participate in the same rate pool, the allocation has no effect on rates. However, if the employers in question are in different rate pools, or some are independent, the method to allocate liability among employers can have an impact on the employers' calculated contribution rates.

When a member retires, PERS allocates the cost of the retirement benefit between the employers the member worked for based on the calculation approach that produces the member's retirement benefit. If the member's benefit is calculated under the Money Match approach, the cost is allocated in proportion to the member's account balance attributable to each employer. If the member's benefit is calculated under the percent of final average pay Full Formula approach, the cost is allocated in proportion to the service attributable to each employer.

In the period prior to the 2003 system reforms and shortly thereafter, the vast majority of retirement benefits were calculated under the Money Match approach, so the member liability in valuations prior to December 31, 2006 had been allocated in proportion to the member's account balance attributable to each employer. With no new member contributions to Tier One/Tier Two, however, this procedure meant no liability was allocated to employers for service after December 31, 2003 in the valuation. As Money Match approach calculations became less predominant and retirements under the Full Formula approach become more prevalent, a change in the procedure to allocate liability among employers was warranted.

Effective with the December 31, 2006 valuation, a change was made to allocate a member's actuarial accrued liability among employers based on a weighted average of the Money Match methodology, which utilizes member account balance, and the Full Formula methodology, which utilizes service. The methodologies were weighted according to the percentage of the system-wide actuarial accrued liability for new retirements projected to be attributable to the Money Match and Full Formula approaches, respectively, as of the next rate-setting valuation. For the December 31, 2020 and December 31, 2021 valuations, the Money Match method was weighted 10% for general service members and 0% for police & fire members.

The total actuarial liability for Tier One/Tier Two active members estimated to be attributable to the Money Match approach as of December 31, 2022 is 5% for general service members and less than 1% for police & fire members. This continues the decreasing trend of Money Match benefits seen in prior Experience Studies.

We recommend the Money Match approach weighting be reduced to 5% for general service members. This weighting will continue to be reviewed with each experience study and updated, as necessary.

For police & fire members we recommend the allocation continue to be based entirely on the Full Formula approach.

As in prior valuations, the member's normal cost will continue to be assigned fully to their current employer.

Offset for Member Redirect Contributions

Senate Bill 1049 from the 2019 legislative session provided that a portion of the 6% of pay member contribution would be redirected from the Individual Account Program (IAP) to the Employee Pension Stability Account (EPSA) beginning July 1, 2020. The EPSA amounts will be used to help fund Tier One/Tier Two and OPSRP defined benefits. Absent modification to governing law, the redirect to EPSA will remain in effect until the system-wide funded status including side accounts in a rate-setting actuarial valuation is 90% or greater.

The member redirect only applies to members whose pay exceeds a specified monthly salary threshold. This threshold was originally set at $2,500 per month ($30,000 per year for a 12-month employee) for 2020, increased for inflation in future years. House Bill 2906 from the 2021 legislative session subsequently increased this threshold to $3,333 per month ($40,000 per year for a 12-month employee) effective in 2022.

For members with pay above the monthly threshold, the amount redirected from the IAP to the EPSA is as follows:

- Tier One/Tier Two: 2.50% of pay
- OPSRP: 0.75% of pay

Beginning with the 2021-2023 biennium rates which were set in 2020, the PERS Board has adopted employer contribution rates that are based on a total gross actuarially calculated contribution rate along with an assumed offset for the average level of member redirect contribution for each tier. For the 2021-2023 biennium, the projected system-average member redirect offset was 2.45% of pay for Tier One/Tier Two and 0.70% of pay for OPSRP. Those projected offsets were based on the $2,500 per month threshold in the 2019 legislation. The 0.05% of pay difference between the redirect amount for affected individual members and the assumed system-average offset was due to the amount of pay expected to fall below the redirect monthly threshold. For the 2023-2025 biennium's contribution rate calculations, the projected system-average member redirect offset is 2.40% of pay for Tier One/Tier Two and 0.65% of pay for OPSRP. The increase from 0.05% to 0.10% in the pay difference between the redirect amount for an individual and the assumed offset was due to the revised pay threshold from House Bill 2906.

Based on our updated analysis reflecting individual member pay from the December 31, 2021 actuarial valuation reflecting the current inflation-adjusted pay threshold, we recommend the following assumed member redirect offset amounts for the 2025-2027 biennium:

- Tier One/Tier Two: 2.40% of pay
- OPSRP: 0.65% of pay

These amounts are unchanged from the current assumption.

3. Economic Assumptions

Overview

Actuarial Standard of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations,* provides guidance on selecting economic assumptions used in measuring obligations under defined benefit pension plans. ASOP No. 27 suggests that economic assumptions be developed using the actuary's professional judgment, taking into consideration past experience and the actuary's expectations regarding the future. The process for selecting economic assumptions involves:

- Identifying components of each assumption and evaluating relevant data
- Considering factors specific to the measurement along with other general factors
- Selecting a reasonable assumption

Under ASOP No. 27, an assumption is considered reasonable if:

- It is appropriate for the purpose of the measurement,
- It reflects the actuary's professional judgment,
- It takes into account relevant historical and current economic data,
- It reflects the actuary's estimate of future experience, the actuary's observation of estimates inherent in market data, or a combination thereof, and
- It has no significant bias, except when provisions for adverse deviation are included and disclosed.

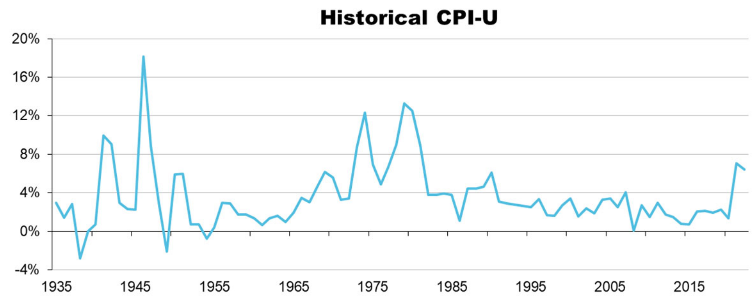
A summary of the economic assumptions used for the December 31, 2021 actuarial valuation and those recommended for the December 31, 2022 and 2023 actuarial valuations is shown below:

Assumption	December 31, 2021 Valuation	December 31, 2022 and 2023 Valuations
Inflation (other than healthcare)	2.40%	2.40%
Real wage growth	1.00%	1.00% or lower
System payroll growth	3.40%	3.40% or lower
Regular investment return	6.90%	While current capital market outlooks are higher than the current assumption, we recommend the Board not increase the assumption. The Board will select the assumption at its July 28, 2023 meeting
Variable account investment return	Same as regular investment return	Same as regular investment return
Combined Tier One/Tier Two & OPSRP administrative expenses	$59 million/year	$64 million/year
RHIPA health cost trend rates		
▪ 2023 cost trend rate	5.10%	6.60%
▪ Ultimate cost trend rate	3.90%	3.80%
▪ Year reaching ultimate rate	2074	2074

The recommended assumptions shown above, in our opinion, were selected in a manner consistent with the guidance of ASOP No. 27. Each of the above assumptions is described in detail below and on the following pages.

Inflation

The assumed inflation rate is a building block for all other economic assumptions. It affects assumptions including investment return, system payroll growth, and the RHIPA health cost trend rate.



In selecting an appropriate inflation assumption, we consider both historical data and the breakeven inflation rates implied by recent yields of long-term Treasury Inflation Protection Securities (TIPS) and Treasury bonds. The chart above shows the historical annual inflation rate for the years ending December 31 from 1935 through 2022 as reported by the Bureau of Labor Statistics. The mean and median annual rates over this period are **3.64%** and **2.90%** respectively.

Historical inflation rates vary significantly from period to period and may not be an indication of future inflation rates. Given the presence of a TIPS market, we can calculate an estimated breakeven inflation rate by comparing yields on regular Treasury securities to the yields on TIPS. The table below shows yields as of December 31, 2022, for 10-year and 30-year Treasury bonds and TIPS.

	As of 12/31/2022	
	10-Year	**30-Year**
Treasury Yield	3.88%	3.97%
TIPS Yield	1.58%	1.67%
Breakeven Inflation	**2.30%**	**2.30%**

We also considered forward-looking estimates of inflation measures prepared by prominent organizations with the need and expertise to forecast long-term inflation: Social Security's intermediate inflation projection average of 2.59% over the period 2022-2032 (with an ultimate rate of **2.40%**), the Cleveland Fed's inflation expectation model projection 2.29% inflation over 10 years and **2.42%** over 30 years, the Medicare Trustees' intermediate assumption of 3.20**%** inflation for ten years and **2.40%** thereafter, and the Congressional Budget Office's projection of CPI of an average of 2.56% inflation over the period 2022-2032 (with an ultimate rate of **2.30%**). These measures were taken from, respectively, the 2023 OASDI Trustees Report, data published on the website of the Federal Reserve Bank of Cleveland, the 2023 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds, and *The Budget and Economic Outlook: 2023 to 2033* published by the CBO in February 2023.

Based on the information shown above, **we believe the current assumption of 2.40% is reasonable and recommend no change**.

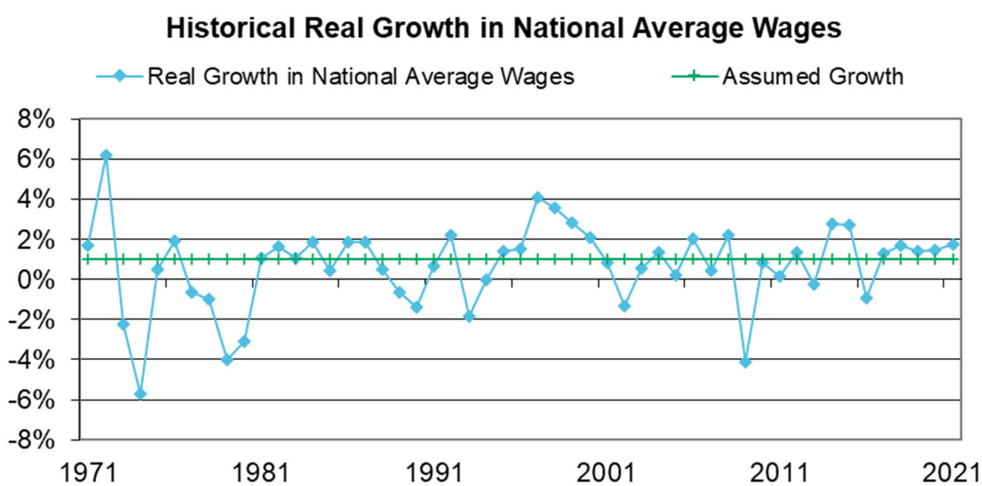
Real Wage Growth

The assumed individual salary increase assumption for each member is the sum of three components:

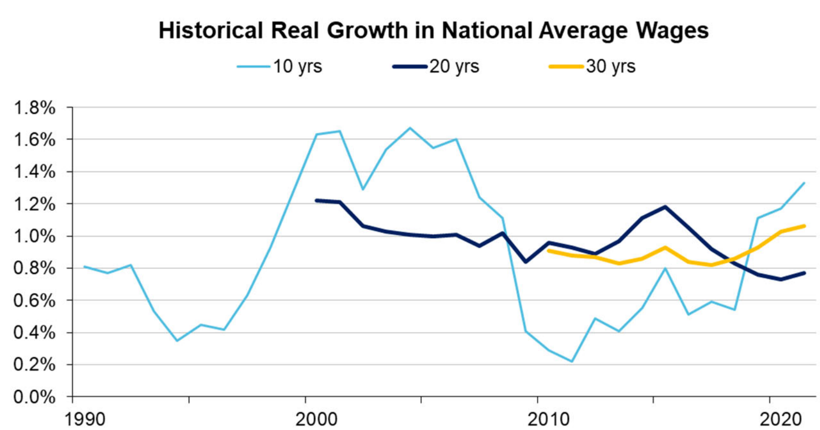
- Inflation,
- Real wage growth, and
- Merit and longevity wage growth.

Real wage growth represents the increase in wages above inflation for an entire population due to improvements in productivity and competitive pressures. Merit and longevity wage growth, in contrast, represent the increases in wages for an individual due to factors such as performance, promotion, or seniority.

The chart below shows the real growth in national average wages over the past fifty years based on data compiled by the Social Security Administration.



While the change in any one year has been volatile, the change over longer periods of time is more stable as shown in the chart below, which depicts the 10, 20, and 30 year trailing average reflecting data since 1981. (For example, the 10-year trailing average shown for 1990 in the chart reflects data from 1981 through 1990.)

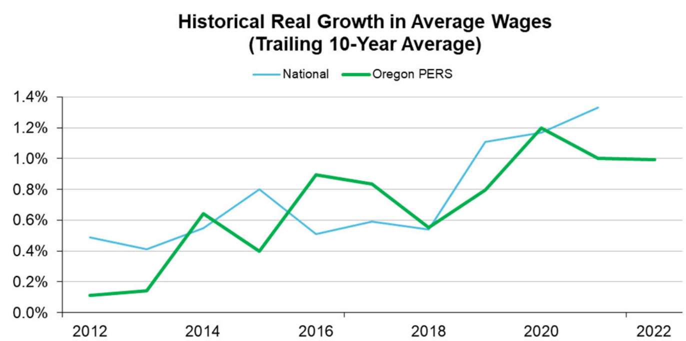


While the 10-year trailing average is still somewhat volatile, the 20- and 30-year averages have generally remained between 0.80% and 1.20% during the period shown. The table below shows the trailing average over various periods as of December 31, 2021, which was the most recently available data at the time of this report's development.

Length of Period Ending December 31, 2021	Average Real Growth in National Average Wages
10 years	1.33%
20 years	0.77%
30 years	1.06%
40 years	0.99%
50 years	0.64%

We also considered the Social Security Administration's current long-term intermediate wage growth assumption of 1.15% in our analysis.

Finally, we compared how the recent 10-year trailing average of changes in national average wages compared to the average change in Oregon PERS salary, as shown in the graph below:



In general, the direction and trend for recent System experience has been consistent with the patterns of changes in national average wages. The Oregon PERS experience for the most recent comparable 10-year period has lagged the trailing average for national data, but this relationship can vary greatly over a one- or two-year period, as shown in the comparison of the 2020 and 2021 data points above.

Based on the combination of historical data and Social Security's outlook for future experience, **we consider the current assumption of 1.00% to continue to be reasonable and appropriate, but a modestly lower assumption (such as 0.80% or 0.90%) would also be reasonable.**

System Payroll Growth

Real wage growth combined with inflation represents the expected growth in total system payroll for a stable active employee population. Changes in payroll due to an increase or decline in the headcount of the active employee population are customarily not captured by this assumption unless there is a reason to build in a known expectation of significant long-term changes in the active working population. For Oregon PERS, we do not have any reason to assume such changes, and so assume a stable population for purposes of the system payroll growth assumption.

The system payroll growth assumption is used to develop the annual amount necessary to amortize the unfunded actuarial liability (UAL) as a level percentage of projected future system payroll. For any given amount of UAL, a lower system payroll growth assumption will produce a higher near-term contribution rate to amortize the UAL over a given time period, while a higher assumption will produce a lower near-term contribution rate. For this reason, a lower system payroll growth assumption is considered more conservative in terms of the contribution rate development, as it is less likely to result in actual payroll growth (and contribution dollars) falling below the assumption.

The table below compares actual trailing experience for Oregon PERS in terms of growth in overall valuation payroll (the middle column) and the average per-member payroll (the right column). The increase in overall valuation payroll has exceeded the per-member average due to modest increases in System active member headcount during these time periods.

Length of Period Ending December 31, 2021	Oregon PERS Average Annualized Growth in Valuation Payroll	Oregon PERS Average Annualized Growth in Average Payroll
5 years	5.1%	4.5%
10 years	4.0%	3.6%
15 years	3.7%	3.1%
20 years	3.6%	3.1%

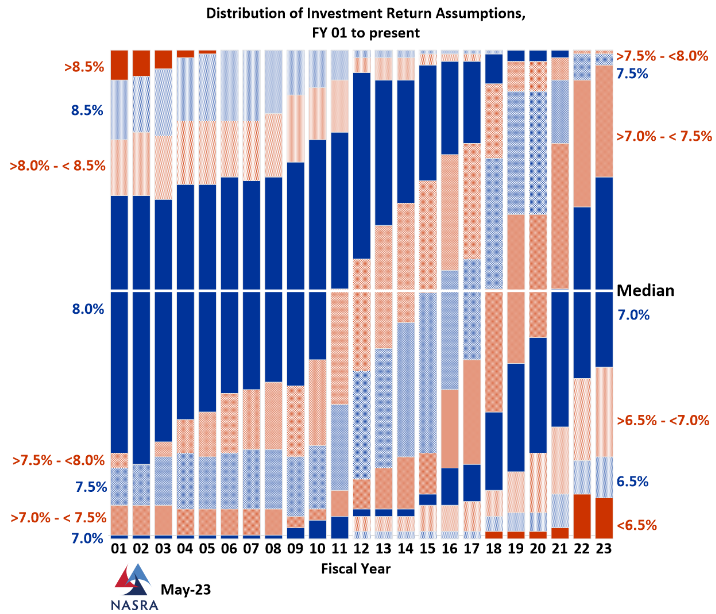
We are recommending the inflation assumption remain at 2.40% and the real wage growth assumption either remain at 1.00% or be reduced slightly. Additionally, **we recommend that the payroll growth assumption continue to be set equal to the sum of these two assumptions. The real wage growth assumption would remain at 3.40% (if the real wage growth is unchanged) or be revised downward in equal amount if a lower real wage growth assumption is chosen.**

Investment Return

The assumed rate of investment return is used to calculate the present value as of the actuarial valuation date of future projected system benefit payments, to project interest credits applied to member accounts until retirement, to convert member account balances to monthly retirement allowances under the Money Match formula, and to convert the retirement allowance to actuarially equivalent optional joint & survivor forms of benefit. As such, it is the most important assumption used in valuing the plan's liabilities and developing contribution rates. The assumption is intended to reflect the long-term expected average future return on the portfolio of assets that fund the benefits.

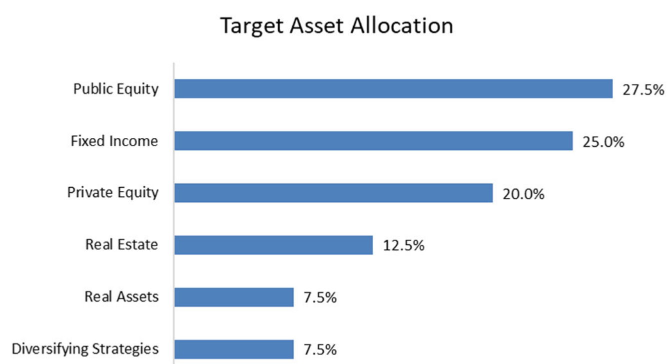
To provide some perspective on this assumption, the chart below shows the assumptions used by the 131 largest US public sector systems in a regularly updated survey published by the National Association of State Retirement Administrators (NASRA). As can be seen from the chart (updated by NASRA in May 2023), the Oregon PERS assumption of 6.90% used in the prior valuation is currently below the median assumption for large US public sector systems, which is 7.00%. The arithmetic average (mean) of the return assumptions in the chart is 6.92%. Over most of the period covered by the chart, the consensus view among investment professionals regarding future expected returns had been decreasing, largely driven by lower interest rates (which are associated with lower long-term expected future returns for fixed income investments) and higher price-to-earnings ratios for equities (associated with lower expected future returns for equity investments). After the significant rises in interest rates and equity market losses experienced in 2022, this pattern has begun to reverse as discussed further below. However, in general large pension systems have not made significant changes to their long-term forward-looking outlook based on these recent developments.

NASRA Public Fund Survey
Assumed Investment Return



Regular Accounts

Based on the Oregon Investment Council's (OIC) Statement of Investment Objectives and Policy Framework for the Oregon Public Employees Retirement Fund, including revisions adopted at the OIC meeting on January 25, 2023, we understand the current target asset allocation is as follows:



To develop an analytical basis for the Board's selection of the investment return assumption, we use long-term real return outlooks developed by Milliman's capital market outlook team for each of the asset classes in which the plan is invested based on the OIC's long-term target asset allocation to develop nominal expected returns. Since the OIC uses broader asset classes than those for which Milliman's investment professionals develop long-term return assumptions, we received assistance from Meketa, OIC's primary consultant, to map each OIC asset class to the classes in Milliman's model shown below. Each asset class assumption is based on a consistent set of underlying assumptions, including the inflation assumption. These assumptions are not based on average historical returns, but instead are based on a forward-looking capital market outlook economic model. Based on the target allocation and investment return assumptions for each of the asset classes, our model's 50th percentile output is developed as follows:

Asset Class	Target Allocation	Annual Arithmetic Mean	20-Year Annualized Geometric Mean	Annual Standard Deviation
Global Equity	27.50%	8.57%	7.07%	17.99%
Private Equity	25.50%	12.89%	8.83%	30.00%
Core Fixed Income	25.00%	4.59%	4.50%	4.22%
Real Estate	12.25%	6.90%	5.83%	15.13%
Master Limited Partnerships	0.75%	9.41%	6.02%	27.04%
Infrastructure	1.50%	7.88%	6.51%	17.11%
Hedge Fund of Funds – Multi-strategy	1.25%	6.81%	6.27%	9.04%
Hedge Fund Equity-Hedge	0.63%	7.39%	6.48%	12.04%
Hedge Fund – Macro	5.62%	5.44%	4.83%	7.49%
Portfolio – Net of Investment Expenses	100.00%	8.26%	7.50%*	13.30%

The Milliman model's **20-year annualized geometric median is 7.46%.*

Based on capital market outlook for real returns developed by credentialed investment professionals at Milliman, including assumed inflation of 2.35%.

We compared the expected return to the range of returns developed using a mean-variance model and the capital market assumptions developed by Milliman to a similar analysis presented by at the June OIC meeting that we understood was developed collaboratively by Oregon State Treasury staff and their two investment consultants, Meketa and Aon. These capital market outlooks were developed based on year-end 2022 market conditions. In addition, we modeled the returns projected for the OIC's asset allocation using the 10-year capital market outlook from the 2022 Survey of Capital Market Assumptions published by Horizon Actuarial Services in August 2022. We understand the Horizon survey reflects inputs from 40 different firms who participated in the survey and reflects their capital market outlook models from the first half of 2022. Returns shown below are net of passive investment expenses. In our modeling, we assumed that expenses incurred for active management are offset by additional returns gained from active management.

The table below compares the median of expected annualized returns calculated on a geometric basis for regular accounts based on Milliman's analysis detailed above, the OIC capital market outlook, and the consensus outlook from the Horizon survey. Note that the combination of significant recent changes in financial market and the time lag since the Horizon survey information was collected, as discussed below, helps explain why the Horizon survey results are lower than the other data points shown in the following table.

	OIC	Horizon	Milliman 10-year	Milliman 20-year
Median annualized geometric return	7.6%	6.55%	7.11%	7.46%
Assumed inflation	2.5%	2.46%	2.40%	2.35%
Timeframe modeled	20 years	10 years	10 years	20 years

It is common practice among public pension systems for the investment return assumption to be a multiple of either a tenth- or quarter-point (i.e., 0.10% or 0.25%). The lack of additional precision in selected assumptions is justified and reasonable due to the inability to have precise knowledge in advance regarding future investment returns. The median annualized return for the 20-year outlook from the OIC (reflecting input from their advisors Meketa and Aon) was 7.6%. The median annualized return for a 20-year time horizon based on Milliman's real return capital market outlook was 7.11% over 10 years and 7.46% over 20 years. Those model outputs are based on the forward-looking return expectations of the investment professionals from those firms and before any potential active management adjustments. When the last experience study was conducted as of December 31, 2020, similar forward-looking 20-year outlooks from the OIC and Milliman were 6.6% and 6.27%, respectively. The significant change in model results was primarily driven by changes in the financial markets during 2022, as described below.

Both the OIC and Milliman models use capital market assumptions developed shortly after the end of 2022 and reflect the significant market losses during 2022 in the underlying starting point. Our understanding is the relatively higher interest rates, lower equity prices and lower equity P/E ratios as of December 31, 2022 compared to the prior iteration of this analysis at December 31, 2020 led to the significant increase in the forward-looking expected real returns in many asset classes, based upon the analytical framework of both models. Note that the Horizon survey results were based on expectations in the first half of 2022. Since fixed income yields increased and equity markets declined significantly in 2022, we expect the next annual update of the Horizon survey will produce higher expected future returns.

Actual future investment returns are not determined by the assumed rate of return. Selecting an assumed return materially above the 50th percentile implies a materially greater than 50% chance of actual long-term future experience falling short of the selected assumption. Conversely, selecting an assumed return below the 50th percentile implies a greater likelihood that actual long-term experience will exceed the long-term assumption.

While the most recent update of capital market outlooks reviewed produce median expectations greater than the current investment return assumption, we recommend not increasing the investment return assumption from the current level of 6.90%. Prior to this study, there had been a consistent pattern of lower forward-looking return expectations that evolved over the last decade. While 2022 market experience reversed much of that in the framework of capital-market models, it remains to be seen whether this significant change will be long-lasting or temporary. In particular, if 2023 investment returns are strong, some of this change in forward-looking expectations may unwind prior to the date the adopted assumption is used in the next rate-setting actuarial valuation. Finally, under Actuarial Standards of Practice, it is acceptable to adopt assumptions that reflect a margin for adverse deviation. Given the current environment, maintaining an assumption below the 50th percentile of forward-looking capital market outlooks would be reasonable and prudent.

Variable Account

The variable account is invested entirely in global equity. As a result, the annual expected arithmetic (single-year) return is higher than for the regular account, but so is the standard deviation. The result is a long-term compounded geometric average annual return similar to the regular account, based on Milliman's capital market outlook. Prior to the December 31, 2012 valuation, the compound geometric variable account return was assumed to be higher than the regular account return. Beginning with that valuation, the variable account return assumption was set equal to the regular account return assumption, as the relationship between the various asset classes no longer warranted such a distinction in our opinion. **We recommend continuing to set the variable account return assumption equal to the regular account return assumption.**

Administrative Expenses

In accordance with GASB Statements No. 67 and No. 68, the long-term investment return assumption is gross of administrative expenses. To account for expected administrative expenses, we develop an assumed dollar amount, based on recent and expected future experience, to add to the normal cost in the calculation of contribution rates with the goal of funding administrative expenses via the normal cost rate each year as they occur. Continuing with the practice introduced in the prior experience study, we recommend developing a total system-wide dollar amount (Tier One/Tier Two and OPSRP) and then allocating the assumed administrative expense to normal cost for each tier in proportion to payroll.

The total assumed administrative expenses in the December 31, 2021 valuation was $59 million per year. A summary of recent actual administrative expenses for the system is shown below.

	System-Wide (Tier One/Tier Two + OPSRP) Pension Administrative Expense		
Year	Dollar Amount ($ millions)	Percentage of Beginning of Year Assets	Percentage of Projected Payroll
2018	$36.7	0.06%	0.36%
2019	$44.5	0.07%	0.41%
2020	$56.5	0.09%	0.49%
2021	$59.9	0.09%	0.50%
2022	$61.5	0.08%	0.48%

Based on discussion with PERS staff, we understand the increase recent was driven largely by work required for the implementation of Senate Bill 1049, but that this higher level of expenses is expected to persist in the near future as the cost of modernization efforts replace some of the Senate Bill 1049 implementation costs that will wind down. As a result, **we recommend setting the assumed system-wide administrative expenses for the December 31, 2022 and December 31, 2023 actuarial valuations at $64 million.** This amount reflects recent historical experience with an expectation of inflation-related growth for the next two years.

RHIPA Subsidy Cost Trend Rates

Trend rates are used to estimate increases in the employer cost of the RHIPA subsidy. Based on analysis performed by Milliman's healthcare actuaries, we recommend updates detailed below to the healthcare cost trend assumption. The healthcare cost trends are based on the Society of Actuaries (SOA) periodically updated report on long-term medical trends. That report includes detailed research performed by a committee of economists and actuaries (including a Milliman representative) utilizing the "Getzen Model" named after the professor who developed the model. We believe that the research and the model are fundamentally and technically sound and advance the body of knowledge available to actuaries to project long-term medical trends more accurately. Milliman uses the Getzen Model as the foundation for the trend that we recommend to our clients for OPEB valuations. The model produces long-range trend assumptions built on long-term relationships between certain key economic factors.

Note that the following chart shows sample rates of the assumptions developed for RHIPA subsidy cost trends. A full chart can be found in the appendices.

Year	December 31, 2020 and 2021 Valuations	December 31, 2022 and 2023 Valuations
2021	5.9%	N/A
2022	5.5%	N/A
2023	5.1%	6.6%
2024	5.0%	7.0%
2025	4.9%	6.4%
2026	4.9%	5.7%
2027	4.8%	5.1%
2028	4.7%	4.9%
2029	4.7%	4.8%
2030	4.7%	4.6%
2035	4.7%	4.2%
2040	4.8%	4.2%
2045	4.8%	4.2%
2050	4.8%	4.2%
2060	4.7%	4.3%
2070	4.2%	4.0%
2074+	3.9%	3.8%

4. Demographic Assumptions

Overview

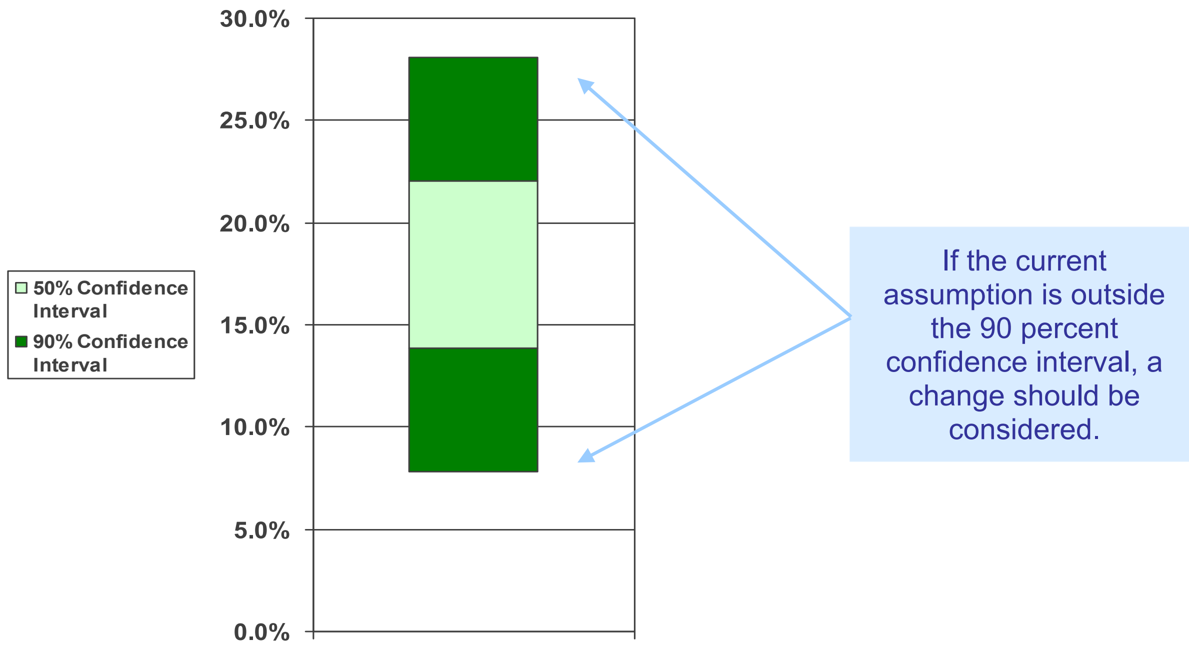
Actuarial Standard of Practice (ASOP) No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations,* provides guidance on selecting demographic assumptions used in measuring obligations under defined benefit pension plans. The general process for recommending demographic assumptions as defined in ASOP No. 35 is as follows:

- Identify the types of assumptions,
- Consider the relevant assumption universe,
- Consider the assumption format,
- Select the specific assumptions, and
- Evaluate the reasonableness of the selected assumption.

The purpose of the demographic experience study is to compare actual experience against expected experience based on the assumptions used in the most recent actuarial valuation. The observation period for most assumptions analyzed in this study is January 1, 2017 through December 31, 2022, and the current assumptions are those adopted by the Board for the December 31, 2021 actuarial valuation. If the actual experience differs significantly from the overall expected experience, or if the pattern of actual experience by age, sex, or duration does not follow the expected pattern, new assumptions are considered.

For several assumptions shown below, confidence intervals have been used to measure observed experience against current assumptions to determine the reasonableness of the assumption. The floating bars represent the 50 percent and 90 percent confidence intervals around the observed experience. The 90 percent confidence interval represents the range around the observed rate that could be expected to contain the true rate during the period of study with 90 percent probability. The size of the confidence interval depends on the number of observations and the likelihood of occurrence. If an assumption is outside the 90 percent confidence interval and there is no other information to explain the observed experience, a change in assumption should be considered. A change may also be considered when the observed experience is within the 90 percent confidence interval, depending on the specific situation. A sample graph with confidence intervals is shown below:

Overview (continued)



The demographic assumptions used for the December 31, 2021 actuarial valuation and the recommended assumptions for the December 31, 2022 and December 31, 2023 actuarial valuations are shown in detail in the following sections.

A summary of the changes recommended to the Board are as follows:

- Most significant recommended updates: Increase the individual member salary increase assumption's merit/longevity component for all member categories based on observations of the last ten years of experience. The individual member salary increase assumption consists of the sum of inflation, real wage growth, and merit/longevity components, with the latter varying by member. Also, assume additional 2% increases in each of the next two years above the updated long-term assumption to estimate the system-wide effect of recently announced bargaining agreements.
- Adjust the scaling factor for non-retired Police & Fire males and make a routine update to the mortality improvement scale, which is based on 60-year unisex average Social Security experience.
- Adjust retirement rates for certain member categories and service bands to more closely align with recent and expected future experience and eliminate the assumption for future Tier One/Tier Two retirees electing a partial lump sum.
- Update pre-retirement termination of employment assumptions for two member categories.
- Lower assumed rates of ordinary (non-duty) disability and general service duty disability incidence; increase assumed rates of police & fire duty disability incidence.
- Adjust the Tier One unused vacation cash out assumption for two member categories.
- Adjust the Tier One/Tier Two unused sick leave assumption for six of the nine member categories to reflect recently observed experience.
- Decrease the likelihood of program participation for non-disabled retirees in the RHIA retiree healthcare program.
- Decrease the RHIPA likelihood of program participation assumption for most service bands.

The recommended assumptions, in our opinion, were selected in a manner consistent with the requirements of ASOP No. 35.

Mortality

Mortality rates are used to project the length of time benefits will be paid to current and future retirees and beneficiaries. The selection of a mortality assumption affects plan liabilities because the estimated present value of retiree benefits depends on how long the benefit payments are expected to continue. There are statistically credible differences in the mortality rates among non-disabled retired members, disabled retired members, and non-retired members. As a result, experience for each of these groups is reviewed independently and each group receives its own mortality assumptions.

A summary of the current assumed mortality rates and recommended changes is shown below:

Assumption	Recommended December 31, 2020 and 2021 Valuations	Recommended December 31, 2022 and 2023 Valuations
Non-Disabled Annuitant Mortality	**Pub-2010 Non-Disabled Retiree, Sex Distinct, Generational Projection with Unisex Social Security Data Scale**	**Pub-2010 Non-Disabled Retiree, Sex Distinct, Generational Projection with Unisex Social Security Data Scale**
▪ School District male	Blend 80% Teachers and 20% General Employees, no set back	No change
▪ Other General Service male (and male beneficiary)	General Employees, set back 12 months	No change
▪ Police & Fire male	Public Safety, no set back	No change
▪ School District female	Teachers, no set back	No change
▪ Other General Service female (and female beneficiary)	General Employees, no set back	No change
▪ Police & Fire female	Public Safety, set back 12 months	No change
Disabled Retiree Mortality	**Pub-2010 Disabled Retiree, Sex Distinct, Generational Projection with Unisex Social Security Data Scale**	**Pub-2010 Disabled Retiree, Sex Distinct, Generational Projection with Unisex Social Security Data Scale**
▪ Police & Fire male	Blended 50% Public Safety, 50% Non-Safety, no set back	No change
▪ Other General Service male	Non-Safety, set forward 24 months	No change
▪ Police & Fire female	Blended 50% Public Safety, 50% Non-Safety, no set back	No change
▪ Other General Service female	Non-Safety, set forward 12 months	No change
Non-Annuitant Mortality	**Pub-2010 Employee, Sex Distinct, Generational Projection with Unisex Social Security Data Scale**	**Pub-2010 Employee, Sex Distinct, Generational Projection with Unisex Social Security Data Scale**
▪ School District male	125% of same table and set back as Non-Disabled Annuitant assumption	No change
▪ Other General Service male	115% of same table and set back as Non-Disabled Annuitant assumption	No change

Mortality (*continued*)

Assumption	Recommended December 31, 2020 and 2021 Valuations	Recommended December 31, 2022 and 2023 Valuations
▪ Police & Fire male	100% of same table and set back as Non-Disabled Annuitant assumption	125% of same table and set back as Non-Disabled Annuitant assumption
▪ School District female	100% of same table and set back as Non-Disabled Annuitant assumption	No change
▪ Other General Service female	125% of same table and set back as Non-Disabled Annuitant assumption	No change
▪ Police & Fire female	100% of same table and set back as Non-Disabled Annuitant assumption	No change

Mortality Improvement Scale

Mortality rates are expected to continue to decrease in the future, and the resulting increased longevity should be anticipated in the actuarial valuation. For Oregon PERS, this is done through the use of a generational mortality assumption, which combines a base mortality table and a separate mortality improvement scale to project the pace of future life expectancy increases. The base mortality table defines the mortality rates assumed at each age in a single specific calendar year, while the mortality improvement scale projects how quickly the mortality rates at each individual age are assumed to improve in future calendar years.

The current mortality improvement scale is based on 60-year unisex average mortality improvement rates by age, calculated using Social Security data through 2017, which was the most recent publicly available data at the time of the prior experience study. Our recommendation is to update the mortality improvement scale based on Social Security data through 2019.

Note that Social Security data has been published through 2020, but we chose not to reflect the most recent year in setting our forward-looking assumption as the effect of the COVID-19 pandemic is significant in the 2020 data and would skew the analysis to an extent not expected to be predictive of future mortality. The effect of the pandemic on long-term mortality rates is unknown and is a subject of significant uncertainty among experts who attempt to model such experience. As one example, the Retirement Plan Experience Committee (RPEC) of the Society of Actuaries chose to suspend its usual practice of providing an annual update to their “MP” mortality improvement scale once the update would have been due to reflect 2020 experience. As noted in their 2022 report, RPEC “does not believe it would be appropriate to incorporate, without adjustment, the substantially higher rates of mortality experience from 2020 …to forecast future mortality.” Similarly, for this study we believe it is best to reflect Social Security experience only through 2019 when determining an assumption for future mortality improvement.

In our professional opinion, the recommended mortality improvement scale meets the *“best actuarial information on mortality at the time”* standard mandated by ORS 238.607. A full listing of the recommended mortality improvement scale rates is included in the appendix.

Non-Disabled Annuitant Mortality

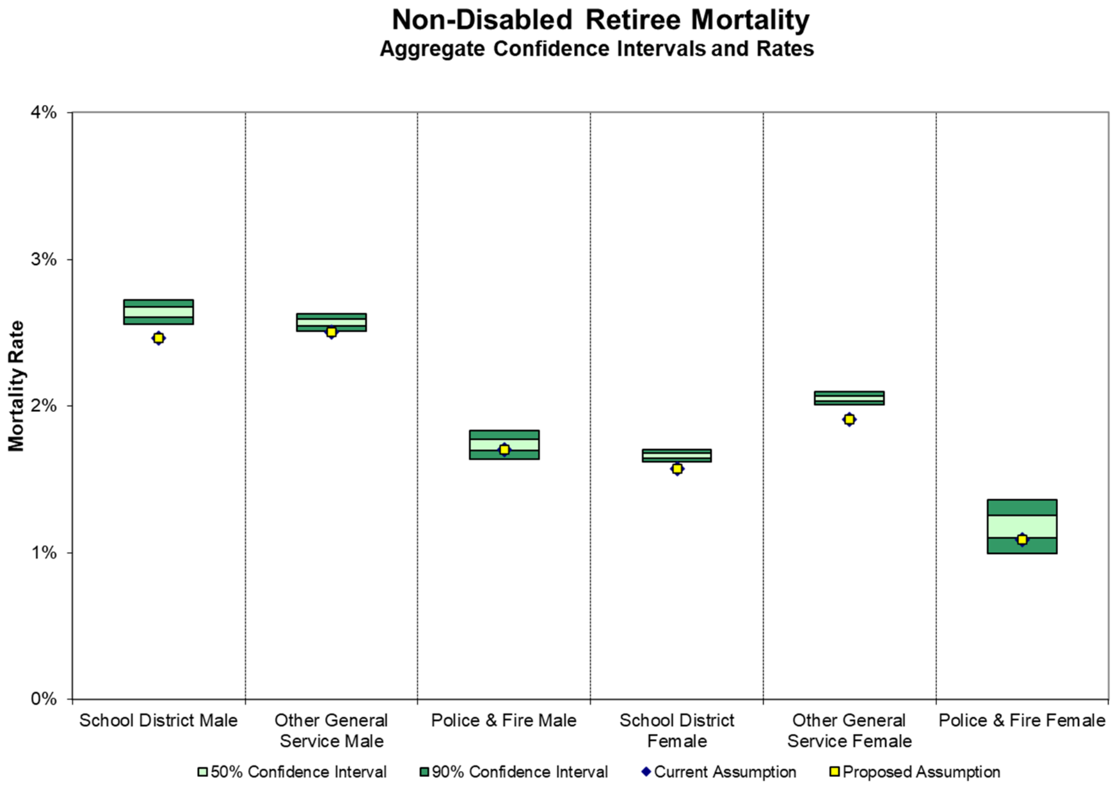
Mortality assumptions for non-disabled retired members are separated into six groups based on employment category and gender (school district males, school district females, police & fire males, police & fire females, other general service males, other general service females). Beneficiaries were combined with non-school district general service members of the same gender.

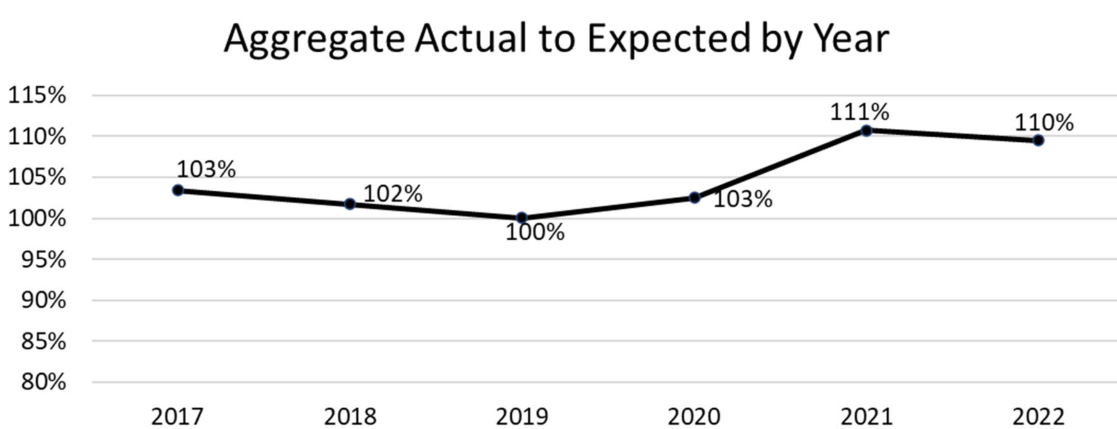
Mortality (*continued*)

To assist in review of the current mortality assumptions' reasonability, we calculated the ratio of actual deaths to expected deaths (A/E ratio) during the experience study's data observation period for each of the six groups described above. In the prior study, mortality assumptions were targeted to achieve an A/E ratio of approximately 100 percent on a benefits-weighted basis. In the current study, A/E ratios for all groups were greater than 100 percent, and the aggregate mortality rate experience for several groups are outside the 90% confidence interval. Typically, this might lead us to recommended revised assumptions. However, closer review of the experience showed that the higher A/E ratios were primarily driven by the most recent years of the study period, as shown in the "Aggregate Actual to Expected by Year" graph below. The elevated mortality rates in recent years may be largely tied to the pandemic and its aftereffects (such as consequences of deferred screenings and preventative care). While the long-term mortality effects of the pandemic are unknown, we recommend leaving the current assumptions for these groups unchanged rather than responding to recent higher mortality rates that may not be predictive of expected long-term future experience.

	Benefits-Weighted ($1,000s of monthly benefits)		Current Assumption		Recommended Assumption	
	Exposures	Actual Deaths	Expected Deaths	A/E Ratio	Expected Deaths	A/E Ratio
School District male	335,602	8,858	8,270	107%	8,264	107%
Other General Service male (and male beneficiary)	595,833	15,306	14,921	103%	14,916	103%
Police & Fire male	198,393	3,442	3,379	102%	3,379	102%
School District female	551,126	9,149	8,680	105%	8,678	105%
Other General Service female (and female beneficiary)	585,155	12,008	11,164	108%	11,162	108%
Police & Fire female	26,627	314	290	108%	290	108%

Mortality (*continued*)





We recommend continued use of the Pub-2010 base mortality tables (published by the Society of Actuaries in January 2019) as the underlying base mortality tables for generational mortality assumptions in the current study. The Pub-2010 mortality tables reflect observed experience from calendar years 2008-2013, with 2010 as the middle of the observation period. The tables are based exclusively upon data gathered from large public sector pension systems (including Oregon PERS) for the first modern study specific to the mortality experience of US public pension plans.

Mortality (*continued*)

In the Pub-2010 study, different gender-distinct base mortality tables were published for three separate employee and retiree categories: teachers, public safety personnel, and general employees. When selecting a base table to match the mortality rates of Oregon PERS, we started from the category table most applicable to the portion of the population under consideration, and then adjusted, if needed, to more closely align with recent Oregon PERS experience. At times we use a "set back" to adjust the mortality rates. A "set back" of 12 months, for example, treats all members as if they were 12 months younger than they really are when applying the mortality table, which results in lower assumed mortality rates and longer life expectancy for members.

We do not recommend updating the assumptions for non-disabled retiree mortality.

A summary of the current and recommended non-disabled retiree mortality assumptions is shown below:

	Recommended December 31, 2020 and 2021 Valuations	Recommended December 31, 2022 and 2023 Valuations
Basic Table	**Pub-2010 Non-Disabled Retiree, Sex Distinct, Generational Projection with Unisex Social Security Data Scale**	**Pub-2010 Non-Disabled Retiree, Sex Distinct, Generational Projection with Unisex Social Security Data Scale**
School District male	Blend 80% Teachers and 20% General Employees, no set back	No change
Other General Service male (and male beneficiary)	General Employees, set back 12 months	No change
Police & Fire male	Public Safety, no set back	No change
School District female	Teachers, no set back	No change
Other General Service female (and female beneficiary)	General Employees, no set back	No change
Police & Fire female	Public Safety, set back 12 months	No change

Disabled Retiree Mortality

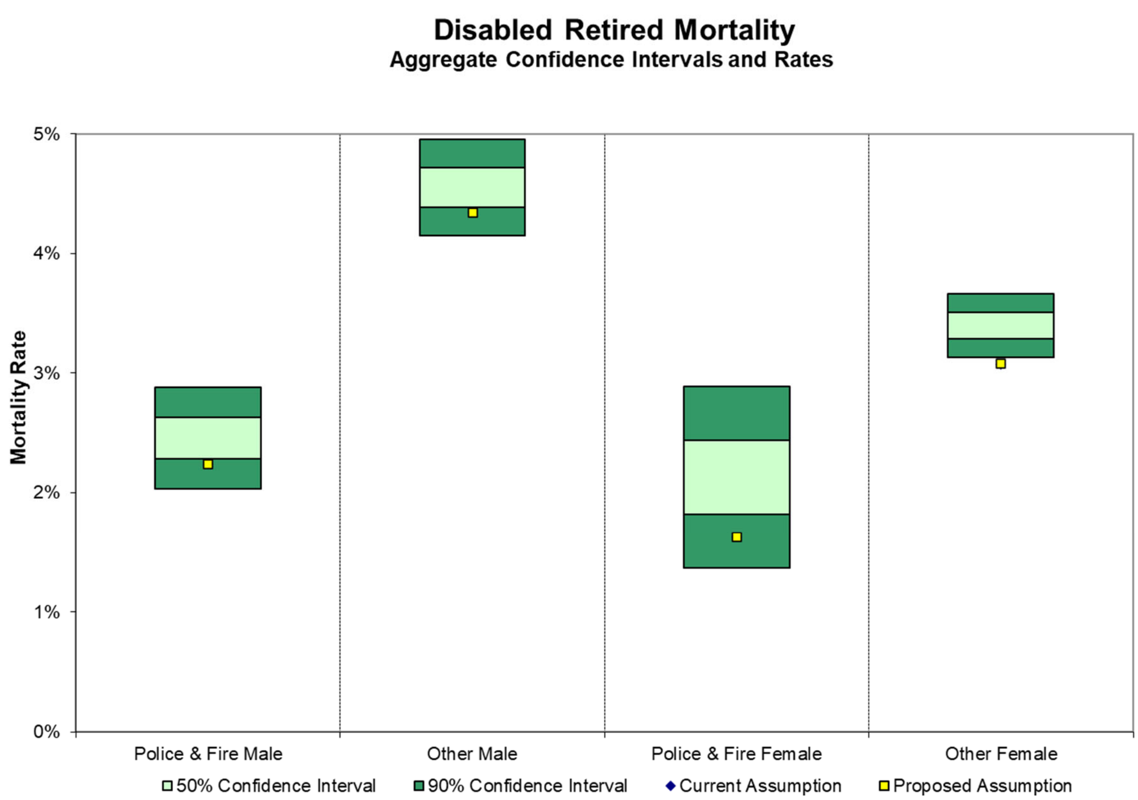
Disabled members are expected to experience higher mortality rates at a given age than non-disabled retired members. As a result, disabled member mortality experience is analyzed separately from that of non-disabled annuitants and beneficiaries. We recommend continued use of the Pub-2010 Disabled Retiree base mortality tables and the 60-year average unisex Social Security mortality improvement scale as the starting point for setting disabled mortality assumptions in the current study. This will maintain a consistent basis for disabled and non-disabled retiree assumptions, as has been the case in prior studies.

As in the most recent study, we recommend applying adjustments to the underlying Pub-2010 Disabled Retiree mortality tables where needed to more closely match assumptions to recent Oregon PERS experience on a benefits-weighted approach.

Mortality (*continued*)

	Benefits-Weighted ($1,000s of monthly benefits)		Current Assumption		Recommended Assumption	
	Exposures	Actual Deaths	Expected Deaths	A/E Ratio	Expected Deaths	A/E Ratio
Disabled Police & Fire male	12,825	315	287	110%	287	110%
Disabled General Service male	15,677	714	681	105%	681	105%
Disabled Police & Fire female	2,686	57	44	131%	44	131%
Disabled General Service female	23,128	786	711	110%	711	110%

Prior to the publication of the Pub-2010 tables, disabled police & fire members were not rated separately due to the relatively small amount of experience for such members. However, the Pub-2010 report includes tables developed specifically for disabled police & fire members based on statistically credible national data sets for these populations, so we were able to refine this assumption first effective with the 2018 Experience Study. Using a benefits-weighted approach, the selected variations of the Pub-2010 Disabled Retiree mortality tables fell within a 90 percent confidence interval around observed experience for all groups except disabled general service females. For similar reasons to described above related to non-disabled annuitant mortality, in this study we do not recommend changing the assumption to reflect this higher recent mortality experience.



Mortality (*continued*)

A summary of current and recommended disabled retiree mortality assumptions is shown below:

	Recommended December 31, 2020 and 2021 Valuations	Recommended December 31, 2022 and 2023 Valuations
Basic Table	**Pub-2010 Disabled Retiree, Sex Distinct, Generational Projection with Unisex Social Security Data Scale**	**Pub-2010 Disabled Retiree, Sex Distinct, Generational Projection with Unisex Social Security Data Scale**
Disabled Police & Fire male	Blended 50% Public Safety, 50% Non-Safety, no set back	No change
Disabled General Service male	Non-Safety, set forward 24 months	No change
Disabled Police & Fire female	Blended 50% Public Safety, 50% Non-Safety, no set back	No change
Disabled General Service female	Non-Safety, set forward 12 months	No change

Non-Annuitant Mortality

The non-annuitant mortality assumption applies to active members and dormant members (those members who have terminated employment but have a vested right to a future benefit). As with the other mortality assumptions, we recommend continued use of the Pub-2010 base mortality tables and the 60-year average unisex Social Security mortality improvement scale as the starting point for setting mortality assumptions for this group. This will maintain a consistent basis for mortality assumptions, as has been the case in prior studies.

For a given age and gender, an employed person is on average less likely to die in a given year than a retired person of the same age and gender. We recommend using separate Pub-2010 Non-Disabled Retiree and Pub-2010 Employee mortality tables for non-disabled annuitants and non-annuitants, respectively. Each Non-Disabled Retiree table published by the SOA has a corresponding Employee table, which reflects differences in the anticipated mortality rates for the retiree and employee populations.

For each population subgroup, we recommend using the Pub-2010 Employee base mortality table (including adjustments) that corresponds to the Non-Disabled Retiree table selected for that subgroup, and then adjusting the mortality rates with a scaling factor if needed to better match recent Oregon PERS experience. For example, mortality for non-annuitant General Service females will be assumed to follow the Pub-2010 Employee base mortality table for the general employees job category, with no set back, and will be projected generationally using the Social Security unisex mortality improvement scale (all of which parallels treatment for the corresponding retiree group), and will then be scaled by a factor of 125% to better match the aggregate Oregon PERS-specific experience of the relevant employee group.

The relative values of corresponding Pub-2010 Employee and Non-Disabled Retiree base mortality tables were developed by the SOA based on a much larger population than that of Oregon PERS. As a result, we believe it is preferable to reflect that relationship as the starting point when developing non-annuitant versions of the recommended non-disabled annuitant mortality tables for Oregon PERS. The analysis below compares recent experience in aggregate for the non-annuitant population under this approach. This comparison was

done on a headcount-weighted basis only since the final level of retirement benefits cannot be predicted with certainty for current active members.

Mortality (continued)

	Headcount-Weighted		Current Assumption		Recommended Assumption	
	Exposures	Actual Deaths	Expected Deaths	A/E Ratio	Expected Deaths	A/E Ratio
Total Non-Annuitant Experience	1,314,632	1,879	1,560	120%	1,584	119%

In aggregate, using the recommended Pub-2010 Employee base mortality tables corresponding to the relevant recommended Non-Disabled Retiree mortality tables for each subgroup and adjusted as noted below produces an A/E ratio of 120%. For a headcount-weighted analysis, we prefer an A/E ratio near 110% to approximate an outcome similar to targeting 100 percent on a benefits-weighted basis. Despite the A/E ratio of 120 percent, we are not recommending significant changes to the non-annuitant mortality assumptions. As discussed above, we reviewed the effect of 2020 and later experience on our analysis, given that the pandemic and subsequent events may mean these results are not an appropriate expectation for a forward-looking assumption. We ultimately included 2020-2022 experience in our analysis but lean toward making minimal adjustments to our assumptions based on higher recent death rates. The only group for which we are recommending an updated assumption is police & fire males, which were significantly below the 90% confidence interval.

A summary of the current and recommended non-annuitant mortality assumptions is shown below:

	Recommended December 31, 2020 and 2021 Valuations	Recommended December 31, 2022 and 2023 Valuations
Basic Assumption	**Pub-2010 Employee, Sex Distinct, Generational Projection with Unisex Social Security Data Scale**	**Pub-2010 Employee, Sex Distinct, Generational Projection with Unisex Social Security Data Scale**
School District male	120% of Employee table with same job category and set back as Non-Disabled Retiree assumption	No change
Other General Service male	115% of Employee table with same job category and set back as Non-Disabled Retiree assumption	No change
Police & Fire male	100% of Employee table with same job category and set back as Non-Disabled Retiree assumption	125% of Employee table with same job category and set back as Non-Disabled Retiree assumption
School District female	100% of Employee table with same job category and set back as Non-Disabled Retiree assumption	No change
Other General Service female	125% of Employee table with same job category and set back as Non-Disabled Retiree assumption	No change
Police & Fire female	100% of Employee table with same job category and set back as Non-Disabled Retiree assumption	No change

Retirement Assumptions

The retirement assumptions used in the actuarial valuation include the following assumptions:

- Retirement from active status
- Probability a Tier One/Tier Two member will elect a lump sum option at retirement
- Percentage of members who elect to purchase credited service at retirement
- Probability a member will remain an Oregon resident during retirement

Retirement from Active Status

Members are eligible to retire as early as age 55 (50 for police & fire members), or earlier for Tier One/Tier Two if the member has 30 years of service. In our analysis, we have found significant differences in the retirement patterns based on length of service, employment category (general service or police & fire), and current eligibility for immediate unreduced benefits.

A summary of the early, normal, and unreduced retirement dates under the plan are as follows:

Employment Category	Tier	Normal Retirement Age	Early Retirement Age	Unreduced Retirement
General Service	1	58	55	30 years of service
General Service	2	60	55	30 years of service
General Service	OPSRP	65	55	Age 58 with 30 years
Police & Fire	1 and 2	55	50	30 years of service, or age 50 with 25 years of service
Police & Fire	OPSRP	60	50	Age 53 with 25 years
State Judiciary	N/A	65	60	60 if Plan B; N/A if Plan A

Structure for Retirement Rates

The structure of the PERS retirement rate assumption separates rates by job classification and by service level. General service rates differ across three service bands: less than 15 years, 15 to 29 years, and 30 or more years of service. Each service band has different assumptions for school districts versus all other general service members. Police & fire rates employ the following three service bands: less than 13 years, 13 to 24 years, and 25 or more years of service.

The service band structure anticipates that many members' retirement decisions will contemplate the amount of the retirement benefit and the affordability of retirement.

Retirement Assumptions (*continued*)

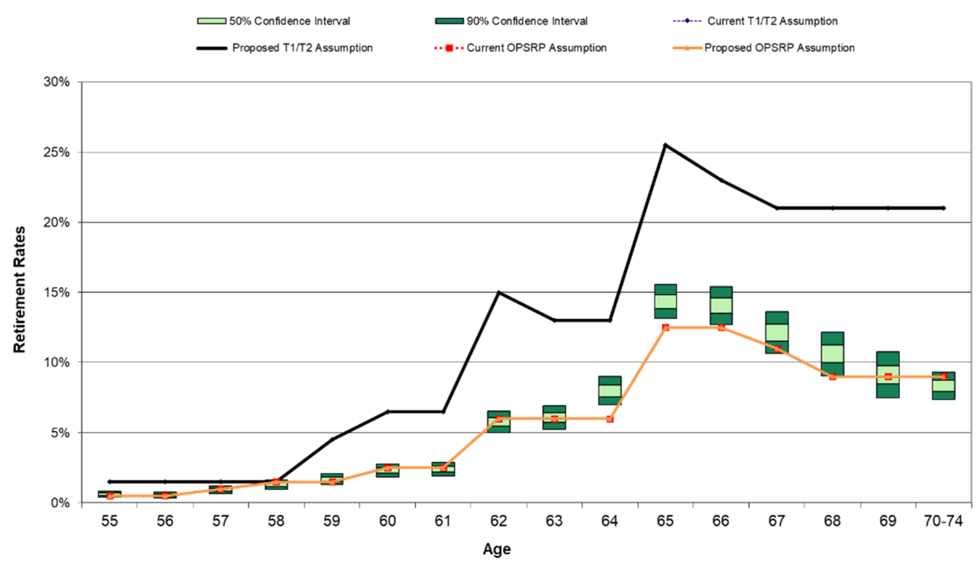
School District and General Service Retirement Rates

Members with Less Than 15 Years of Service

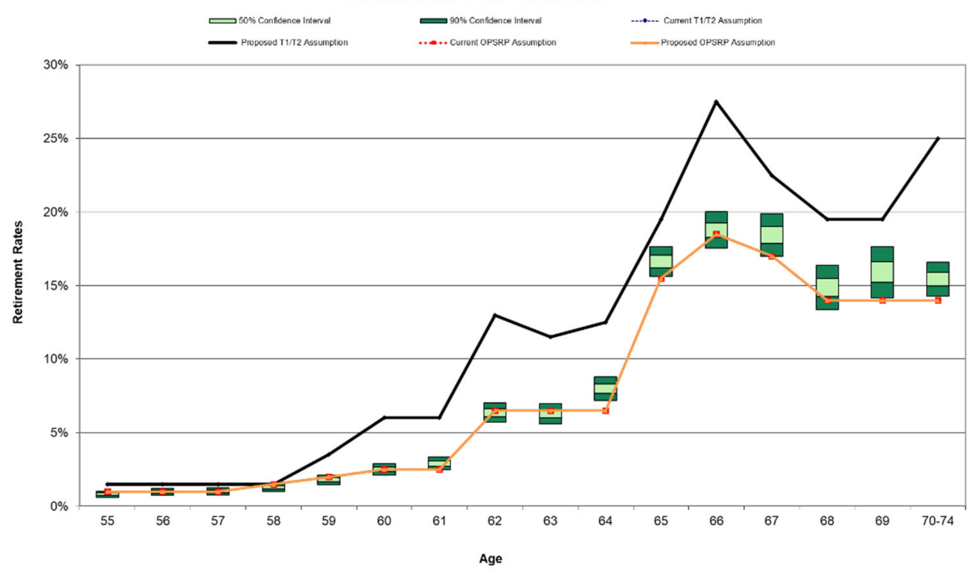
Retirement decisions by members with less than 15 years of service are likely to be heavily influenced by the availability of resources other than PERS benefits, including Social Security, prior employment, spousal benefits, and savings.

The following charts show the current assumed rates of retirement, the confidence interval around observed experience, and the recommended retirement rate assumption for school district and general service members retiring with less than 15 years of service. Given that all new entrants since August 2003 are in OPSRP, most recent experience in this service band is for OPSRP members.

School District
Members with less than 15 Years of Service



General Service
Members with less than 15 Years of Service

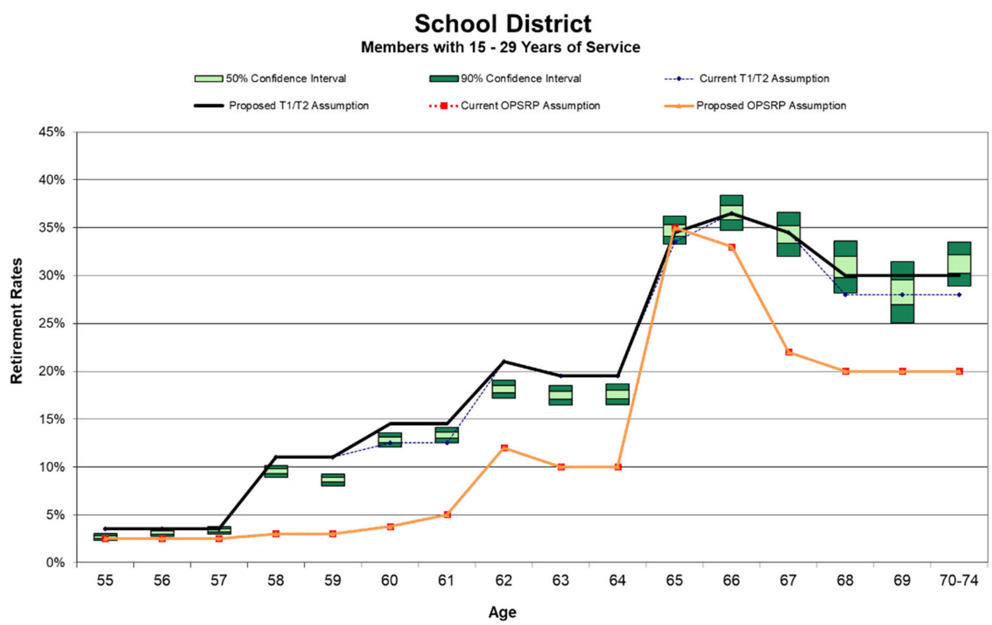


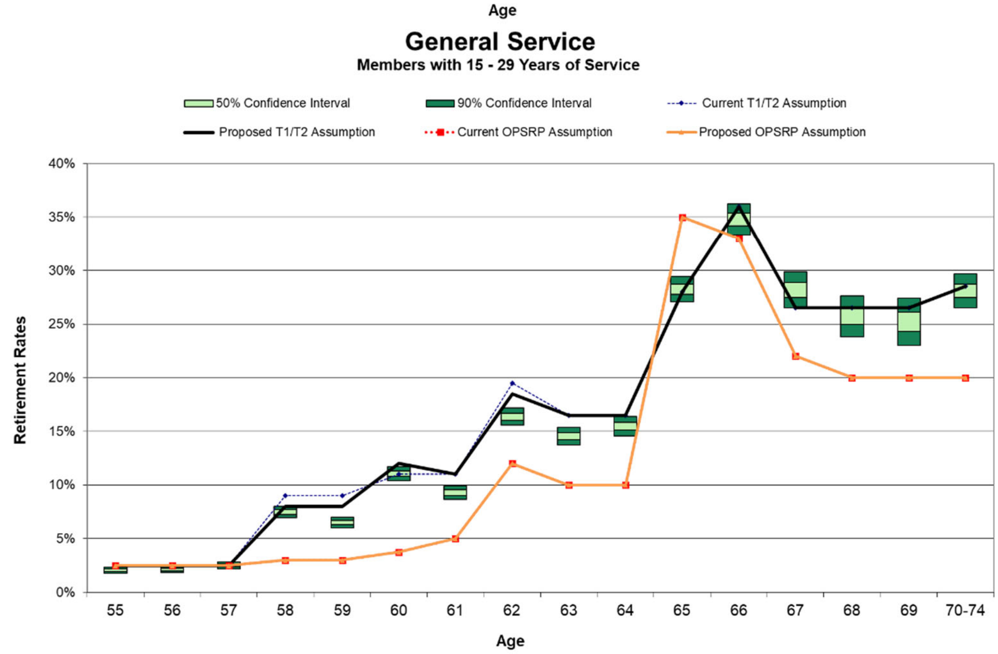
Retirement Assumptions (*continued*)

Members with 15 to 29 Years of Service

Retirement decisions by members with 15 to 29 years of service are likely to be influenced by the structure of PERS benefits as well as the availability of other resources, including Social Security, prior employment, spousal benefits, and savings.

The following charts show the current assumed rates of retirement, the confidence interval around observed experience, and the recommended retirement rate assumption for school district and general service members retiring with 15 to 29 years of service. Most recent experience for members in this service band is for Tier One and Tier Two members, but a growing number of OPSRP members (whose service will be in the lower part of this range) are represented.



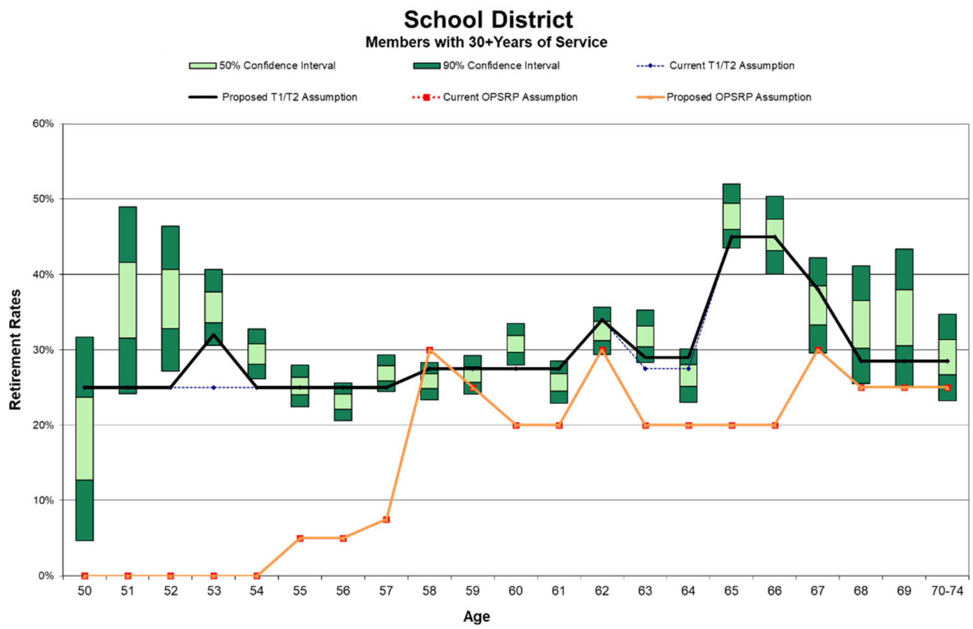


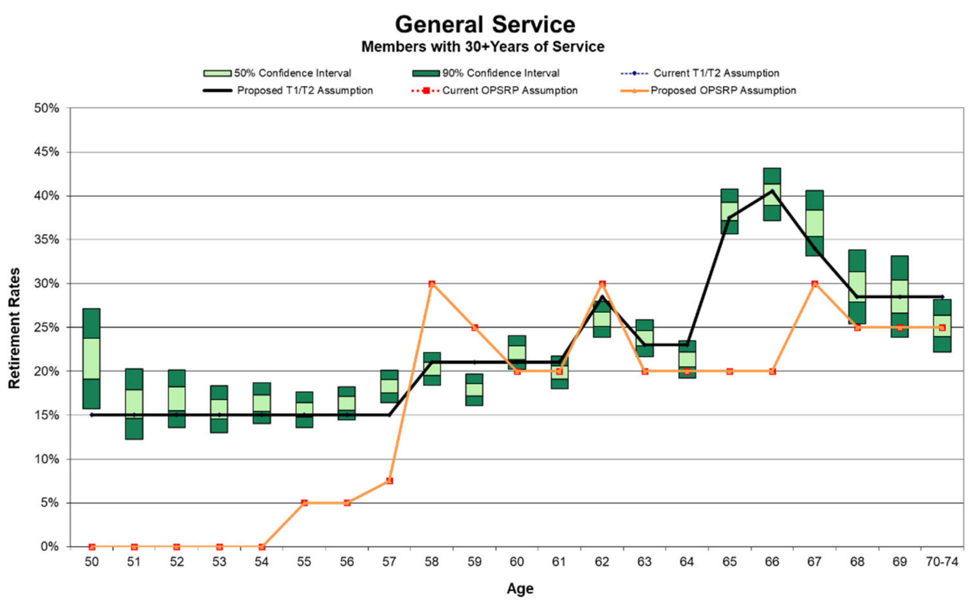
Retirement Assumptions (*continued*)

Members with 30 or More Years of Service

Tier One/Tier Two members with 30 or more years of service are eligible for unreduced PERS benefits at any age (OPSRP members are first eligible at age 58). As a result, retirement rates at all ages are relatively high, with a spike when Social Security benefits become available.

The following charts show the current assumed rates of retirement, the confidence interval around observed experience and the recommended retirement rate assumption for school district and other general service members retiring with 30 or more years of service. All experience is for Tier One members. OPSRP assumptions are set based on professional judgment regarding the expected relationship to Tier One/Tier Two experience given the different plan provisions between tiers.





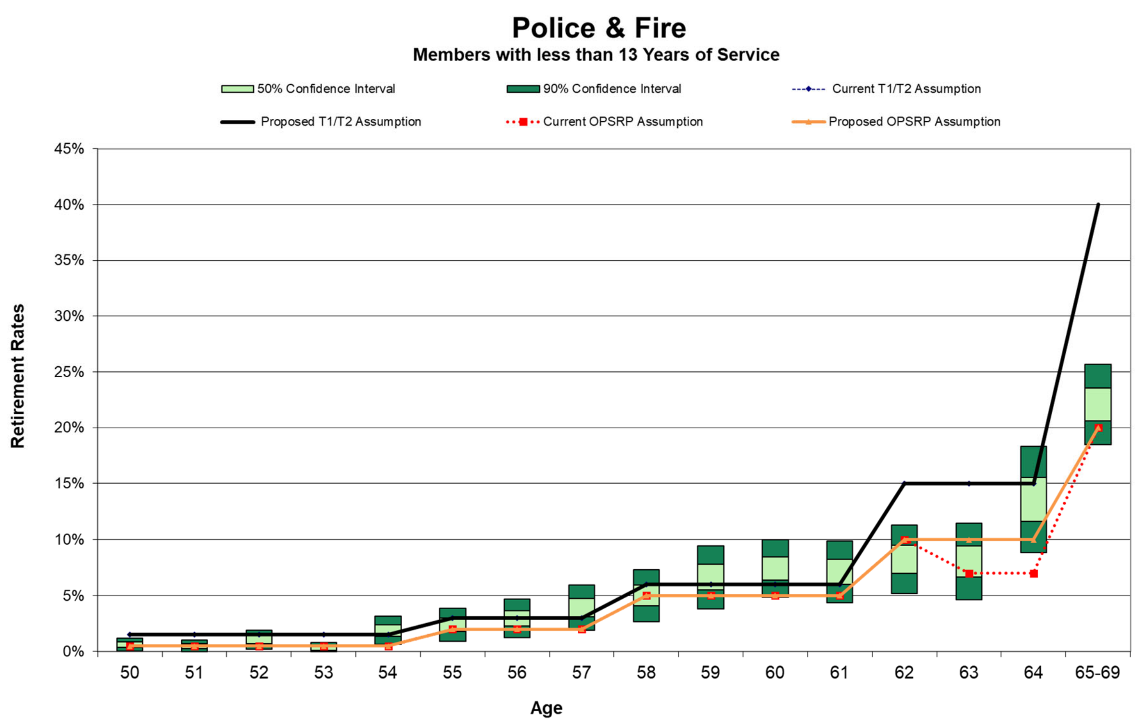
Retirement Assumptions (*continued*)

Police & Fire

Members with Less Than 13 Years of Service

The retirement assumption for police & fire members differs for members retiring with less than 13 years of service, those retiring with 13 to 24 years of service, and those retiring with 25 or more years of service. Retirement decisions by members with less than 13 years of service are likely to be heavily influenced by the availability of resources other than PERS benefits, including Social Security, prior employment, spousal benefits, and savings.

The following graph shows the current assumed rates of retirement, the confidence interval around observed experience and the recommended retirement rate assumption for police & fire members retiring with less than 13 years of service. Given that all new entrants since August 2003 are in OPSRP, almost all recent experience in this service band is for OPSRP members.

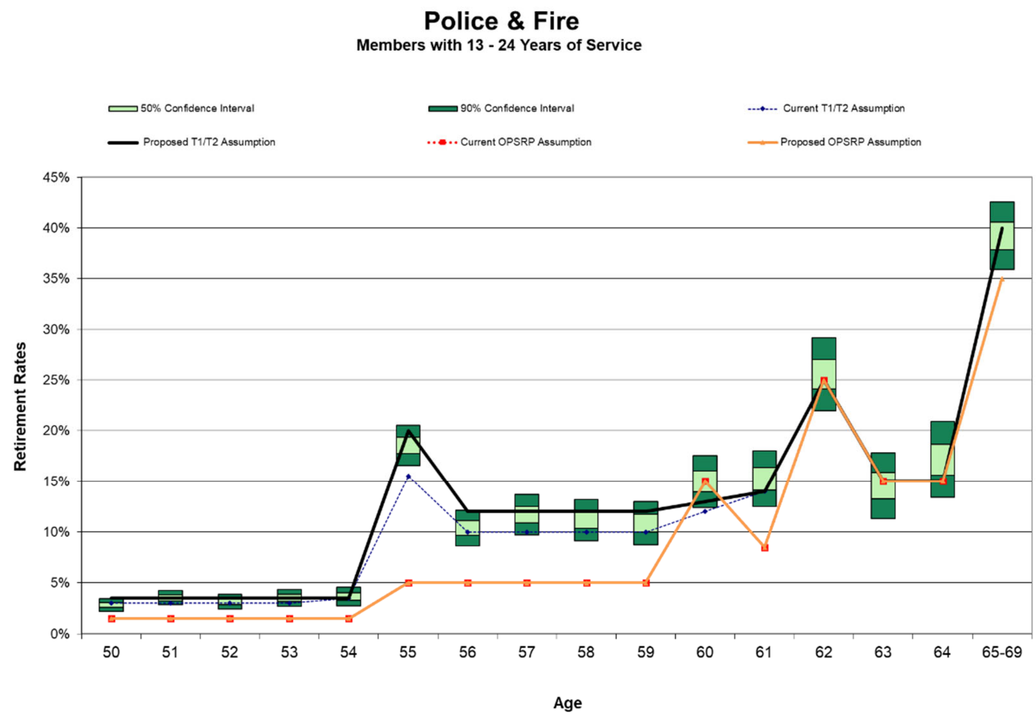


Retirement Assumptions (*continued*)

Members with 13 to 24 Years of Service

Retirement rates for members with 13 to 24 years of service are likely to be influenced by the structure of PERS benefits as well as the availability of other resources, including Social Security, prior employment, spousal benefits, and savings.

The following chart shows the current assumed rates of retirement, the confidence interval around observed experience, and the recommended retirement rate assumption for police & fire members retiring with 13 to 24 years of service. Most recent experience for members in this service band is for Tier One and Tier Two members, but a growing number of OPSRP members (whose service will be in the lower part of this range) are represented.

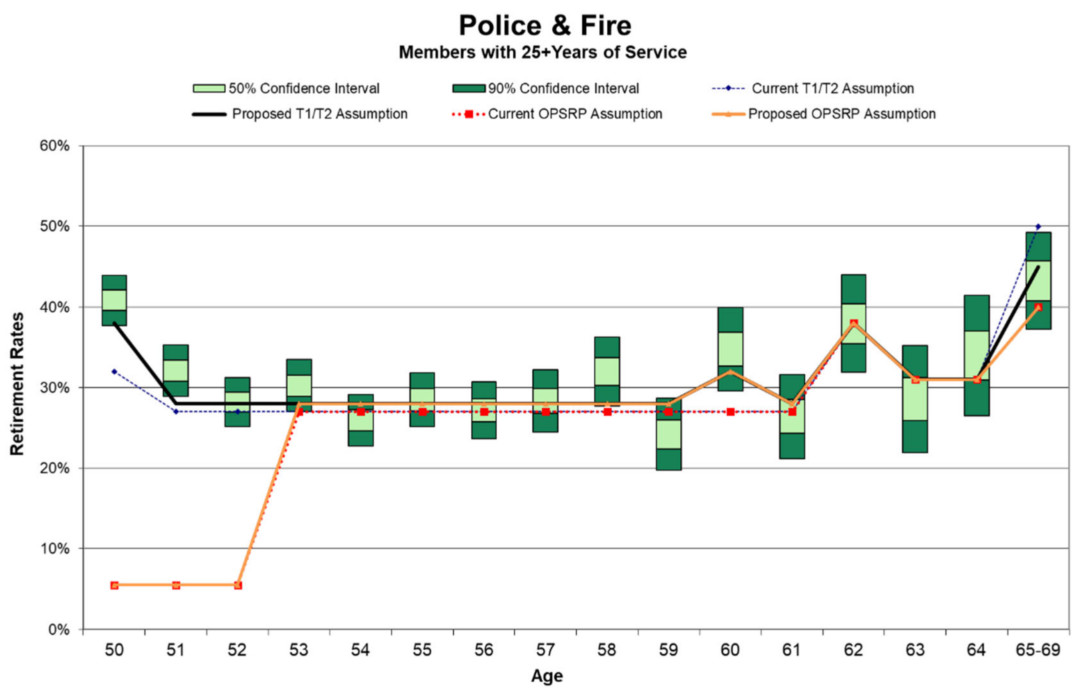


Retirement Assumptions (*continued*)

Members with 25 or More Years of Service

Tier One/Tier Two police & fire members with 25 or more years of service can retire immediately starting at age 50 (age 53 for OPSRP) with unreduced retirement benefits. As a result, retirement rates at all ages are relatively high, with a spike at first eligibility for unreduced benefits, and another increase when Social Security benefits first become available.

The following chart shows the current assumed rates of retirement, the confidence interval around observed experience, and the recommended retirement rate assumption for police & fire members retiring with 25 or more years of service. All experience for members in this service band is for Tier One/Tier Two members. OPSRP assumptions are set based on professional judgment regarding the expected relationship to Tier One/Tier Two experience given the different plan provisions between tiers.

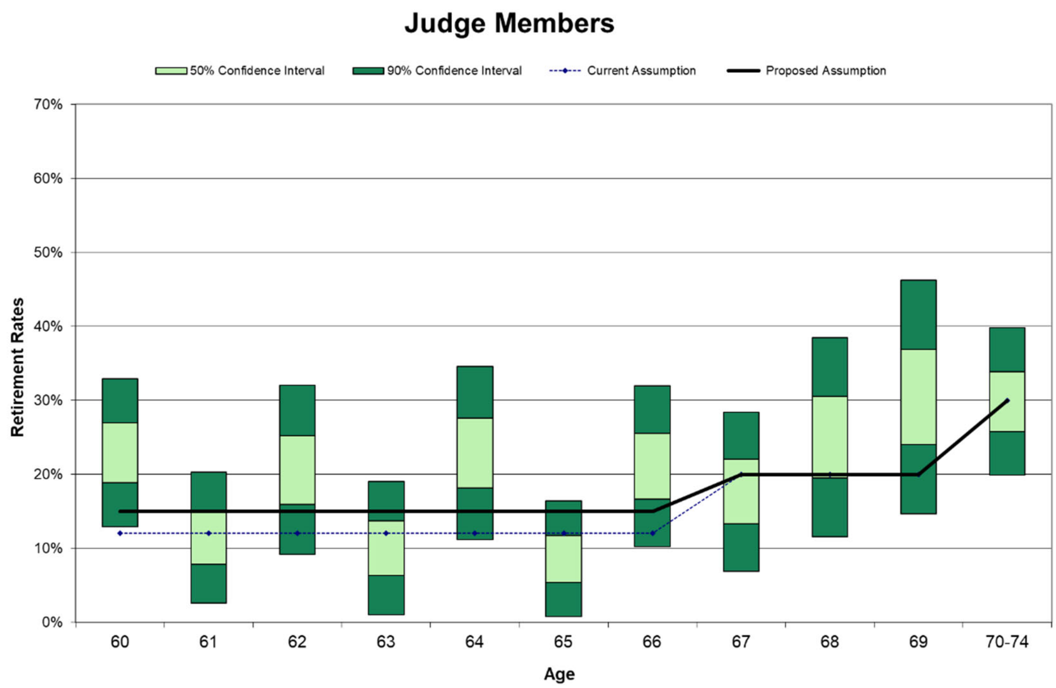


Retirement Assumptions (*continued*)

Judges

The vast majority of members of the State Judiciary elect to receive PERS benefits under Plan B. These benefits are available on an unreduced basis immediately upon retirement eligibility at age 60. As a result, there is relatively little variation in retirement rates by age for these members.

The following chart shows the current assumed rates of retirement, the confidence interval around observed experience, and the recommended retirement rate assumption for members of the State Judiciary.



Retirement Assumptions (*continued*)

Summary of Recommended Retirement Rates

The following table summarizes our recommended Tier One/Tier Two retirement rates:

Tier One/Tier Two Recommended December 31, 2022 and 2023 Valuations										
	Police & Fire			General Service			School Districts			Judges
Age	< 13 yrs	13-24 yrs	25+ yrs	<15 yrs	15-29 yrs	30+ yrs	<15 yrs	15-29 yrs	30+ yrs	
Less than 50						15.0%			25.0%	
50	1.5%	3.5%	38.0%			15.0%			25.0%	
51	1.5%	3.5%	28.0%			15.0%			25.0%	
52	1.5%	3.5%	28.0%			15.0%			25.0%	
53	1.5%	3.5%	28.0%			15.0%			32.0%	
54	1.5%	3.5%	28.0%			15.0%			25.0%	
55	3.0%	20.0%	28.0%	1.5%	2.5%	15.0%	1.5%	3.5%	25.0%	
56	3.0%	12.0%	28.0%	1.5%	2.5%	15.0%	1.5%	3.5%	25.0%	
57	3.0%	12.0%	28.0%	1.5%	2.5%	15.0%	1.5%	3.5%	25.0%	
58	6.0%	12.0%	28.0%	1.5%	8.0%	21.0%	1.5%	11.0%	27.5%	
59	6.0%	12.0%	28.0%	3.5%	8.0%	21.0%	4.5%	11.0%	27.5%	
60	6.0%	13.0%	32.0%	6.0%	12.0%	21.0%	6.5%	14.5%	27.5%	15.0%
61	6.0%	14.0%	28.0%	6.0%	11.0%	21.0%	6.5%	14.5%	27.5%	15.0%
62	15.0%	25.0%	38.0%	13.0%	18.5%	28.5%	15.0%	21.0%	34.0%	15.0%
63	15.0%	15.0%	31.0%	11.5%	16.5%	23.0%	13.0%	19.5%	29.0%	15.0%
64	15.0%	15.0%	31.0%	12.5%	16.5%	23.0%	13.0%	19.5%	29.0%	15.0%
65	40.0%	40.0%	45.0%	19.5%	28.0%	37.5%	25.5%	34.5%	45.0%	15.0%
66	40.0%	40.0%	45.0%	27.5%	36.0%	40.5%	23.0%	36.5%	45.0%	15.0%
67	40.0%	40.0%	45.0%	22.5%	26.5%	34.0%	21.0%	34.5%	38.0%	20.0%
68	40.0%	40.0%	45.0%	19.5%	26.5%	28.5%	21.0%	30.0%	28.5%	20.0%
69	40.0%	40.0%	45.0%	19.5%	26.5%	28.5%	21.0%	30.0%	28.5%	20.0%
70	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	30.0%	28.5%	30.0%
71	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	30.0%	28.5%	30.0%
72	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	30.0%	28.5%	30.0%
73	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	30.0%	28.5%	30.0%
74	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	30.0%	28.5%	30.0%
75+	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Retirement Assumptions (*continued*)

The following table summarizes our recommended OPSRP retirement rates:

OPSRP Recommended December 31, 2022 and 2023 Valuations									
	Police & Fire			General Service			School Districts		
Age	< 13 yrs	13-24 yrs	25+ yrs	<15 yrs	15-29 yrs	30+ yrs	<15 yrs	15-29 yrs	30+ yrs
50	0.5%	1.5%	5.5%						
51	0.5%	1.5%	5.5%						
52	0.5%	1.5%	5.5%						
53	0.5%	1.5%	28.0%						
54	0.5%	1.5%	28.0%						
55	2.0%	5.0%	28.0%	1.0%	2.5%	5.0%	0.5%	2.5%	5.0%
56	2.0%	5.0%	28.0%	1.0%	2.5%	5.0%	0.5%	2.5%	5.0%
57	2.0%	5.0%	28.0%	1.0%	2.5%	7.5%	1.0%	2.5%	7.5%
58	5.0%	5.0%	28.0%	1.5%	3.0%	30.0%	1.5%	3.0%	30.0%
59	5.0%	5.0%	28.0%	2.0%	3.0%	25.0%	1.5%	3.0%	25.0%
60	5.0%	15.0%	32.0%	2.5%	3.75%	20.0%	2.5%	3.75%	20.0%
61	5.0%	8.5%	28.0%	2.5%	5.0%	20.0%	2.5%	5.0%	20.0%
62	10.0%	25.0%	38.0%	6.5%	12.0%	30.0%	6.0%	12.0%	30.0%
63	10.0%	15.0%	31.0%	6.5%	10.0%	20.0%	6.0%	10.0%	20.0%
64	10.0%	15.0%	31.0%	6.5%	10.0%	20.0%	6.0%	10.0%	20.0%
65	20.0%	35.0%	40.0%	15.5%	35.0%	20.0%	12.5%	35.0%	20.0%
66	20.0%	35.0%	40.0%	18.5%	33.0%	20.0%	12.5%	33.0%	20.0%
67	20.0%	35.0%	40.0%	17.0%	22.0%	30.0%	11.0%	22.0%	30.0%
68	20.0%	35.0%	40.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
69	20.0%	35.0%	40.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
70	100.0%	100.0%	100.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
71	100.0%	100.0%	100.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
72	100.0%	100.0%	100.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
73	100.0%	100.0%	100.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
74	100.0%	100.0%	100.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
75+	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Retirement Assumptions (*continued*)

Lump Sum Option at Retirement

At retirement, a Tier One/Tier Two member has the option of electing a total lump sum distribution equal to two times the member's account balance, a partial lump sum distribution equal to the member's account balance with a reduced monthly allowance, or a monthly allowance with no lump sum distribution. The percentage of active Tier One/Tier Two members electing a lump sum distribution at retirement has declined slightly from the prior experience study. The results of our experience analysis are as follows:

Election at Retirement	Number of Retired Members	Percentage of Retirements	December 31, 2021 Valuation Assumption	Recommended December 31, 2022 and 2023 Valuations
Partial Lump Sum	444	2.0%	2.0%	0.0%
Total Lump Sum	260	1.2%	0.0%	0.0%

When a member elects a total or partial lump sum under Money Match or a partial lump sum under Full Formula, they give up the value of future COLAs (cost of living allowances) on the lump sum amount. A total lump sum election under Full Formula may cause the member to give up significantly more. Because there are no new contributions to member accounts and the system is projected to become dominated by Full Formula over time, we expect the total lump sum rate to decline over time.

For elections of both partial and total lump sum have declined steadily for a number of years, so that experience in recent years is even lower than shown in the table. Based on the data shown above and this continuing trend, we recommend assuming no members elect either total or partial lump sum distributions for purposes of the valuation.

Purchase of Credited Service

A member has the option of purchasing service at retirement to enhance their retirement benefits. Service may be purchased under one or more of the following categories:

- Purchase of forfeited service
- Credit for waiting time
- Credit for educational service
- Credit for military service
- Credit for seasonal positions
- Credit for police officers and firefighters
- Purchase of retirement credit for disability time

Most purchases are full cost purchases, meaning the member pays both the member and employer cost to obtain the service. Since the member pays the full cost of the service purchased, the purchase produces no impact or only a small impact on projected Tier One/Tier Two employer costs. The most common, and predictable, non-full-cost service purchase made by members is purchasing credit for the six-month waiting period at the beginning of PERS-eligible employment. Thus, for valuation purposes, we have included an adjustment to account for those members who are expected to make the waiting period service purchase.

For Money Match retirements, the purchase of credited service is generally cost-neutral to the system, because the member is depositing both the member and employer contributions. Therefore, in reviewing

Retirement Assumptions (*continued*)

actual experience, we examined non-Money Match retirements. The following table shows the number of members who retired in the experience period and elected to purchase credit for the six-month waiting period:

	Count	Number Electing to Purchase Waiting Time Service	Percentage of Retirements Electing to Purchase	December 31, 2021 Valuation Assumption	Recommended December 31, 2022 and 2023 Valuations
Non-Money Match Retirements	18,275	13,745	75%	75%	75%

We recommend no changes to the assumption of non-Money Match retirements purchasing credited service for the six-month waiting period.

Oregon Residency Status

Tier One/Tier Two members who are eligible for a “tax remedy” upward benefit adjustment under Senate Bill 656 or House Bill 3349 only receive the adjustment if they remain residents of Oregon for tax purposes while retired. Since a member’s residency status may change multiple times during retirement, the residency status of a newly retired member may not be representative of that member’s probability of remaining an Oregon resident later in retirement. As such, we analyzed the entire current population of retired members and beneficiaries who are potentially eligible for a tax remedy and compared that to the number who are currently receiving a tax remedy. The results of that analysis are as follows:

Number Eligible for Tax Remedy	Number Receiving Tax Remedy	Percentage Receiving Tax Remedy	December 31, 2021 Valuation Assumption	Recommended December 31, 2022 and 2023 Valuations
115,668	97,118	84%	85%	85%

We recommend no changes to the assumption of the percentage of potentially eligible members who receive a tax remedy benefit adjustment under Senate Bill 656 or House Bill 3349.

Disability Incidence Assumptions

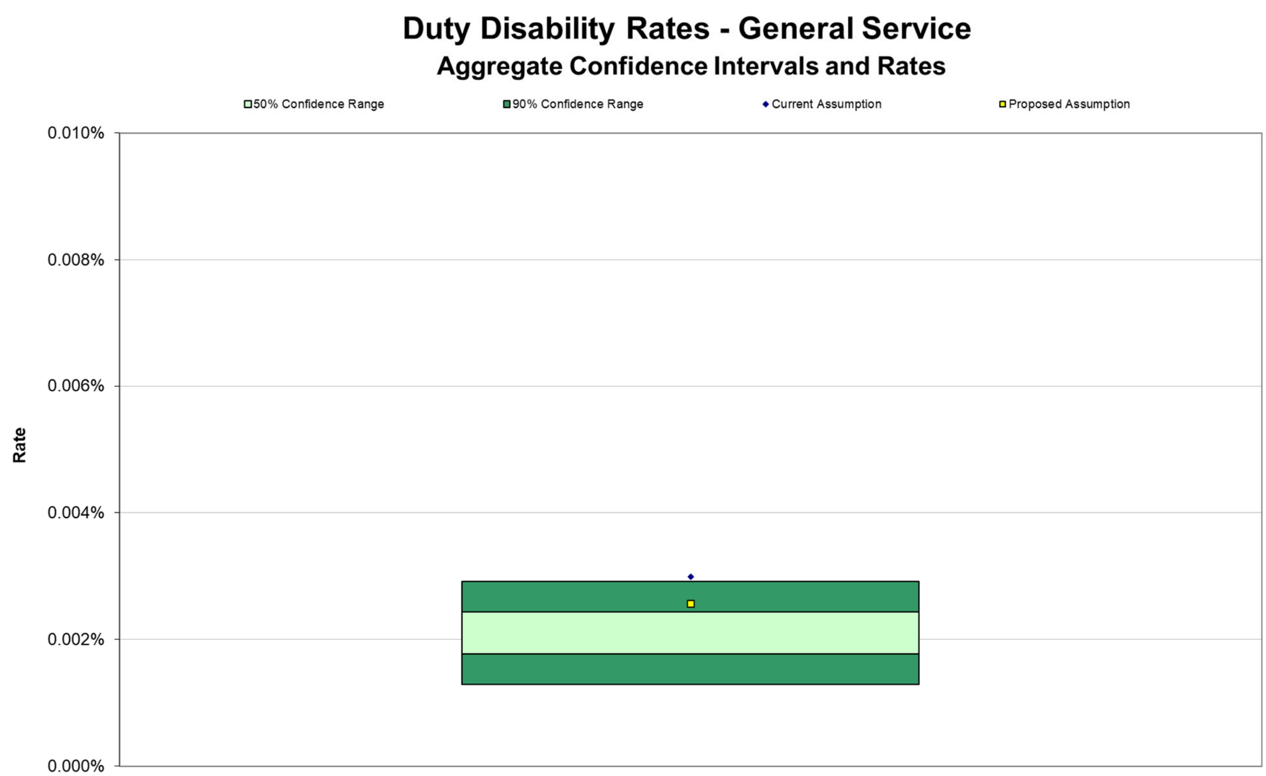
The Plan provides duty and non-duty disability benefits to members. Members are eligible to receive duty disability benefits if they become disabled as a direct result of a job-related injury or illness, regardless of length of service. Members are eligible for non-duty disability benefits (also referred to as “ordinary” disability) if they become disabled after ten years of service (six years if a judge), but prior to normal retirement eligibility.

Duty disability incidence rates are developed separately for police & fire and general service members. Ordinary (non-duty) disability rates are developed for the system as a whole.

Duty Disability

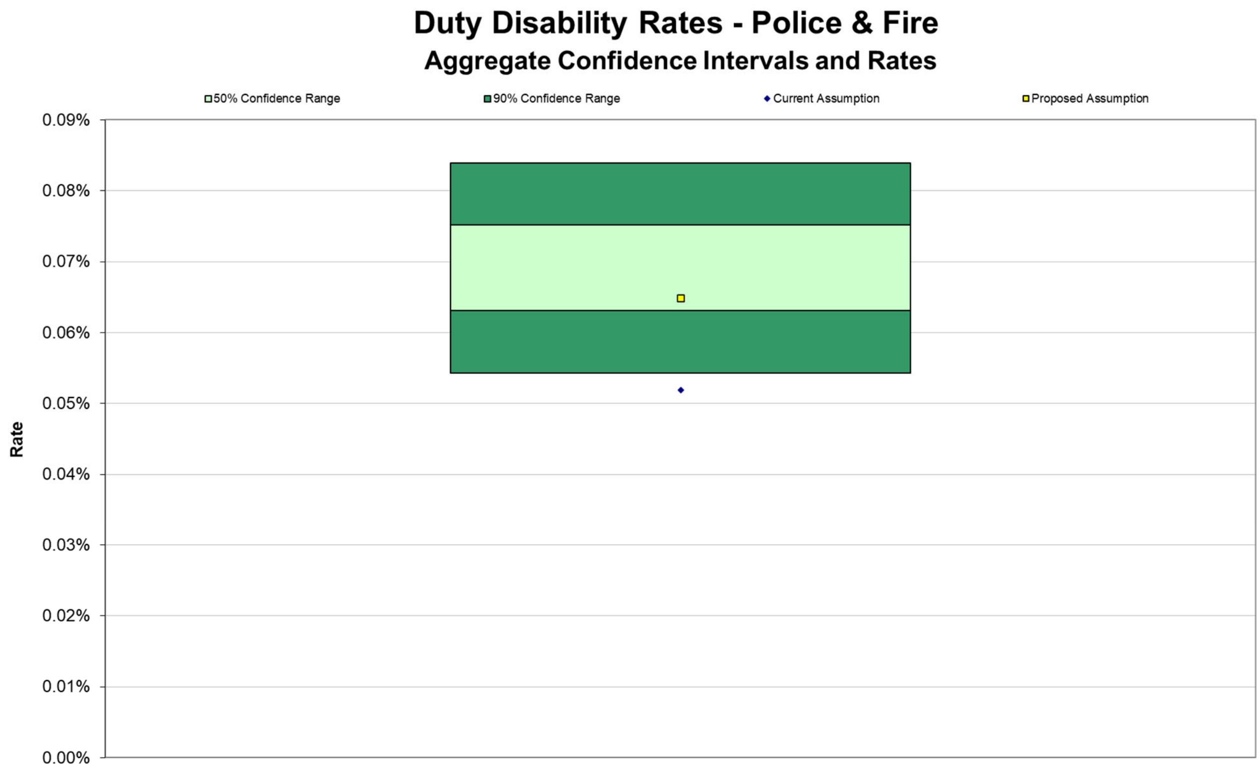
Due to the limited amount of experience data available at some ages, this assumption employs a standard table adjusted to fit within the aggregate confidence interval.

The current assumed aggregate incidence for general service members is above the 90 percent confidence interval of the actual disability experience. As such, we recommend lowering the assumption.



Disability Incidence Assumptions (*continued*)

The current assumed aggregate incidence for police & fire members is below the 90 percent confidence interval of the actual disability experience. As such, we recommend increasing the current assumption.

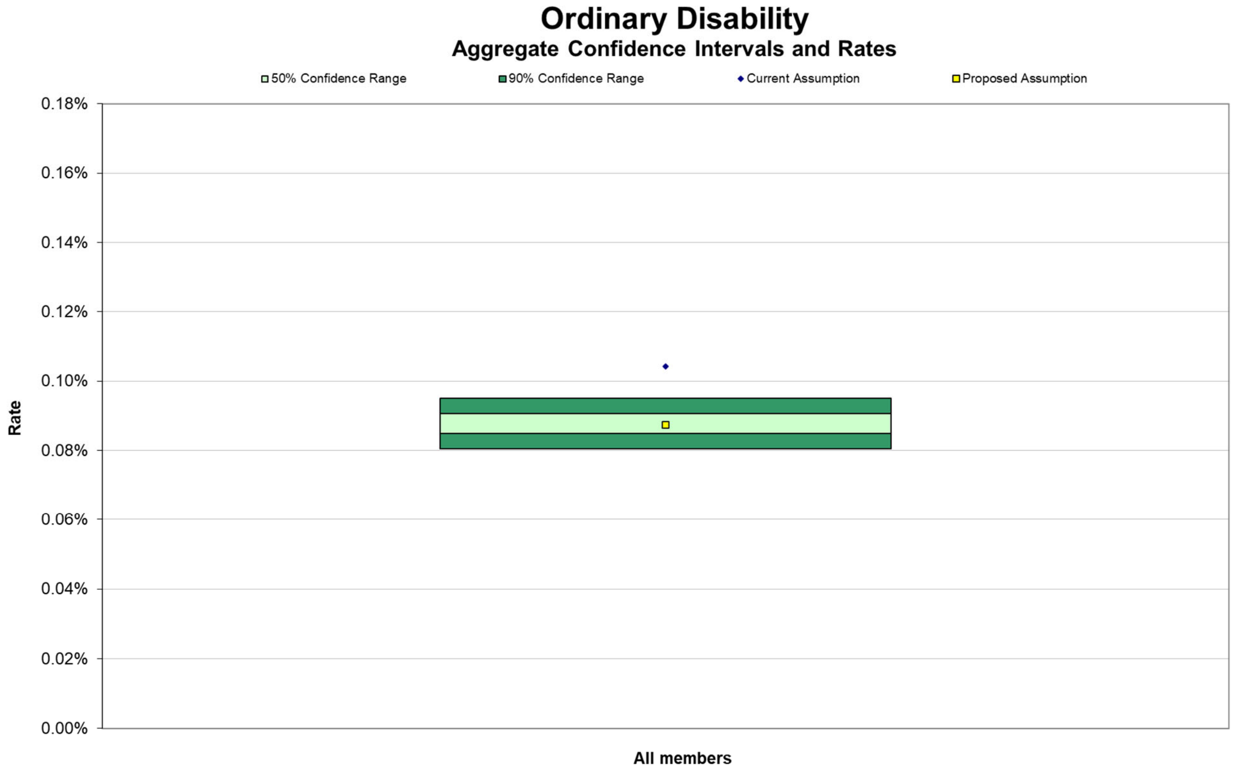


Ordinary (Non-Duty) Disability

As with duty disability, the experience data for ordinary disability is limited at specific ages. Therefore, this assumption also uses a standard table adjusted to fit within the aggregate confidence interval. Based on the actual disability incidence in the experience observation period, we recommend lowering the ordinary disability incidence assumption.

The data underlying the ordinary disability study showed a pattern wherein a member's record would only be recognized as a disability retirement (rather than a service retirement or other separation from service) after a lag period that could span over a year. Because such lagged experience is not yet available for 2022, the final year of our study, we included in our analysis an assumption as to additional disabilities occurring in 2023 that will not be apparent until the subsequent reporting period. This assumption was based on an average of such records observed in the first five years of the study.

Disability Incidence Assumptions (*continued*)



The following table summarizes our recommended disability incidence rate assumptions:

	Percentage of the 1985 Disability Class 1 Rates (Sample rates shown for ages 20–55)	
	December 31, 2021 Valuation	**Recommended December 31, 2022 and 2023 Valuations**
Duty Disability		
• Police & Fire	20% (0.0060%–0.1690%)	25% (0.0075%–0.2113%)
• General Service	0.7% (0.0002%–0.0059%)	0.6% (0.0002%–0.0051%)
Ordinary Disability	25% with 0.16% cap (0.0075%–0.1600%)	20% with 0.14% cap (0.0060%–0.1400%)

Termination Assumptions

Not all active members are expected to continue working for covered employers until retirement. Termination rates represent the probability that a member will leave covered employment for a cause other than retirement, disability, or death at any given point during their working career.

Termination rates have been developed as service-based assumptions. The service-based assumptions reflect the experience of Tier One, Tier Two, and OPSRP members, with each group affecting the period of the table relating to the relevant service amount.

Assumptions are developed for the following groups:

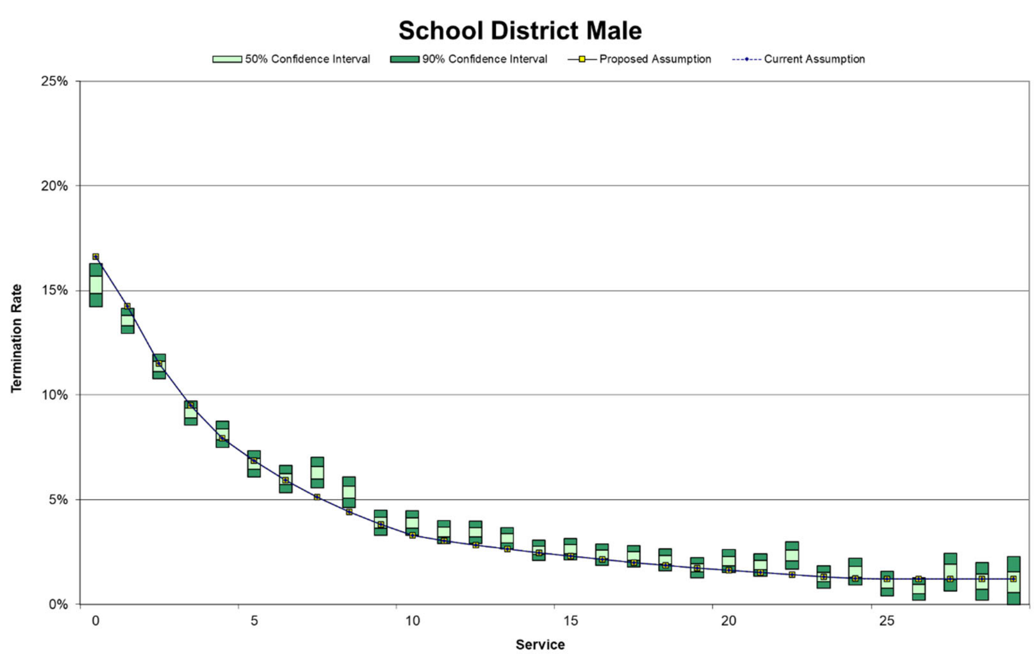
- School District males
- School District females
- Other General Service males
- Other General Service females
- Police & Fire (unisex table)

Termination Rates

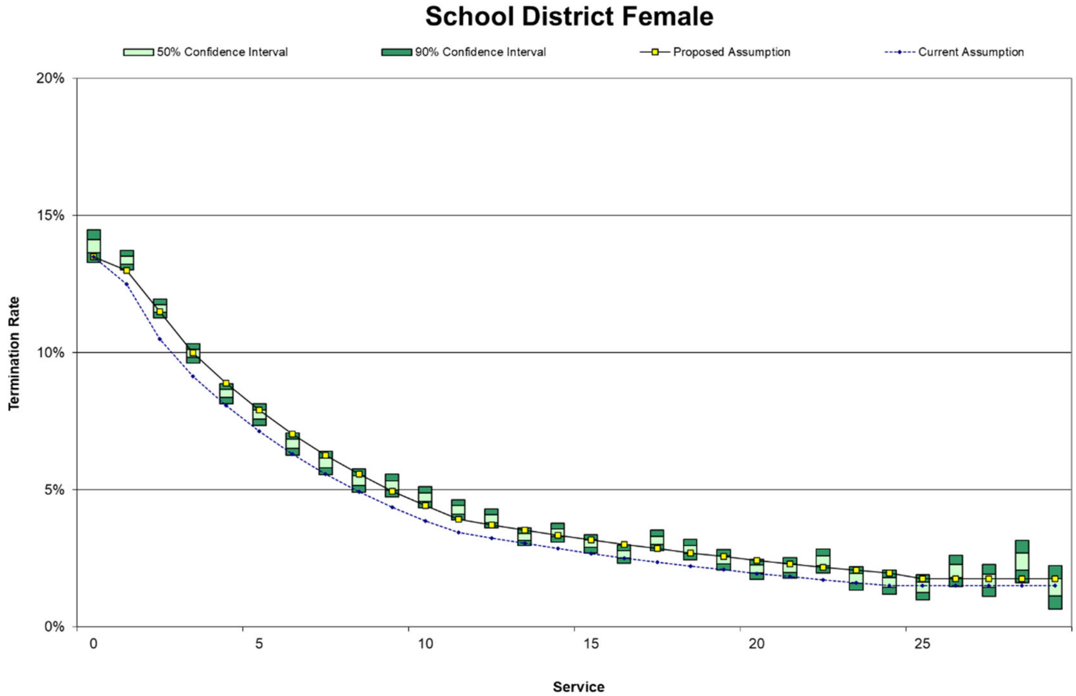
The following charts show the confidence interval around observed experience and the recommended rates of termination by year of service. These charts are based on the observed experience of members in the relevant group during the study period. We recommend changes to the assumption for school district general service females and for police and fire members. For the other three groups, we recommend maintaining the current assumption and, as is standard procedure, evaluating experience again with the next study.

Full listings of recommended termination assumptions are included in the appendix.

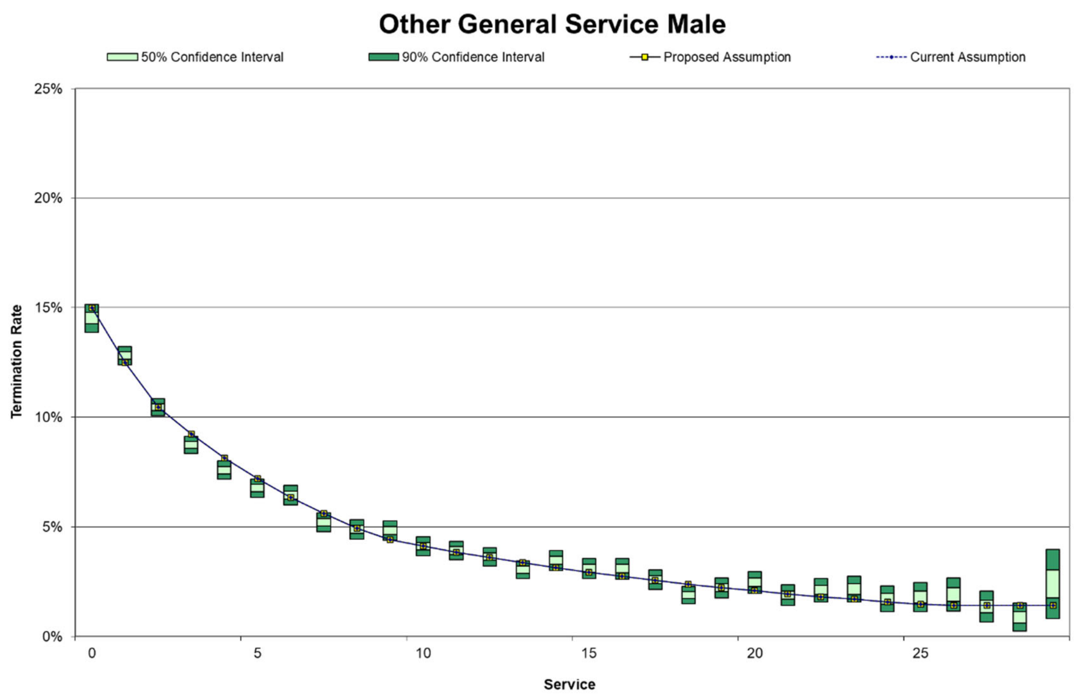
School Districts



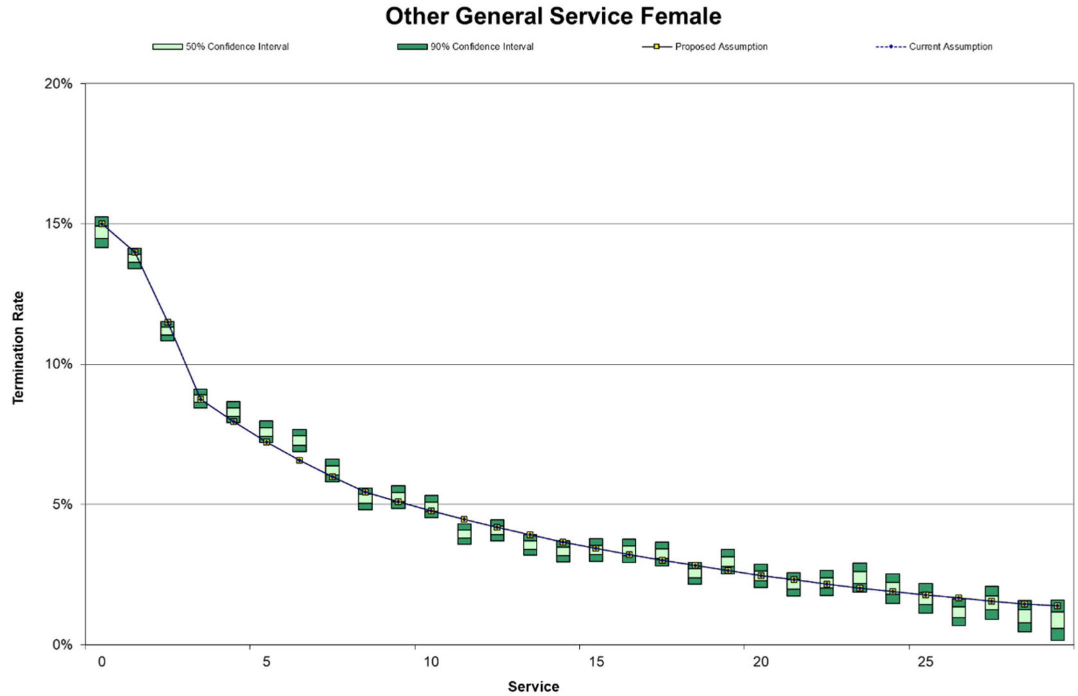
Termination Assumptions (*continued*)



General Service

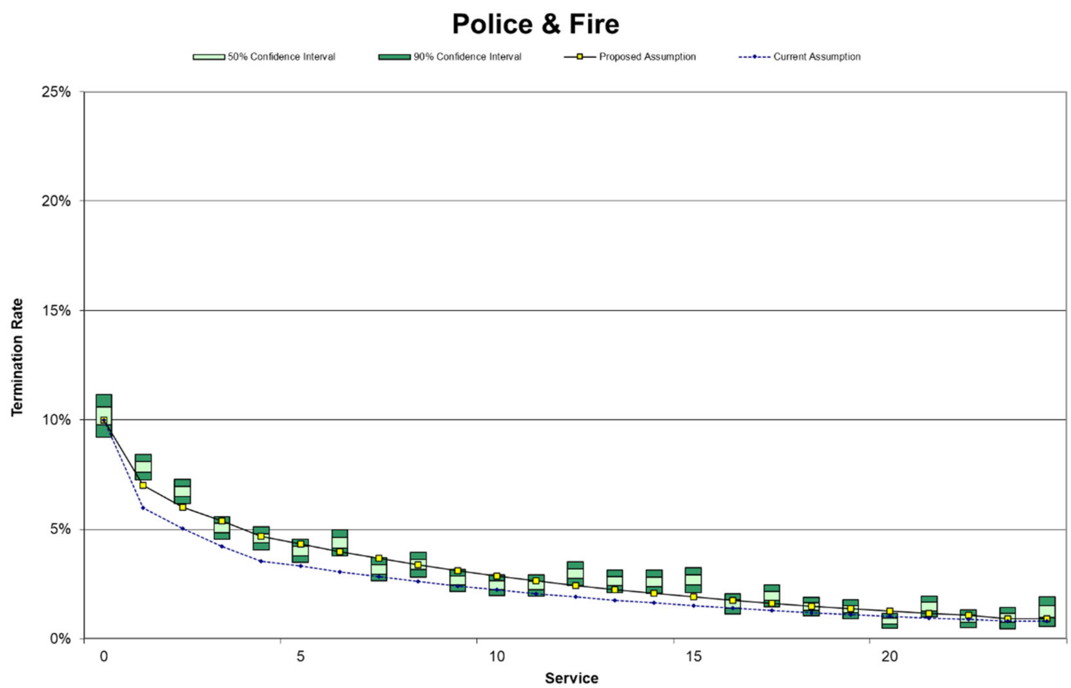


Termination Assumptions (*continued*)



Police & Fire

All police & fire members were rated together, with no variation by group or gender.



Salary Increase Assumptions

The salary increase assumptions analyzed with demographic experience were:

- Annual individual member merit/longevity salary increases
- Unused sick leave adjustments to final average salary at time of retirement for eligible members
- Unused vacation cash out adjustments to final average salary at time of retirement for eligible members

Annual Individual Member Merit/Longevity Salary Increases

The merit (or longevity) scale component of the annual individual member salary increase assumption is used in conjunction with the inflation and real wage growth assumptions to project annual individual member salary increases. In developing this assumption, our analysis first determined the gross salary increases received by members during the observation period on a payroll weighted basis. The assumed merit (or longevity) component of the overall annual increase was then determined by backing out the annualized increase in average valuation salary of 3.85% for the ten-year study period, which represents the realized combined effect of actual inflation and real wage growth for the period.

In order to capture experience across a broader range of budget, collective bargaining, and economic cycles, our initial analysis covered observed salary experience from 2012 through 2022. However, after discussion with PERS staff, certain data points were excluded due to the existence of one-off salary changes that are not expected to be indicative of anticipated future salary experience. These were:

- School district salary experience for 2020 was lower than most other years in the study. We understand at least part of the reason was due to furloughs effective in Spring 2020 during the early months of the pandemic. Reported salary experience for 2020 was replaced with the average of 2019 and 2021 experience.

- Salary increases for many other (i.e., non-school district) general service members in 2017 and 2019 and for many police & fire members in 2019 were affected by bargained changes wherein the 6% member contribution would no longer be “picked up” by the employer for a large number of members. Those members then received a 6.95% salary increase when the change occurred.

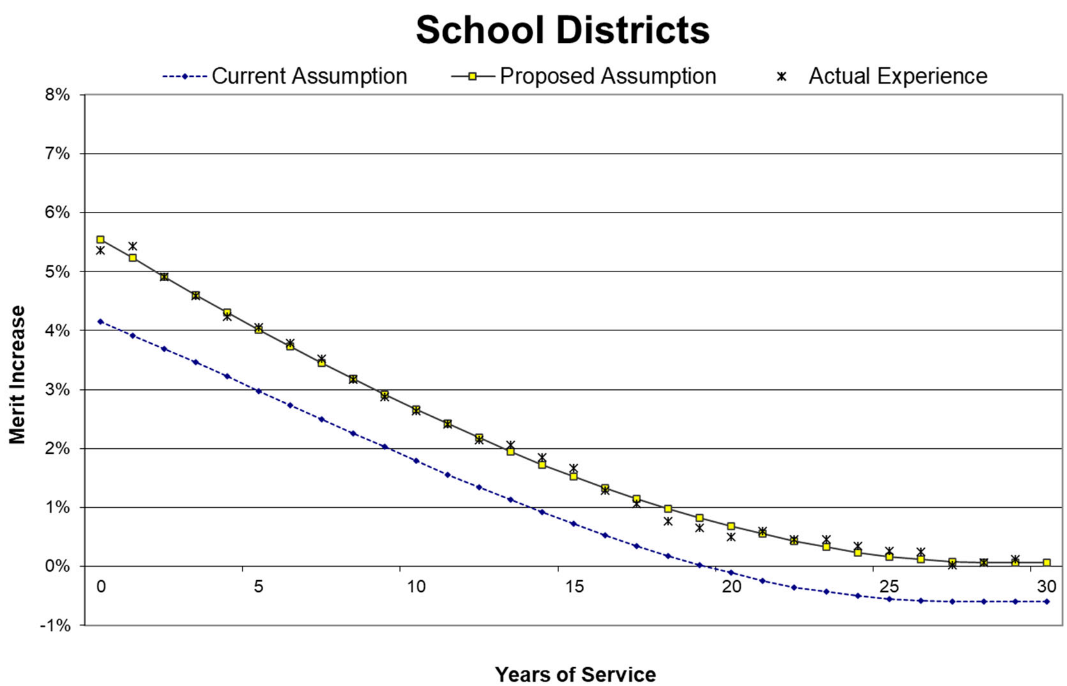
Assumptions are developed for the following groups:

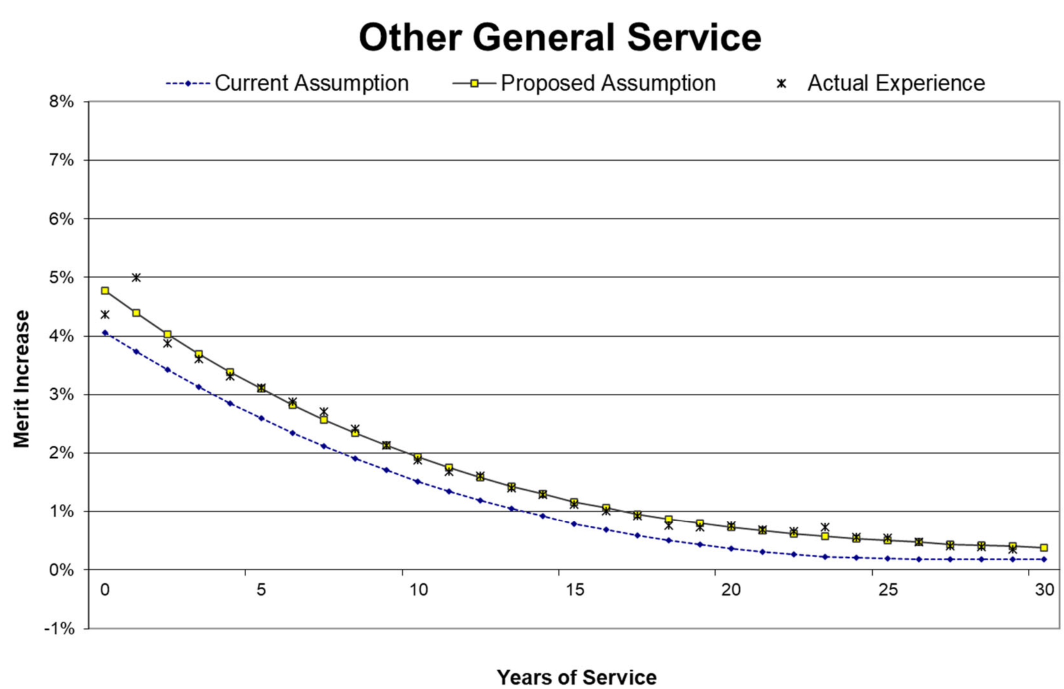
- School Districts
- Other General Service
- Police & Fire

The following charts show the current assumed rates of merit/longevity salary increases, the average of merit/longevity salary increases based on the included experience (per the discussion above) over the study’s experience observation period, and the recommended rates of assumed merit/longevity salary increases. We recommend increasing the current merit/longevity salary increase assumption for all groups.

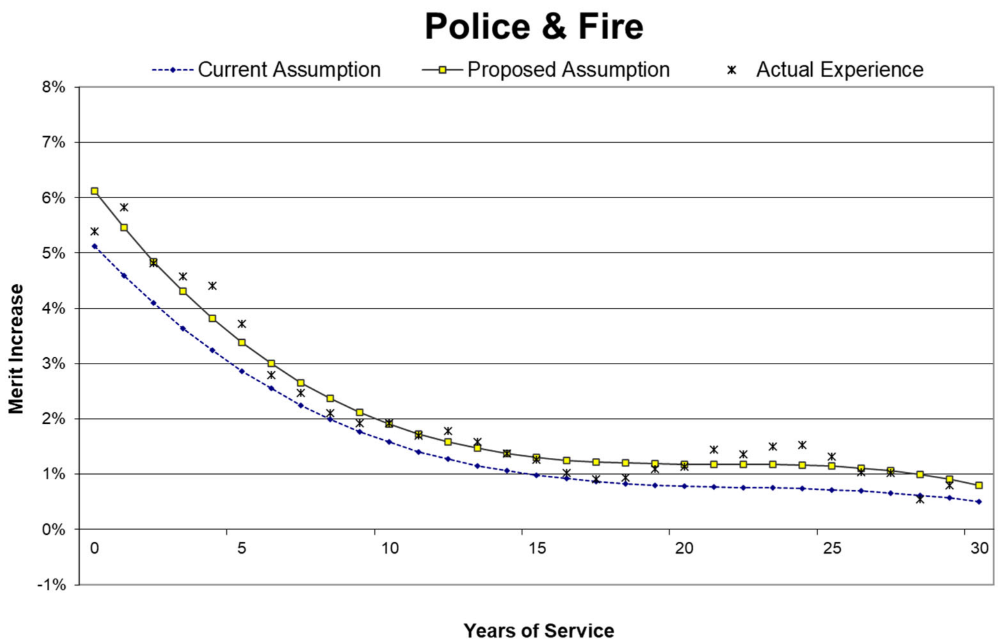
Note that to determine the gross salary increase assumption that would apply for an individual member in the valuation, the relevant merit/longevity assumption shown below would be added to the adopted system payroll growth assumption (for example, 3.40%).

Salary Increase Assumptions (*continued*)





Salary Increase Assumptions (*continued*)



Additional Salary Increase Assumption for Next Two Years

The increased merit/longevity salary assumptions shown above are based on a normal-course process for reviewing and updating this assumption. However, due to the high inflation environment of recent years and job market pressures, we anticipate that there may be unusually high salary increases for at least a portion of PERS active members in the near term. This expectation has been supported both by recently announced collective bargaining agreements covering large groups of PERS members and by input we've received from System stakeholders.

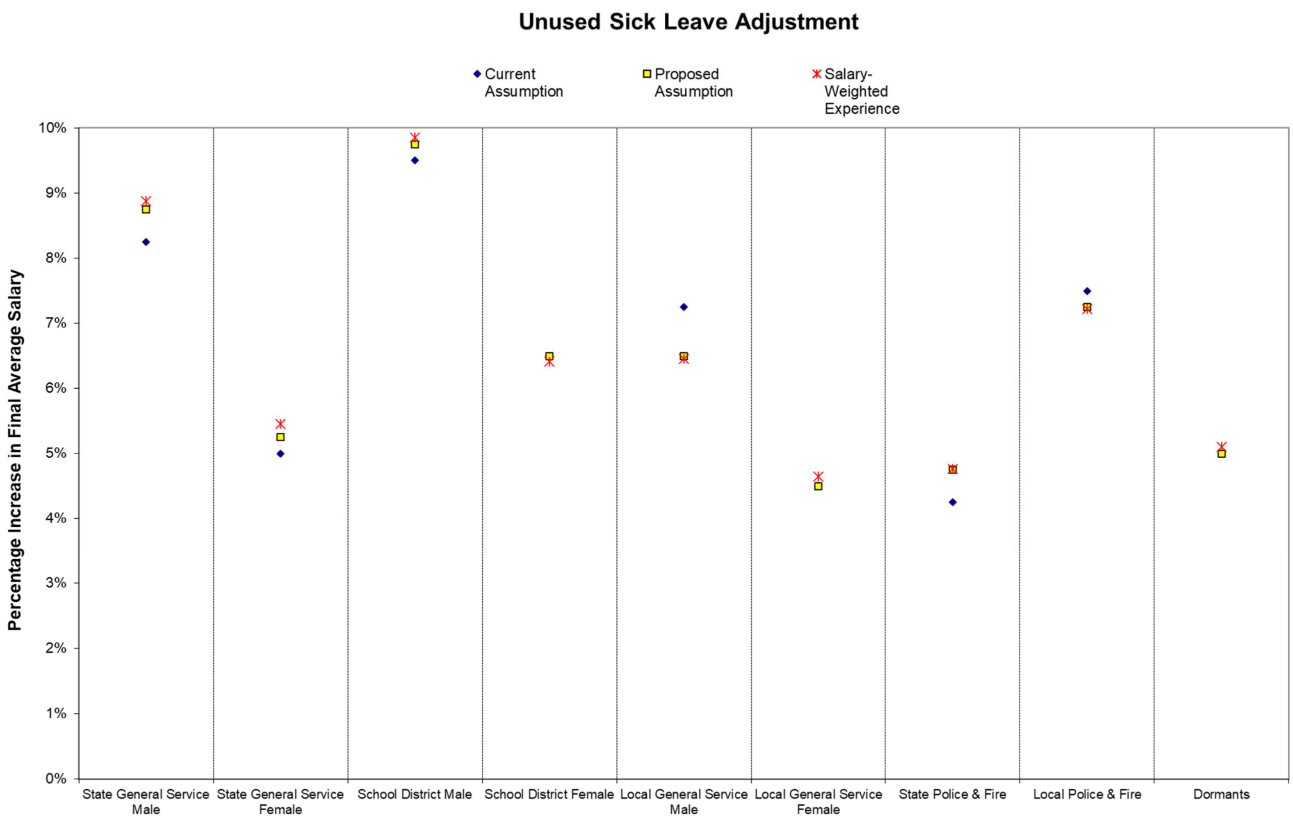
In recognition of this expectation and with the intent to mitigate or fully avoid potential salary experience losses in the upcoming two actuarial valuations, **we recommend an additional "select period" salary increase assumption. That assumption will apply as an extra 2% annual increase in pay to the standard increase assumption for the next two years.** It will apply to salary increases from 2023 to 2024 and from 2024 to 2025.

Salary Increase Assumptions (*continued*)

Unused Sick Leave Adjustment at Time of Retirement

Employers may elect to participate in the Unused Sick Leave Program. This program allows Tier One/Tier Two members to convert the value of one-half of their accumulated sick leave into additional retirement benefits. Our assumption represents the percentage increase in a member's final average salary due to the inclusion of the value of 50 percent of the member's accumulated sick leave and is only applied to the projected benefit of members whose employers who participate in the program.

For active members, there are currently eight sets of rates developed by employer group, employment category (general service or police & fire), and gender. In addition, a single rate is developed for eligible dormant members. The chart below shows the current assumption, the four-year average of the observed experience, and the recommended assumption for each of the groups studied.

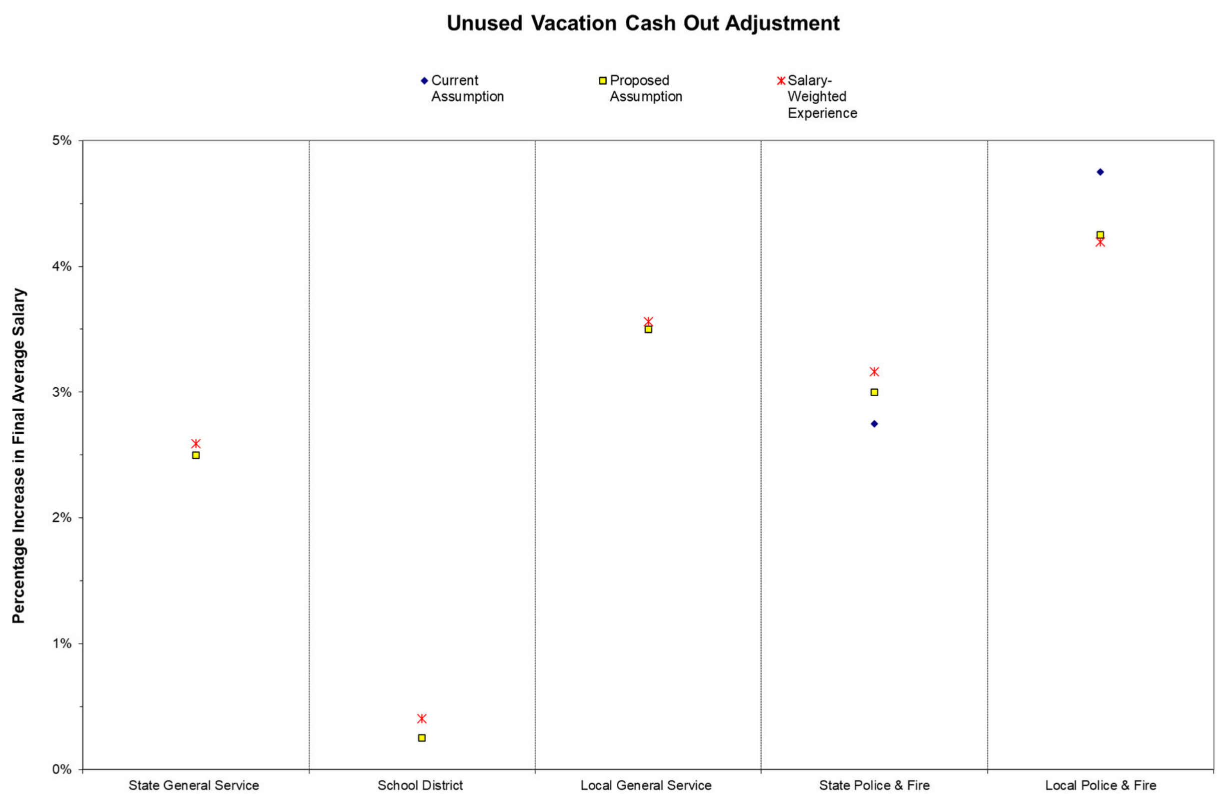


The non-retired Tier One/Tier Two population continues to decrease in size. While decreasing in number, we anticipate the remaining group over time will have an increasing level of average service. As a result of these factors, we have continued to see the average unused sick leave adjustment per eligible member increase for most groups. While the recommended assumptions are higher for some groups, the assumption will apply to a smaller group over time.

Salary Increase Assumptions (*continued*)

Unused Vacation Cash Out Adjustment

Tier One members are eligible to include the value of any lump sum payment of unused vacation pay in the calculation of their final average salary. The assumption shown below represents the percentage increase in a member's final average salary expected to result from this provision.



Retiree Healthcare Assumptions

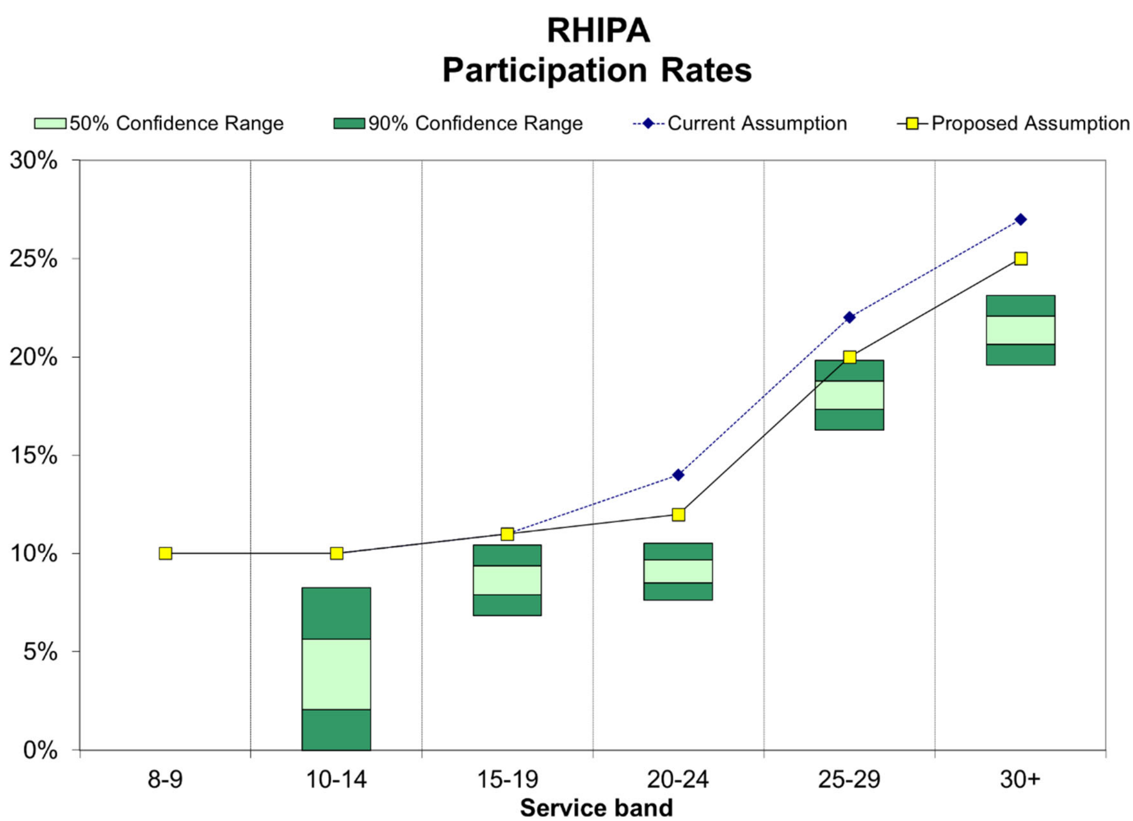
There are two retiree healthcare programs offered to eligible Tier One/Tier Two members, the Retiree Health Insurance Premium Account (RHIPA) and the Retiree Health Insurance Account (RHIA).

RHIPA

RHIPA is a program for eligible retirees from State of Oregon employment that provides a subsidized pre-Medicare insurance plan. In the previous valuation, the participation rate assumption for future eligible retirees varied based on service at the time of retirement, as the level of employer-paid benefits in the RHIPA program varies by service level. We recommend continuing this structure for the assumption.

The current participation assumptions are consistently higher than recent observed participation experience. We recommend decreasing the assumed participation level at most age ranges, as shown below. The level of participation in RHIPA may be affected, at least in part, by economic conditions, cost of coverage, competition from alternative programs available to retirees, and the impact of healthcare reform legislation becoming effective. Since changes in these factors could change participation rates in RHIPA quickly, we recommend that PERS monitor RHIPA participation levels of future eligible retirees on a regular basis.

The data underlying this study showed a pattern wherein members would sometimes not appear until one or two years after retirement. This may be due to a combination of participant behavior and administrative delay. Because such time-lagged experience is not yet available for the final two years of our study, we included in our analysis an assumption as to the number of additional enrollments not yet reported for members who retired during 2021 or 2022. This assumption was based on the number of such records observed in 2019 and 2020.

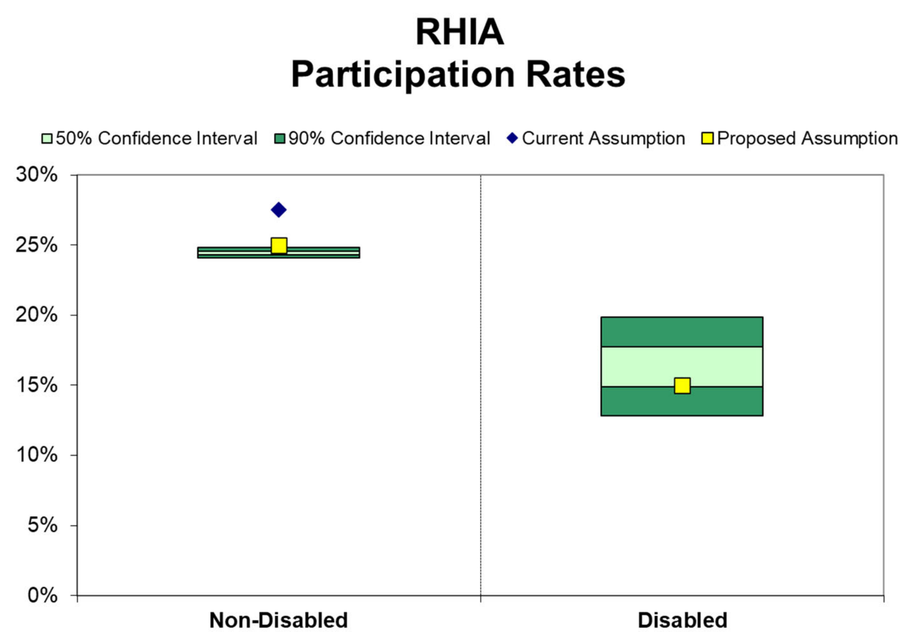


Retiree Healthcare Assumptions (*continued*)

RHIA

RHIA is a subsidized Medicare supplemental insurance program offered to all eligible Tier One/Tier Two retirees. Actual participation rates during the period of study were approximately 24% for non-disabled retirees, compared to the current assumption of 27.5%. For disabled retirees, actual participation rates were approximately 16%, compared to the current assumption of 15%. As shown in the table below, we recommend decreasing the non-disabled assumption to 25% and retaining the disabled assumption of 15%.

The data underlying this study showed a pattern wherein members would sometimes not appear until one or two years after retirement (or reaching age 65 if already retired). This may be due to a combination of participant behavior and administrative delay. Because such time-lagged experience is not yet available for the final two years of our study, we included in our analysis an assumption as to the number of additional enrollments not yet reported for members who retired (or reached age 65 if already retired) during 2021 or 2022. This assumption was based on the number of such records observed in 2019 and 2020.



5. Appendix

Data

Except where noted, the analysis in this study was based on data for the experience period from January 1, 2017 to December 31, 2022 as provided by the Oregon Public Employees Retirement System (PERS). PERS is solely responsible for the validity, accuracy, and comprehensiveness of this information; the results of our analysis can be expected to differ and may need to be revised if the underlying data supplied is incomplete or inaccurate.

The member data was summarized according to the actual and potential member decrements for each year in the study. Actual and potential decrements were grouped according to age or service depending on the demographic assumption.

Assumption Tables

A complete listing of all the assumptions, methods and procedures presented to the Board for review on July 28, 2023 that are recommended to be used in the December 31, 2022 and December 31, 2023 actuarial valuations are summarized on the following pages.

Methods and Procedures

Actuarial cost method: Entry Age Normal

UAL amortization method: Level percent of combined Tier One, Tier Two, and OPSRP payroll

UAL amortization period:

- Closed, layered amortization from the first rate-setting valuation in which newly arising UAL (from either experience different than assumption or assumption or method changes) is recognized
  - Tier One/Tier Two – 20 years
  - OPSRP – 16 years
  - RHIA/RHIPA – 10 years
  - Senate Bill 1049 was signed into law in June 2019 and required a one-time re-amortization of Tier One /Tier Two UAL over a closed 22-year period at the December 31, 2019 rate-setting actuarial valuation. This base will continue to be amortized as a closed period, with 18 years remaining as of the December 31, 2023 rate-setting actuarial valuation.
- In general side accounts are aligned with a 20-year period from the most recent rate-setting valuation. Employers who make lump sum payments in accordance with the rules under OAR 459-009-0086(9) may select a shorter amortization period of either 6, 10, or 16 years since the most recent rate-setting valuation.
- When RHIA or RHIPA is in an actuarial surplus position with a negative UAL, the actuarial surplus for that program is amortized over Tier One/Tier Two payroll using a rolling 20-year amortization basis. The resulting negative UAL Rate would be allowed to offset the Normal Cost Rate of the program, but not below a combined contribution rate of 0.0%.
- As of the December 31, 2022 actuarial valuation, amortization periods for existing transition liabilities/surpluses and other Pre-SLGRP amounts will be extended 18 months to align with the biennial rate-setting cycle so that the associated rate offsets will expire coincident with the usual timing for biennial rate changes. New transition liabilities will be amortized over the 19½ year period beginning when the employer joins the SLGRP.

- Regular UAL Rate amortization bases are not adjusted for the 18-month time lag between the rate-setting actuarial valuation date and the date the calculated rate becomes effective. Rate adjustments for side accounts and Pre-SLGRP amounts are adjusted for the 18-month lag.

Asset valuation method: Market value

Excluded reserves: Contingency Reserve, Capital Preservation Reserve. Rate Guarantee Reserve is excluded only when it is positive.

Contribution Rate Stabilization Method: The UAL Rate contribution rate component for a rate pool (e.g., Tier One/Tier Two SLGRP, Tier One/Tier Two School Districts, OPSRP) is confined to a collared range based on the prior biennium's collared UAL Rate contribution rate component (prior to consideration of side account offsets, SLGRP transition liability or surplus rates, or pre-SLGRP liability rate charges or offsets).

Collar Width: the rate pool's new UAL Rate contribution rate component will generally not increase or decrease from the prior biennium's collared UAL Rate contribution rate component by more than the following amount:

- Tier One/Tier Two SLGRP and Tier One/Tier Two School District Pool: 3% of payroll
- OPSRP: 1% of payroll
- Tier One/Tier Two rates for independent employers: greater of 4% of payroll or one-third of the difference between the collared and uncollared UAL Rate at the prior rate-setting valuation. In addition, the UAL Rate will not be allowed to be less than 0.00% of payroll for any Tier One/Tier Two independent employer with a funded status (excluding side accounts) less than 100%.

UAL Rate decrease restrictions**:** the UAL Rate for any rate pool will not be allowed to decrease if the pool's funded status is 87% (excluding side accounts) or lower; the allowable decrease will phase into the full collar width from 87% funded to 90% funded.

Liability Allocation for Actives with Several Employers: Allocate Actuarial Accrued Liability 5% (0% for police & fire) based on account balance with each employer and 90% (100% for police & fire) based on service with each employer.

Allocate Normal Cost to current employer.

Projected System-Average Level of Member Redirect Contributions:

- Tier One/Tier Two – 2.40% of payroll
- OPSRP – 0.65% of payroll

Allocation of Benefits-In-Force (BIF) Reserve: The BIF is allocated to each rate pool in proportion to the retiree liability attributable to the rate pool.

Recommended Economic Assumptions

Inflation	2.40%
Real wage growth	1.00% or lower
Payroll growth	3.40% or lower
Investment return	We recommend the Board not increase the investment return assumption above the current level of 6.90%, though capital market outlook models have shown a somewhat higher median projected return. The Board will select the assumption at its July 28, 2023 meeting.
Interest crediting	
▪ Regular account	Equal to investment return assumption
▪ Variable account	Equal to investment return assumption
RHIPA subsidy cost trend rates ▪ 2023 trend rate ▪ Ultimate trend rate ▪ Year reaching ultimate trend	 6.60% 3.80% 2074

Demographic Assumptions

Mortality

Non-Disabled Retiree Mortality												
Age	**School District Male**		**Other General Service Male**		**Police & Fire Male**		**School District Female**		**Other General Service Female**		**Police & Fire Female**	
	Pub2010 Retiree, Blended 80% Teachers/20% General Employees, Generational w/Social Security Data Scale, 0 year setback		Pub2010 Retiree, General Employees, Generational w/Social Security Data Scale, 1 year setback		Pub2010 Retiree, Public Safety, Generational w/Social Security Data Scale, 0 year setback		Pub2010 Retiree, Teachers, Generational w/Social Security Data Scale, 0 year setback		Pub2010 Retiree, General Employees, Generational w/Social Security Data Scale, 0 year setback		Pub2010 Retiree, Public Safety, Generational w/Social Security Data Scale, 1 year setback	
Year of Birth	**1950**	**1960**	**1950**	**1960**	**1950**	**1960**	**1950**	**1960**	**1950**	**1960**	**1950**	**1960**
50	0.001656	0.001484	0.001537	0.001380	0.002142	0.001920	0.000815	0.000730	0.002477	0.002220	0.001492	0.001340
51	0.001789	0.001600	0.003289	0.002948	0.002333	0.002087	0.000873	0.000781	0.002576	0.002304	0.001644	0.001474
52	0.001920	0.001717	0.003510	0.003139	0.002526	0.002259	0.000940	0.000841	0.002690	0.002406	0.001826	0.001633
53	0.002064	0.001850	0.003741	0.003346	0.002732	0.002448	0.000993	0.000890	0.002797	0.002506	0.002011	0.001799
54	0.002212	0.001987	0.003973	0.003560	0.002965	0.002663	0.001056	0.000948	0.002901	0.002605	0.002211	0.001981
55	0.002789	0.002510	0.004232	0.003800	0.003226	0.002903	0.002035	0.001831	0.003015	0.002713	0.002438	0.002189
56	0.003009	0.002711	0.004496	0.004045	0.003514	0.003165	0.002179	0.001963	0.003139	0.002827	0.002691	0.002422
57	0.003245	0.002926	0.004778	0.004303	0.003837	0.003460	0.002331	0.002102	0.003280	0.002958	0.002972	0.002677
58	0.003507	0.003158	0.005074	0.004575	0.004207	0.003789	0.002502	0.002253	0.003431	0.003090	0.003277	0.002955
59	0.003786	0.003407	0.005386	0.004851	0.004618	0.004156	0.002678	0.002410	0.003618	0.003256	0.003618	0.003259
60	0.004086	0.003673	0.005730	0.005156	0.005080	0.004566	0.002870	0.002580	0.003840	0.003452	0.003990	0.003590
61	0.004418	0.003968	0.006085	0.005470	0.005599	0.005028	0.003087	0.002772	0.004115	0.003696	0.004413	0.003967
62	0.004792	0.004294	0.006469	0.005809	0.006173	0.005532	0.003317	0.002972	0.004442	0.003981	0.004864	0.004368
63	0.005194	0.004640	0.006899	0.006183	0.006806	0.006081	0.003577	0.003196	0.004834	0.004319	0.005361	0.004804
64	0.005658	0.005035	0.007361	0.006577	0.007511	0.006684	0.003865	0.003440	0.005268	0.004688	0.005908	0.005278
65	0.006181	0.005483	0.007886	0.007018	0.008298	0.007362	0.004201	0.003727	0.005774	0.005122	0.006509	0.005792
66	0.006788	0.006010	0.008497	0.007539	0.009175	0.008123	0.004573	0.004049	0.006340	0.005613	0.007166	0.006358
67	0.007483	0.006612	0.009211	0.008155	0.010151	0.008970	0.005007	0.004424	0.006969	0.006158	0.007879	0.006976
68	0.008291	0.007326	0.010036	0.008867	0.011249	0.009940	0.005516	0.004874	0.007690	0.006795	0.008668	0.007659
69	0.009211	0.008139	0.010995	0.009715	0.012480	0.011027	0.006110	0.005399	0.008499	0.007509	0.009554	0.008442
70	0.010271	0.009084	0.012088	0.010680	0.013869	0.012267	0.006811	0.006024	0.009402	0.008316	0.010524	0.009298
71	0.011474	0.010159	0.013333	0.011792	0.015429	0.013661	0.007618	0.006745	0.010417	0.009223	0.011611	0.010270
72	0.012839	0.011379	0.014715	0.013029	0.017164	0.015212	0.008548	0.007575	0.011550	0.010236	0.012806	0.011338
73	0.014387	0.012764	0.016274	0.014424	0.019103	0.016948	0.009620	0.008535	0.012812	0.011367	0.014129	0.012522
74	0.016132	0.014326	0.018005	0.015973	0.021274	0.018893	0.010849	0.009634	0.014219	0.012628	0.015595	0.013835
75	0.018151	0.016168	0.019952	0.017719	0.023759	0.021164	0.012283	0.010941	0.015831	0.014102	0.017215	0.015288
76	0.020448	0.018270	0.022197	0.019773	0.026556	0.023727	0.013929	0.012446	0.017629	0.015751	0.019073	0.016989
77	0.022957	0.020532	0.024731	0.022097	0.029596	0.026470	0.015741	0.014078	0.019587	0.017518	0.021139	0.018887
78	0.025716	0.023000	0.027492	0.024589	0.032940	0.029461	0.017750	0.015875	0.021742	0.019446	0.023353	0.020887
79	0.028802	0.025760	0.030536	0.027311	0.036667	0.032795	0.020012	0.017899	0.024154	0.021603	0.025763	0.023042
80	0.032315	0.028931	0.033941	0.030356	0.040903	0.036620	0.022587	0.020222	0.026932	0.024112	0.028413	0.025412
81	0.036343	0.032604	0.037845	0.033882	0.045720	0.041015	0.025555	0.022925	0.030148	0.027046	0.031408	0.028119
82	0.041087	0.037008	0.042320	0.037965	0.051327	0.046232	0.029040	0.026158	0.033974	0.030602	0.034807	0.031226
83	0.046600	0.042186	0.047585	0.042862	0.057742	0.052274	0.033099	0.029964	0.038453	0.034811	0.038763	0.034915
84	0.053145	0.048454	0.053642	0.048562	0.065278	0.059515	0.037938	0.034589	0.043850	0.039979	0.043309	0.039208
85	0.060491	0.055485	0.060765	0.055400	0.073609	0.067518	0.043400	0.039809	0.049999	0.045862	0.048685	0.044387
86	0.069010	0.063748	0.068630	0.062951	0.083213	0.076868	0.049796	0.045999	0.057290	0.052921	0.054658	0.050135
87	0.078482	0.072938	0.077615	0.071697	0.093818	0.087190	0.056993	0.052967	0.065535	0.060905	0.061608	0.056910
88	0.089176	0.083379	0.087423	0.081247	0.105765	0.098888	0.065230	0.060989	0.074939	0.070067	0.069341	0.064442
89	0.100931	0.094845	0.098309	0.091917	0.118883	0.111715	0.074454	0.069965	0.085301	0.080157	0.078140	0.073060
90	0.114082	0.107744	0.110031	0.103396	0.133606	0.126183	0.084991	0.080269	0.096768	0.091391	0.087892	0.082592
91	0.128646	0.122111	0.122894	0.116066	0.149062	0.141490	0.097030	0.092101	0.109179	0.103632	0.098963	0.093465
92	0.144602	0.137947	0.136853	0.129901	0.164779	0.157196	0.110647	0.105555	0.122464	0.116828	0.111065	0.105423
93	0.161929	0.155255	0.151900	0.144910	0.180609	0.173165	0.125892	0.120703	0.136658	0.131026	0.124071	0.118361
94	0.180575	0.174004	0.168064	0.161137	0.196646	0.189490	0.142746	0.137552	0.151880	0.146353	0.137965	0.132278
95	0.199785	0.193289	0.185388	0.178642	0.212426	0.205519	0.160584	0.155363	0.167684	0.162232	0.152855	0.147292
96	0.219221	0.212732	0.203202	0.196595	0.228113	0.221361	0.179093	0.173792	0.184029	0.178582	0.168302	0.162830
97	0.238507	0.231912	0.221290	0.214741	0.243871	0.237128	0.197869	0.192398	0.200826	0.195273	0.184282	0.178827
98	0.257247	0.250385	0.239421	0.232801	0.259799	0.252869	0.216504	0.210729	0.217894	0.212081	0.200740	0.195190
99	0.275043	0.267706	0.257280	0.250417	0.275782	0.268426	0.234593	0.228335	0.234998	0.228729	0.217530	0.211728
100	0.292665	0.284858	0.274508	0.267186	0.292665	0.284858	0.252735	0.245993	0.252735	0.245993	0.234426	0.228173
101	0.311295	0.303295	0.291874	0.284089	0.311295	0.303295	0.272010	0.265020	0.272010	0.265020	0.252053	0.245329
102	0.328450	0.320009	0.310485	0.302506	0.328450	0.320009	0.290280	0.282820	0.290280	0.282820	0.271303	0.264331
103	0.346647	0.338077	0.327596	0.319177	0.346647	0.338077	0.309741	0.302084	0.309741	0.302084	0.289525	0.282085
104	0.364474	0.355821	0.345780	0.337232	0.364474	0.355821	0.329108	0.321295	0.329108	0.321295	0.308966	0.301329
105	0.381832	0.373141	0.363600	0.354967	0.381832	0.373141	0.348231	0.340304	0.348231	0.340304	0.328319	0.320523
106	0.396794	0.387762	0.380954	0.372282	0.396794	0.387762	0.365276	0.356961	0.365276	0.356961	0.347430	0.339521
107	0.412836	0.403843	0.395882	0.386870	0.412836	0.403843	0.383378	0.375027	0.383378	0.375027	0.364436	0.356140
108	0.428179	0.419272	0.411927	0.402954	0.428179	0.419272	0.400851	0.392512	0.400851	0.392512	0.382535	0.374202
109	0.442791	0.434015	0.427280	0.418391	0.442791	0.434015	0.417625	0.409347	0.417625	0.409347	0.400009	0.391688
110	0.454645	0.446081	0.441905	0.433146	0.454645	0.446081	0.433641	0.425472	0.433641	0.425472	0.416790	0.408529
111	0.453782	0.445233	0.453782	0.445233	0.453782	0.445233	0.446566	0.438154	0.446566	0.438154	0.432817	0.424663
112	0.455285	0.447156	0.452919	0.444387	0.455285	0.447156	0.455285	0.447156	0.455285	0.447156	0.445718	0.437321
113	0.456885	0.449177	0.454466	0.446351	0.456885	0.449177	0.456885	0.449177	0.456885	0.449177	0.454466	0.446351
114	0.458582	0.451297	0.456108	0.448413	0.458582	0.451297	0.458582	0.451297	0.458582	0.451297	0.456108	0.448413
115	0.460377	0.453518	0.457848	0.450575	0.460377	0.453518	0.460377	0.453518	0.460377	0.453518	0.457848	0.450575
116	0.459687	0.452838	0.459687	0.452838	0.459687	0.452838	0.459687	0.452838	0.459687	0.452838	0.459687	0.452838
117	0.458997	0.452158	0.458997	0.452158	0.458997	0.452158	0.458997	0.452158	0.458997	0.452158	0.458997	0.452158
118	0.458309	0.451480	0.458309	0.451480	0.458309	0.451480	0.458309	0.451480	0.458309	0.451480	0.458309	0.451480
119	0.457621	0.450803	0.457621	0.450803	0.457621	0.450803	0.457621	0.450803	0.457621	0.450803	0.457621	0.450803
120	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

Demographic Assumptions *(continued)*

	Beneficiary Mortality				Disabled Retired Mortality			
					Police & Fire	Police & Fire	General Service	General Service
Age	Male		Female		Male	Female	Male	Female
	Pub2010 Retiree, General Employees, Generational w/Social Security Data Scale, 1 year setback		Pub2010 Retiree, General Employees, Generational w/Social Security Data Scale, 0 year setback		Blended 50% Pub2010 Public Safety Disabled Retiree/50% Non-Safety Disabled Retiree, Generational w/Social Security Data Scale, 0 year setback		Pub2010 Non-Safety Disabled Retiree, Generational w/Social Security Data Scale, 2 year setforward	Pub2010 Non-Safety Disabled Retiree, Generational w/Social Security Data Scale, 1 year setforward
Year of Birth	1950	1960	1950	1960	1950	1950	1950	1950
50	0.001537	0.001380	0.002477	0.002220	0.010924	0.009970	0.020327	0.017163
51	0.003289	0.002948	0.002576	0.002304	0.011527	0.010310	0.021201	0.017547
52	0.003510	0.003139	0.002690	0.002406	0.012099	0.010639	0.022015	0.017903
53	0.003741	0.003346	0.002797	0.002506	0.012638	0.010959	0.022761	0.018243
54	0.003973	0.003560	0.002901	0.002605	0.013163	0.011285	0.023435	0.018559
55	0.004232	0.003800	0.003015	0.002713	0.013673	0.011612	0.024011	0.018850
56	0.004496	0.004045	0.003139	0.002827	0.014170	0.011939	0.024556	0.019105
57	0.004778	0.004303	0.003280	0.002958	0.014653	0.012260	0.025061	0.019337
58	0.005074	0.004575	0.003431	0.003090	0.015148	0.012591	0.025569	0.019548
59	0.005386	0.004851	0.003618	0.003256	0.015654	0.012921	0.026119	0.019770
60	0.005730	0.005156	0.003840	0.003452	0.016190	0.013275	0.026770	0.020000
61	0.006085	0.005470	0.004115	0.003696	0.016783	0.013652	0.027538	0.020286
62	0.006469	0.005809	0.004442	0.003981	0.017448	0.014073	0.028409	0.020630
63	0.006899	0.006183	0.004834	0.004319	0.018200	0.014540	0.029366	0.021031
64	0.007361	0.006577	0.005268	0.004688	0.019021	0.015051	0.030412	0.021505
65	0.007886	0.007018	0.005774	0.005122	0.019921	0.015621	0.031518	0.022075
66	0.008497	0.007539	0.006340	0.005613	0.020901	0.016263	0.032718	0.022747
67	0.009211	0.008155	0.006969	0.006158	0.021949	0.016983	0.033984	0.023558
68	0.010036	0.008867	0.007690	0.006795	0.023096	0.017807	0.035361	0.024509
69	0.010995	0.009715	0.008499	0.007509	0.024324	0.018728	0.036862	0.025627
70	0.012088	0.010680	0.009402	0.008316	0.025685	0.019777	0.038500	0.026907
71	0.013333	0.011792	0.010417	0.009223	0.027185	0.020944	0.040316	0.028362
72	0.014715	0.013029	0.011550	0.010236	0.028865	0.022238	0.042321	0.030005
73	0.016274	0.014424	0.012812	0.011367	0.030765	0.023674	0.044672	0.031863
74	0.018005	0.015973	0.014219	0.012628	0.032914	0.025263	0.047293	0.034045
75	0.019952	0.017719	0.015831	0.014102	0.035449	0.027096	0.050082	0.036502
76	0.022197	0.019773	0.017629	0.015751	0.038293	0.029145	0.053089	0.039129
77	0.024731	0.022097	0.019587	0.017518	0.041329	0.031325	0.056429	0.041978
78	0.027492	0.024589	0.021742	0.019446	0.044559	0.033783	0.060215	0.045128
79	0.030536	0.027311	0.024154	0.021603	0.048045	0.036680	0.064508	0.048684
80	0.033941	0.030356	0.026932	0.024112	0.051884	0.039953	0.069490	0.052714
81	0.037845	0.033882	0.030148	0.027046	0.056157	0.043666	0.075132	0.057406
82	0.042320	0.037965	0.033974	0.030602	0.061092	0.047990	0.081682	0.062755
83	0.047585	0.042862	0.038453	0.034811	0.066719	0.052938	0.088665	0.069013
84	0.053642	0.048562	0.043850	0.039979	0.073369	0.058758	0.096538	0.075841
85	0.060765	0.055400	0.049999	0.045862	0.080692	0.065160	0.104953	0.083350
86	0.068630	0.062951	0.057290	0.052921	0.089116	0.072395	0.114216	0.091036
87	0.077615	0.071697	0.065535	0.060905	0.098622	0.080111	0.125638	0.099064
88	0.087423	0.081247	0.074939	0.070067	0.109228	0.088534	0.138491	0.107182
89	0.098309	0.091917	0.085301	0.080157	0.121484	0.097479	0.152000	0.115775
90	0.110031	0.103396	0.096768	0.091391	0.135261	0.107323	0.166052	0.125006
91	0.122894	0.116066	0.109179	0.103632	0.149743	0.118001	0.180697	0.135105
92	0.136853	0.129901	0.122464	0.116828	0.164779	0.129564	0.196085	0.146306
93	0.151900	0.144910	0.136658	0.131026	0.180609	0.142119	0.211764	0.158877
94	0.168064	0.161137	0.151880	0.146353	0.196646	0.155855	0.227763	0.172466
95	0.185388	0.178642	0.167684	0.162232	0.212426	0.170378	0.244073	0.187094
96	0.203202	0.196595	0.184029	0.178582	0.228113	0.185685	0.260591	0.202891
97	0.221290	0.214741	0.200826	0.195273	0.243871	0.201813	0.277088	0.219198
98	0.239421	0.232801	0.217894	0.212081	0.259799	0.218363	0.294251	0.235832
99	0.257280	0.250417	0.234998	0.228729	0.275782	0.235128	0.312920	0.253419
100	0.274508	0.267186	0.252735	0.245993	0.292665	0.252735	0.330164	0.272719
101	0.291874	0.284089	0.272010	0.265020	0.311295	0.272010	0.348387	0.291037
102	0.310485	0.302506	0.290280	0.282820	0.328450	0.290280	0.366230	0.310517
103	0.327596	0.319177	0.309741	0.302084	0.346647	0.309741	0.383595	0.329900
104	0.345780	0.337232	0.329108	0.321295	0.364474	0.329108	0.398626	0.349034
105	0.363600	0.354967	0.348231	0.340304	0.381832	0.348231	0.414658	0.366118
106	0.380954	0.372282	0.365276	0.356961	0.396794	0.365276	0.429983	0.384224
107	0.395882	0.386870	0.383378	0.375027	0.412836	0.383378	0.444568	0.401694
108	0.411927	0.402954	0.400851	0.392512	0.428179	0.400851	0.456378	0.418462
109	0.427280	0.418391	0.417625	0.409347	0.442791	0.417625	0.455511	0.434466
110	0.441905	0.433146	0.433641	0.425472	0.454645	0.433641	0.456929	0.447417
111	0.453782	0.445233	0.446566	0.438154	0.453782	0.446566	0.458442	0.456106
112	0.452919	0.444387	0.455285	0.447156	0.455285	0.455285	0.460053	0.457663
113	0.454466	0.446351	0.456885	0.449177	0.456885	0.456885	0.461761	0.459317
114	0.456108	0.448413	0.458582	0.451297	0.458582	0.458582	0.461069	0.461069
115	0.457848	0.450575	0.460377	0.453518	0.460377	0.460377	0.460377	0.460377
116	0.459687	0.452838	0.459687	0.452838	0.459687	0.459687	0.459687	0.459687
117	0.458997	0.452158	0.458997	0.452158	0.458997	0.458997	0.458997	0.458997
118	0.458309	0.451480	0.458309	0.451480	0.458309	0.458309	1.000000	0.458309
119	0.457621	0.450803	0.457621	0.450803	0.457621	0.457621	1.000000	1.000000
120	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

Demographic Assumptions *(continued)*

Non-Annuitant Mortality												
Age	**School District Male**		**Other General Service Male**		**Police & Fire Male**		**School District Female**		**Other General Service Female**		**Police & Fire Female**	
	125% of Pub2010 Employee, Blended 80% Teachers/20% General Employees, Generational w/Social Security Data Scale, 0 year setback		115% of Pub2010 Employee, General Employees, Generational w/Social Security Data Scale, 1 year setback		125% of Pub2010 Employee, Public Safety, Generational w/Social Security Data Scale, 0 year setback		100% Pub2010 Employee, Teachers, Generational w/Social Security Data Scale, 0 year setback		125% of Pub2010 Employee, General Employees, Generational w/Social Security Data Scale, 0 year setback		100% of Pub2010 Employee, Public Safety, Generational w/Social Security Data Scale, 1 year setback	
Year of Birth	**1950**	**1960**	**1950**	**1960**	**1950**	**1960**	**1950**	**1960**	**1950**	**1960**	**1950**	**1960**
30	0.000335	0.000327	0.000421	0.000411	0.000554	0.000540	0.000151	0.000147	0.000203	0.000198	0.000269	0.000263
31	0.000363	0.000353	0.000446	0.000435	0.000569	0.000554	0.000163	0.000158	0.000217	0.000211	0.000291	0.000284
32	0.000380	0.000369	0.000473	0.000460	0.000583	0.000566	0.000174	0.000169	0.000244	0.000237	0.000303	0.000294
33	0.000408	0.000395	0.000498	0.000483	0.000598	0.000580	0.000185	0.000179	0.000258	0.000250	0.000324	0.000315
34	0.000426	0.000412	0.000524	0.000508	0.000615	0.000594	0.000208	0.000201	0.000287	0.000277	0.000347	0.000336
35	0.000457	0.000441	0.000551	0.000533	0.000643	0.000620	0.000219	0.000211	0.000315	0.000303	0.000370	0.000358
36	0.000490	0.000471	0.000589	0.000568	0.000674	0.000648	0.000242	0.000233	0.000344	0.000331	0.000393	0.000379
37	0.000525	0.000502	0.000631	0.000606	0.000695	0.000664	0.000267	0.000255	0.000389	0.000372	0.000417	0.000400
38	0.000576	0.000546	0.000675	0.000644	0.000745	0.000706	0.000292	0.000277	0.000422	0.000400	0.000454	0.000433
39	0.000617	0.000580	0.000733	0.000695	0.000796	0.000749	0.000330	0.000310	0.000469	0.000441	0.000481	0.000456
40	0.000672	0.000627	0.000793	0.000746	0.000847	0.000790	0.000356	0.000332	0.000517	0.000482	0.000520	0.000489
41	0.000738	0.000683	0.000866	0.000808	0.000898	0.000831	0.000394	0.000364	0.000579	0.000536	0.000559	0.000522
42	0.000805	0.000740	0.000938	0.000869	0.000973	0.000895	0.000430	0.000396	0.000625	0.000575	0.000598	0.000553
43	0.000880	0.000806	0.001020	0.000939	0.001031	0.000944	0.000476	0.000436	0.000683	0.000625	0.000645	0.000594
44	0.000958	0.000873	0.001100	0.001006	0.001103	0.001005	0.000511	0.000465	0.000740	0.000674	0.000680	0.000622
45	0.001057	0.000960	0.001191	0.001084	0.001185	0.001076	0.000555	0.000504	0.000809	0.000735	0.000725	0.000660
46	0.001160	0.001049	0.001290	0.001171	0.001266	0.001145	0.000610	0.000552	0.000878	0.000794	0.000767	0.000696
47	0.001270	0.001145	0.001402	0.001268	0.001359	0.001225	0.000664	0.000598	0.000944	0.000851	0.000809	0.000732
48	0.001393	0.001254	0.001510	0.001362	0.001447	0.001302	0.000715	0.000643	0.001007	0.000906	0.000861	0.000776
49	0.001514	0.001360	0.001640	0.001476	0.001562	0.001403	0.000765	0.000687	0.001083	0.000973	0.000898	0.000808
50	0.001654	0.001483	0.001767	0.001587	0.001674	0.001500	0.000815	0.000730	0.001158	0.001038	0.000947	0.000850
51	0.001797	0.001607	0.001891	0.001695	0.001783	0.001595	0.000873	0.000781	0.001244	0.001113	0.001004	0.000900
52	0.001933	0.001728	0.002037	0.001822	0.001913	0.001711	0.000940	0.000841	0.001326	0.001186	0.001061	0.000949
53	0.002087	0.001870	0.002176	0.001946	0.002038	0.001826	0.000993	0.000890	0.001417	0.001270	0.001114	0.000996
54	0.002237	0.002009	0.002321	0.002080	0.002160	0.001940	0.001056	0.000948	0.001507	0.001353	0.001164	0.001043
55	0.002390	0.002151	0.002464	0.002212	0.002306	0.002075	0.001128	0.001015	0.001621	0.001458	0.001224	0.001099
56	0.002565	0.002310	0.002627	0.002364	0.002476	0.002231	0.001199	0.001080	0.001733	0.001561	0.001283	0.001155
57	0.002752	0.002481	0.002800	0.002522	0.002643	0.002383	0.001279	0.001153	0.001857	0.001674	0.001352	0.001218
58	0.002959	0.002665	0.002994	0.002699	0.002846	0.002564	0.001379	0.001242	0.001991	0.001794	0.001429	0.001289
59	0.003183	0.002865	0.003196	0.002879	0.003070	0.002762	0.001486	0.001337	0.002148	0.001932	0.001496	0.001347
60	0.003438	0.003090	0.003404	0.003063	0.003300	0.002966	0.001610	0.001447	0.002325	0.002090	0.001580	0.001422
61	0.003730	0.003349	0.003630	0.003263	0.003561	0.003198	0.001751	0.001572	0.002510	0.002254	0.001662	0.001494
62	0.004048	0.003628	0.003872	0.003477	0.003852	0.003452	0.001918	0.001718	0.002715	0.002433	0.001742	0.001564
63	0.004392	0.003924	0.004129	0.003700	0.004157	0.003714	0.002098	0.001874	0.002949	0.002635	0.001839	0.001648
64	0.004774	0.004249	0.004408	0.003939	0.004474	0.003981	0.002310	0.002055	0.003209	0.002856	0.001931	0.001725
65	0.005199	0.004613	0.004697	0.004180	0.004827	0.004283	0.002543	0.002256	0.003485	0.003092	0.002028	0.001805
66	0.005647	0.005000	0.005009	0.004444	0.005403	0.004784	0.002807	0.002486	0.003800	0.003364	0.002122	0.001883
67	0.006135	0.005421	0.005344	0.004731	0.006029	0.005327	0.003100	0.002739	0.004149	0.003666	0.002406	0.002130
68	0.006662	0.005886	0.005708	0.005043	0.006759	0.005972	0.003442	0.003041	0.004529	0.004001	0.002717	0.002401
69	0.007233	0.006391	0.006111	0.005400	0.007559	0.006679	0.003838	0.003391	0.004943	0.004367	0.003086	0.002727
70	0.007825	0.006922	0.006564	0.005800	0.008469	0.007491	0.004290	0.003794	0.005406	0.004782	0.003499	0.003092
71	0.008447	0.007479	0.007063	0.006247	0.009490	0.008402	0.004811	0.004259	0.005915	0.005237	0.003967	0.003508
72	0.009103	0.008068	0.007622	0.006748	0.010641	0.009431	0.005407	0.004792	0.006467	0.005731	0.004502	0.003986
73	0.009798	0.008692	0.008227	0.007292	0.011929	0.010583	0.006077	0.005391	0.007072	0.006274	0.005111	0.004530
74	0.010529	0.009351	0.008899	0.007895	0.013370	0.011874	0.006851	0.006085	0.007738	0.006872	0.005801	0.005147
75	0.011358	0.010117	0.009634	0.008556	0.015049	0.013405	0.007743	0.006897	0.008491	0.007564	0.006586	0.005849
76	0.012810	0.011446	0.010475	0.009330	0.016932	0.015128	0.008819	0.007879	0.009322	0.008329	0.007504	0.006685
77	0.014415	0.012893	0.011395	0.010181	0.019004	0.016997	0.010017	0.008959	0.010195	0.009118	0.008555	0.007643
78	0.016204	0.014493	0.012370	0.011063	0.021298	0.019049	0.011362	0.010162	0.011145	0.009968	0.009726	0.008699
79	0.018220	0.016296	0.013395	0.011981	0.023873	0.021351	0.012878	0.011518	0.012174	0.010888	0.011041	0.009875
80	0.020539	0.018389	0.014516	0.012983	0.026802	0.023995	0.014636	0.013104	0.013326	0.011930	0.012527	0.011204

Demographic Assumptions *(continued)*

Mortality Improvement Scale

Unisex Social Security Data Mortality Projection Scale

Based on 60-year average of experience through 2019

Age	Improvement Rate	Age	Improvement Rate	Age	Improvement Rate
15	1.35%	50	1.09%	85	0.86%
16	1.26%	51	1.11%	86	0.79%
17	1.16%	52	1.11%	87	0.73%
18	1.03%	53	1.09%	88	0.67%
19	0.90%	54	1.07%	89	0.62%
20	0.78%	55	1.05%	90	0.57%
21	0.69%	56	1.04%	91	0.52%
22	0.61%	57	1.03%	92	0.47%
23	0.53%	58	1.04%	93	0.42%
24	0.46%	59	1.05%	94	0.37%
25	0.39%	60	1.06%	95	0.33%
26	0.33%	61	1.07%	96	0.30%
27	0.28%	62	1.09%	97	0.28%
28	0.26%	63	1.12%	98	0.27%
29	0.25%	64	1.16%	99	0.27%
30	0.26%	65	1.19%	100	0.27%
31	0.28%	66	1.21%	101	0.26%
32	0.29%	67	1.23%	102	0.26%
33	0.31%	68	1.23%	103	0.25%
34	0.34%	69	1.23%	104	0.24%
35	0.36%	70	1.22%	105	0.23%
36	0.40%	71	1.21%	106	0.23%
37	0.46%	72	1.20%	107	0.22%
38	0.53%	73	1.19%	108	0.21%
39	0.61%	74	1.18%	109	0.20%
40	0.69%	75	1.15%	110	0.19%
41	0.77%	76	1.12%	111	0.19%
42	0.83%	77	1.11%	112	0.18%
43	0.88%	78	1.11%	113	0.17%
44	0.93%	79	1.11%	114	0.16%
45	0.96%	80	1.10%	115	0.15%
46	1.00%	81	1.08%	116	0.15%
47	1.03%	82	1.04%	117	0.15%
48	1.05%	83	0.99%	118	0.15%
49	1.07%	84	0.92%	119	0.15%

Demographic Assumptions *(continued)*

Retirement Assumptions

Retirement from Active Status (Tier One/Tier Two)

	Police & Fire			General Service / School Districts						Judges
				General Service			School Districts			
Age	<13 Years	13 - 24	25+ Years	< 15 years	15-29 Years	30+ Years	< 15 years	15-29 Years	30+ Years	
< 50						15.0%			25.0%	
50	1.5%	3.5%	38.0%			15.0%			25.0%	
51	1.5%	3.5%	28.0%			15.0%			25.0%	
52	1.5%	3.5%	28.0%			15.0%			25.0%	
53	1.5%	3.5%	28.0%			15.0%			32.0%	
54	1.5%	3.5%	28.0%			15.0%			25.0%	
55	3.0%	20.0%	28.0%	1.5%	2.5%	15.0%	1.5%	3.5%	25.0%	
56	3.0%	12.0%	28.0%	1.5%	2.5%	15.0%	1.5%	3.5%	25.0%	
57	3.0%	12.0%	28.0%	1.5%	2.5%	15.0%	1.5%	3.5%	25.0%	
58	6.0%	12.0%	28.0%	1.5%	8.0%	21.0%	1.5%	11.0%	27.5%	
59	6.0%	12.0%	28.0%	3.5%	8.0%	21.0%	4.5%	11.0%	27.5%	
60	6.0%	13.0%	32.0%	6.0%	12.0%	21.0%	6.5%	14.5%	27.5%	15.0%
61	6.0%	14.0%	28.0%	6.0%	11.0%	21.0%	6.5%	14.5%	27.5%	15.0%
62	15.0%	25.0%	38.0%	13.0%	18.5%	28.5%	15.0%	21.0%	34.0%	15.0%
63	15.0%	15.0%	31.0%	11.5%	16.5%	23.0%	13.0%	19.5%	29.0%	15.0%
64	15.0%	15.0%	31.0%	12.5%	16.5%	23.0%	13.0%	19.5%	29.0%	15.0%
65	40.0%	40.0%	45.0%	19.5%	28.0%	37.5%	25.5%	34.5%	45.0%	15.0%
66	40.0%	40.0%	45.0%	27.5%	36.0%	40.5%	23.0%	36.5%	45.0%	15.0%
67	40.0%	40.0%	45.0%	22.5%	26.5%	34.0%	21.0%	34.5%	38.0%	20.0%
68	40.0%	40.0%	45.0%	19.5%	26.5%	28.5%	21.0%	30.0%	28.5%	20.0%
69	40.0%	40.0%	45.0%	19.5%	26.5%	28.5%	21.0%	30.0%	28.5%	20.0%
70	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	30.0%	28.5%	30.0%
71	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	30.0%	28.5%	30.0%
72	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	30.0%	28.5%	30.0%
73	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	30.0%	28.5%	30.0%
74	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	30.0%	28.5%	30.0%
75 +	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Lump Sum Option at Retirement

Partial Lump Sum	0%
Total Lump Sum	0%

Purchase of Credited Service at Retirement

Money Match Retirements	0%
Non-Money Match Retirements	75%

Oregon Residency Status

For purposes of determining eligibility for SB 656/HB 3349 “tax remedy” benefit adjustments, 85% of potentially eligible retirees are assumed to remain Oregon residents after retirement.

Demographic Assumptions *(continued)*

Retirement from Active Status (OPSRP)

	Police & Fire			General Service / School Districts					
				General Service			School Districts		
Age	<13 Years	13 - 24	25+ Years	< 15 years	15-29 Years	30+ Years	< 15 years	15-29 Years	30+ Years
50	0.50%	1.50%	5.50%						
51	0.50%	1.50%	5.50%						
52	0.50%	1.50%	5.50%						
53	0.50%	1.50%	28.00%						
54	0.50%	1.50%	28.00%						
55	2.00%	5.00%	28.00%	1.00%	2.50%	5.00%	0.50%	2.50%	5.00%
56	2.00%	5.00%	28.00%	1.00%	2.50%	5.00%	0.50%	2.50%	5.00%
57	2.00%	5.00%	28.00%	1.00%	2.50%	7.50%	1.00%	2.50%	7.50%
58	5.00%	5.00%	28.00%	1.50%	3.00%	30.00%	1.50%	3.00%	30.00%
59	5.00%	5.00%	28.00%	2.00%	3.00%	25.00%	1.50%	3.00%	25.00%
60	5.00%	15.00%	32.00%	2.50%	3.75%	20.00%	2.50%	3.75%	20.00%
61	5.00%	8.50%	28.00%	2.50%	5.00%	20.00%	2.50%	5.00%	20.00%
62	10.00%	25.00%	38.00%	6.50%	12.00%	30.00%	6.00%	12.00%	30.00%
63	10.00%	15.00%	31.00%	6.50%	10.00%	20.00%	6.00%	10.00%	20.00%
64	10.00%	15.00%	31.00%	6.50%	10.00%	20.00%	6.00%	10.00%	20.00%
65	20.00%	35.00%	40.00%	15.50%	35.00%	20.00%	12.50%	35.00%	20.00%
66	20.00%	35.00%	40.00%	18.50%	33.00%	20.00%	12.50%	33.00%	20.00%
67	20.00%	35.00%	40.00%	17.00%	22.00%	30.00%	11.00%	22.00%	30.00%
68	20.00%	35.00%	40.00%	14.00%	20.00%	25.00%	9.00%	20.00%	25.00%
69	20.00%	35.00%	40.00%	14.00%	20.00%	25.00%	9.00%	20.00%	25.00%
70	100.00%	100.00%	100.00%	14.00%	20.00%	25.00%	9.00%	20.00%	25.00%
71	100.00%	100.00%	100.00%	14.00%	20.00%	25.00%	9.00%	20.00%	25.00%
72	100.00%	100.00%	100.00%	14.00%	20.00%	25.00%	9.00%	20.00%	25.00%
73	100.00%	100.00%	100.00%	14.00%	20.00%	25.00%	9.00%	20.00%	25.00%
74	100.00%	100.00%	100.00%	14.00%	20.00%	25.00%	9.00%	20.00%	25.00%
75 +	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Disability Assumptions

	Duty Disability		
Age	Police & Fire	General Service	Ordinary Disability
20	0.0075%	0.0002%	0.0060%
25	0.0108%	0.0003%	0.0086%
30	0.0160%	0.0004%	0.0128%
35	0.0245%	0.0006%	0.0196%
40	0.0395%	0.0009%	0.0316%
45	0.0648%	0.0016%	0.0518%
50	0.1120%	0.0027%	0.0896%
55	0.2113%	0.0051%	0.1400%
60	-	0.0072%	0.1400%
65	-	-	-

Demographic Assumptions *(continued)*

Termination Assumptions

Termination Assumptions

Duration	School District Male	School District Female	General Service Male	General Service Female	Police & Fire
0	16.63%	13.50%	15.00%	15.00%	10.00%
1	14.25%	13.00%	12.50%	14.00%	7.00%
2	11.50%	11.50%	10.46%	11.50%	6.00%
3	9.50%	10.00%	9.23%	8.74%	5.38%
4	7.93%	8.89%	8.15%	7.95%	4.69%
5	6.86%	7.91%	7.19%	7.23%	4.32%
6	5.93%	7.03%	6.35%	6.57%	3.98%
7	5.12%	6.25%	5.60%	5.98%	3.67%
8	4.43%	5.56%	4.94%	5.44%	3.38%
9	3.82%	4.94%	4.42%	5.09%	3.11%
10	3.31%	4.43%	4.13%	4.77%	2.87%
11	3.04%	3.92%	3.85%	4.47%	2.64%
12	2.84%	3.72%	3.60%	4.18%	2.43%
13	2.65%	3.53%	3.36%	3.92%	2.24%
14	2.47%	3.34%	3.13%	3.67%	2.07%
15	2.30%	3.17%	2.93%	3.43%	1.90%
16	2.15%	3.00%	2.73%	3.22%	1.75%
17	2.00%	2.85%	2.55%	3.01%	1.62%
18	1.87%	2.70%	2.38%	2.82%	1.49%
19	1.74%	2.56%	2.22%	2.64%	1.37%
20	1.62%	2.43%	2.08%	2.47%	1.26%
21	1.52%	2.30%	1.94%	2.32%	1.16%
22	1.41%	2.18%	1.81%	2.17%	1.07%
23	1.32%	2.07%	1.69%	2.03%	0.90%
24	1.23%	1.96%	1.58%	1.90%	0.90%
25	1.20%	1.75%	1.47%	1.78%	0.90%
26	1.20%	1.75%	1.40%	1.67%	0.90%
27	1.20%	1.75%	1.40%	1.56%	0.90%
28	1.20%	1.75%	1.40%	1.46%	0.90%
29	1.20%	1.75%	1.40%	1.40%	0.90%
30 +	1.20%	1.75%	1.40%	1.40%	0.90%

Demographic Assumptions *(continued)*

Merit Salary Increase Assumptions

Duration	School District	Other General Service	Police & Fire
0	5.54%	4.77%	6.12%
1	5.23%	4.39%	5.46%
2	4.92%	4.03%	4.85%
3	4.61%	3.70%	4.31%
4	4.31%	3.39%	3.82%
5	4.02%	3.10%	3.38%
6	3.73%	2.82%	3.00%
7	3.45%	2.57%	2.66%
8	3.18%	2.34%	2.37%
9	2.92%	2.13%	2.12%
10	2.66%	1.93%	1.91%
11	2.42%	1.75%	1.73%
12	2.18%	1.58%	1.58%
13	1.95%	1.43%	1.47%
14	1.73%	1.30%	1.37%
15	1.53%	1.17%	1.30%
16	1.33%	1.06%	1.25%
17	1.15%	0.96%	1.22%
18	0.98%	0.87%	1.20%
19	0.82%	0.80%	1.19%
20	0.68%	0.73%	1.18%
21	0.55%	0.67%	1.18%
22	0.43%	0.61%	1.18%
23	0.33%	0.57%	1.18%
24	0.24%	0.53%	1.17%
25	0.17%	0.50%	1.15%
26	0.12%	0.47%	1.11%
27	0.08%	0.44%	1.07%
28	0.06%	0.42%	1.00%
29	0.06%	0.40%	0.91%
30 +	0.06%	0.38%	0.80%

An across-the-board select assumption of an additional 2.0% of pay will be added to the merit salary increases shown in the table for pay increases from 2023 to 2024 and 2024 to 2025.

Demographic Assumptions *(continued)*

Unused Sick Leave Adjustment

Actives	
• State General Service Male	8.75%
• State General Service Female	5.25%
• School District Male	9.75%
• School District Female	6.50%
• Local General Service Male	6.50%
• Local General Service Female	4.50%
• State Police & Fire	4.75%
• Local Police & Fire	7.25%
Dormants	5.00%

Unused Vacation Cash Out Adjustment

Tier One	
• State General Service	2.50%
• School District	0.25%
• Local General Service	3.50%
• State Police & Fire	3.00%
• Local Police & Fire	4.25%
Tier Two	0.00%

Retiree Healthcare Assumptions

Retiree Healthcare Participation

RHIPA	
• 8 – 9 years of service	10.0%
• 10 – 14 years of service	10.0%
• 15 – 19 years of service	11.0%
• 20 – 24 years of service	12.0%
• 25 – 29 years of service	20.0%
• 30+ years of service	25.0%
RHIA	
• Non-Disabled Retired	25.0%
• Disabled Retired	15.0%

RHIPA Subsidy Cost Trend Rates

Year	Rate
2023	6.60%
2024	7.00%
2025	6.40%
2026	5.70%
2027	5.10%
2028	4.90%
2029	4.80%
2030	4.60%
2031	4.40%
2032-2054	4.20%
2055-2064	4.30%
2065-2066	4.20%
2067-2068	4.10%
2069-2070	4.00%
2071-2073	3.90%
2074+	3.80%

Appendix F – Financial Modeling

FINANCIAL MODELING

EMPLOYEES RETIREMENT SYSTEM

Introduction

- July: Board adopted updated valuation methods and assumptions, including updated salary increase assumption and maintaining 6.90% rate of return
- September: Milliman presented system-average results from the advisory December 31, 2022 valuation
  - December 31, 2023 actuarial valuation will develop rates for July 2025 – June 2027
- **Today: Long-term financial modeling projections reflecting published investment results through September 30**
  - System average contribution rates
  - System funded status
  - System unfunded actuarial liability (UAL)

Models and Inputs

- System financials are projected using two different models
  - Steady return model – consistent year-to-year future investment returns
  - Variable return model – future investment returns vary from year to year
- Modeling starts with liabilities and actuarial assumptions from the 12/31/2022 system-wide actuarial valuation report
  - This includes the current Board-adopted 6.90% return assumption for valuing liabilities
- Modeling uses 12/31/2022 assets adjusted for **published regular account returns of +2.65% through September 2023**
  - Returns for October through December 2023 vary in our models based on scenario

Financial Modeling

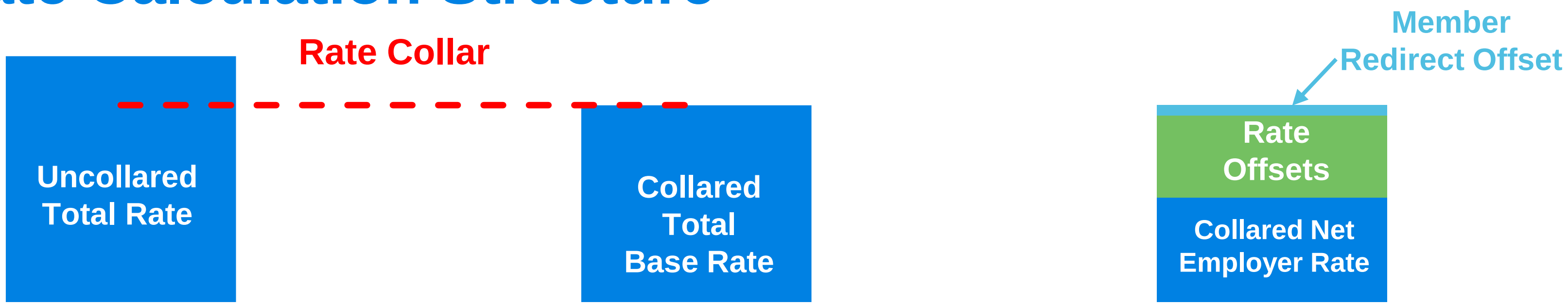
Comments on System Average Rates

- Projections depict **system average** funded status and employer contribution rates
- Rates shown in this presentation are "employer" rates
  - Redirected member contributions serve as an offset to "total" rate
- No single employer pays the system average rate
  - Contribution rates vary both by experience pooling group, employer, and type of payroll
- In most scenarios, average base employer rates for the 2025-2027 biennium are projected to increase due to investment losses in 2022 and underperformance so far during 2023
  - Actual outcome will vary by rate pool and employer
- Rates shown do <u>not</u> include:
  - Contribution rates for the Individual Account Plan (IAP)
  - Employer contribution rates for the RHIA & RHIPA retiree healthcare programs
  - Debt service payments on employer-specific pension obligation bonds

Rate Collaring

- In the December 31, 2021 rate-setting valuation, the rate collar held the UAL rate constant (above the uncollared UAL rate) for 2023-2025 contribution rates for the large rate pools and for most independent employers
  - This provides a partial buffer against potential poor investment returns during the 2022 and 2023 calendar years and reduces the biennium-to-biennium increase in contribution rates resulting from any underperformance

Overview of Rate Calculation Structure

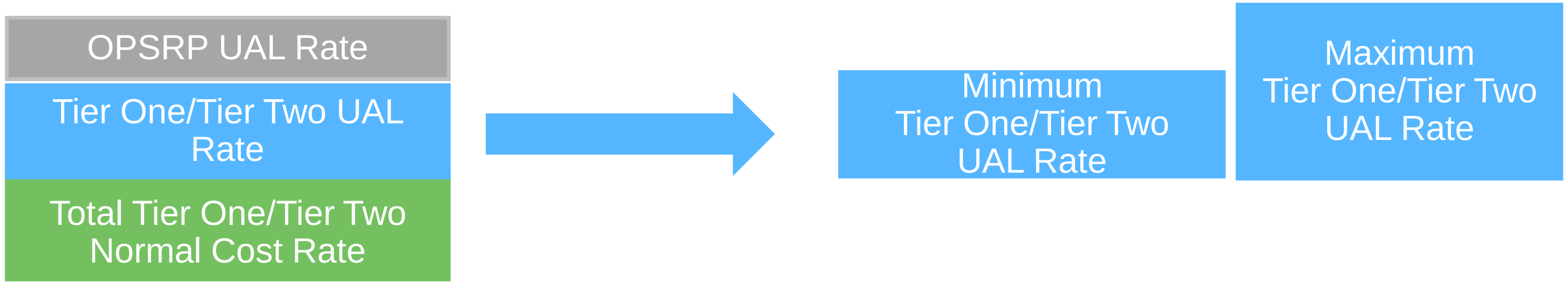


- The ***uncollared total rate*** is the theoretical contribution rate to reach 100% funded status over a specified amortization period if:
  - Contributions at that rate started on the actuarial valuation date, and
  - Actual future experience mirrors the actuarial valuation's assumptions, and
  - The normal cost rate does not change in subsequent years
- The rate collar sets a biennium's ***collared total base rate***, limiting the base rate change for a single biennium when there is a large change in the uncollared rate
- ***Member redirect offset*** reflects estimated portion of collared total base rate paid by redirected member contributions
- Employers pay the ***collared net employer rate***, which reflects the member redirect offset and any rate offset adjustments from:
  - Side account rate offsets for employers with side accounts
  - SLGRP charges/offsets (e.g., Transition Liability/Surplus)

Rate Collar Design

- Rate collar focuses on the biennium-to-biennium change in the UAL Rate component
  - Normal Cost Rate component is always paid in full and is not subject to a rate collar limitation
- The maximum biennium-to-biennium change in UAL Rate permitted by the rate collar is:
  - **SLGRP and School District Pools Tier One/Tier Two UAL Rates**: 3% of pay
  - **OPSRP UAL rate**: 1% of pay
  - **Tier One/Tier Two UAL Rates of Independent Employers**: greater of 4% of pay or 1/3rd of the difference between the collared and uncollared Tier One/Tier Two UAL Rates at the last rate-setting valuation
- UAL Rate is not allowed to decrease at all unless funded status excluding side accounts is at least 87%, and a full collar width decrease is not allowed unless funded status is at least 90%

Illustration of Rate Collar for Tier One/Tier Two UAL Rate (funded status <87%)



Pension Rate in Current Biennium

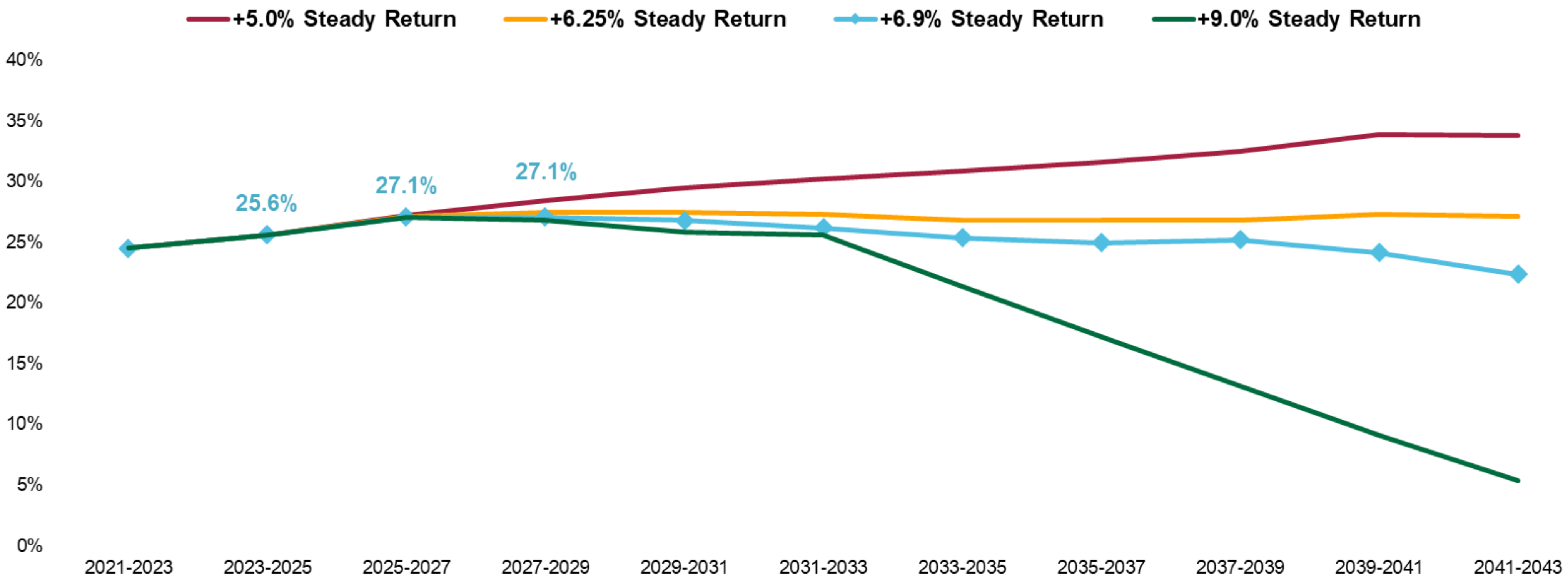
Potential Pension Rate in Next Biennium

Steady Return Model

Steady Return Model

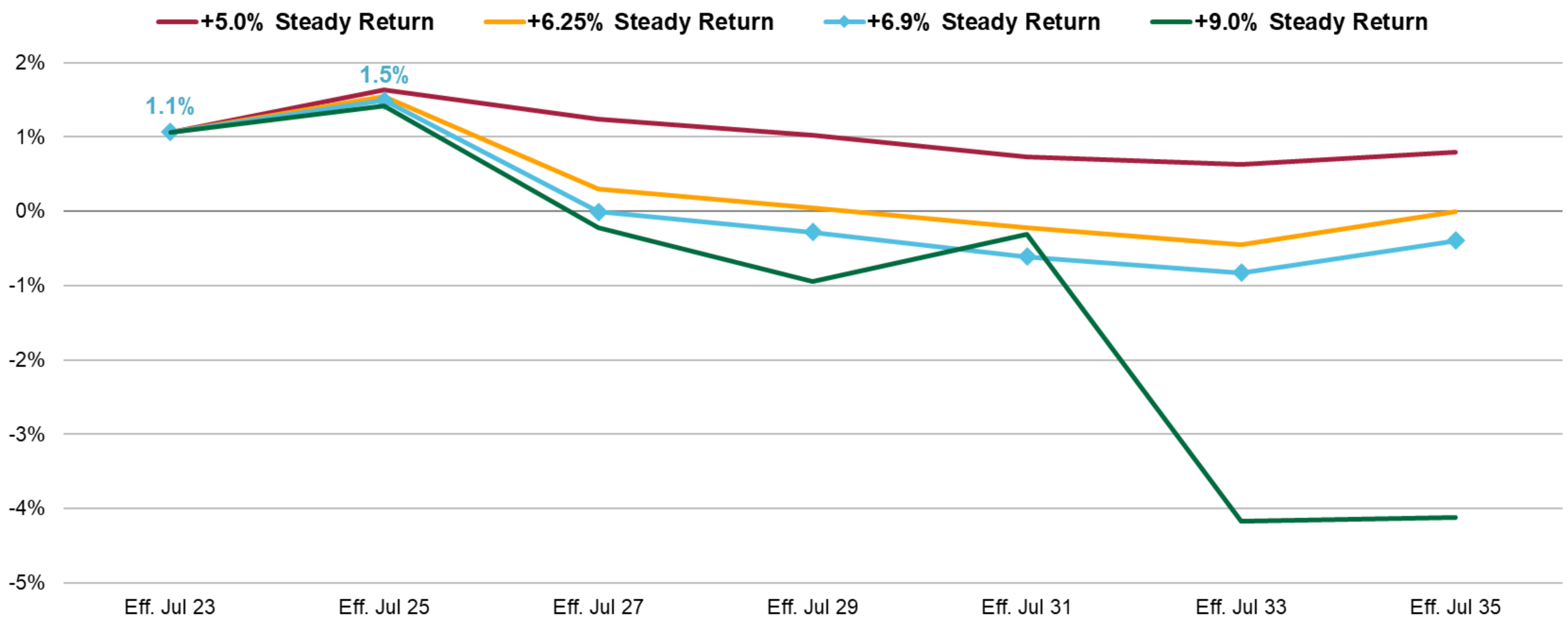
- The next four slides show financial projections under the current rate setting structure
  - Employer rates adjust each biennium, with changes limited by the rate collar
- Four scenarios for **steady annual actual future investment** return are shown
  - **+5.0%; +6.25%; +6.9%; +9.0%**
- While actual future returns won't be steady year-to-year, the steady return model clearly illustrates the financial dynamics
  - More realistic "noisy" future returns will be shown in the variable return model later in this presentation
  - The effects of near-term and/or long-term future annualized returns worse than +5.0% are captured in the variable return model
- Model incorporates published returns through September 2023 of 2.65%

Employer Collared Base Pension Rates (System Average)



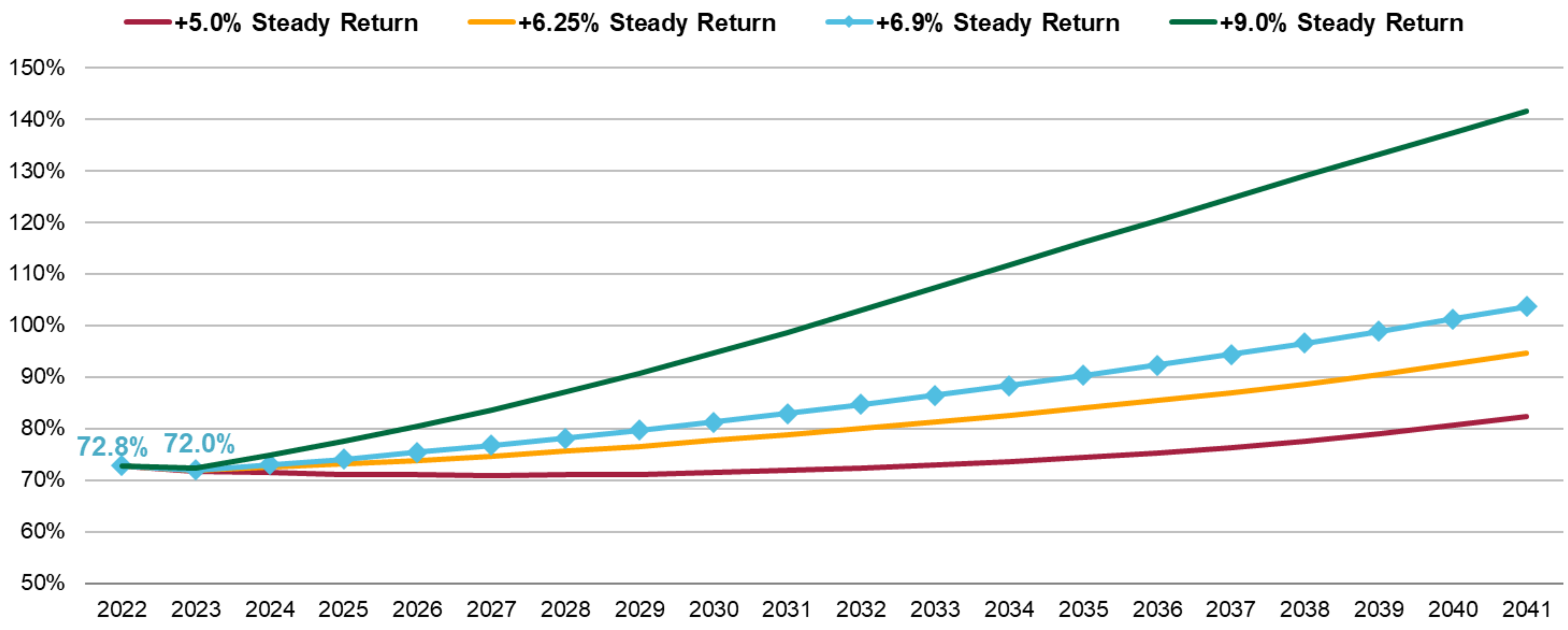
- System average employer collared base pension rates in 2025-27 are projected to increase from 2023-25 rates due to asset underperformance in 2022 and so far in 2023, along with updated salary assumptions
- Blue line: rates decrease as new OPSRP members replace exiting Tier One / Tier Two members
- Final 2025-27 rates will be based on asset returns through December 31, 2023

Biennial Change in Employer Collared Base Rate (System Average)



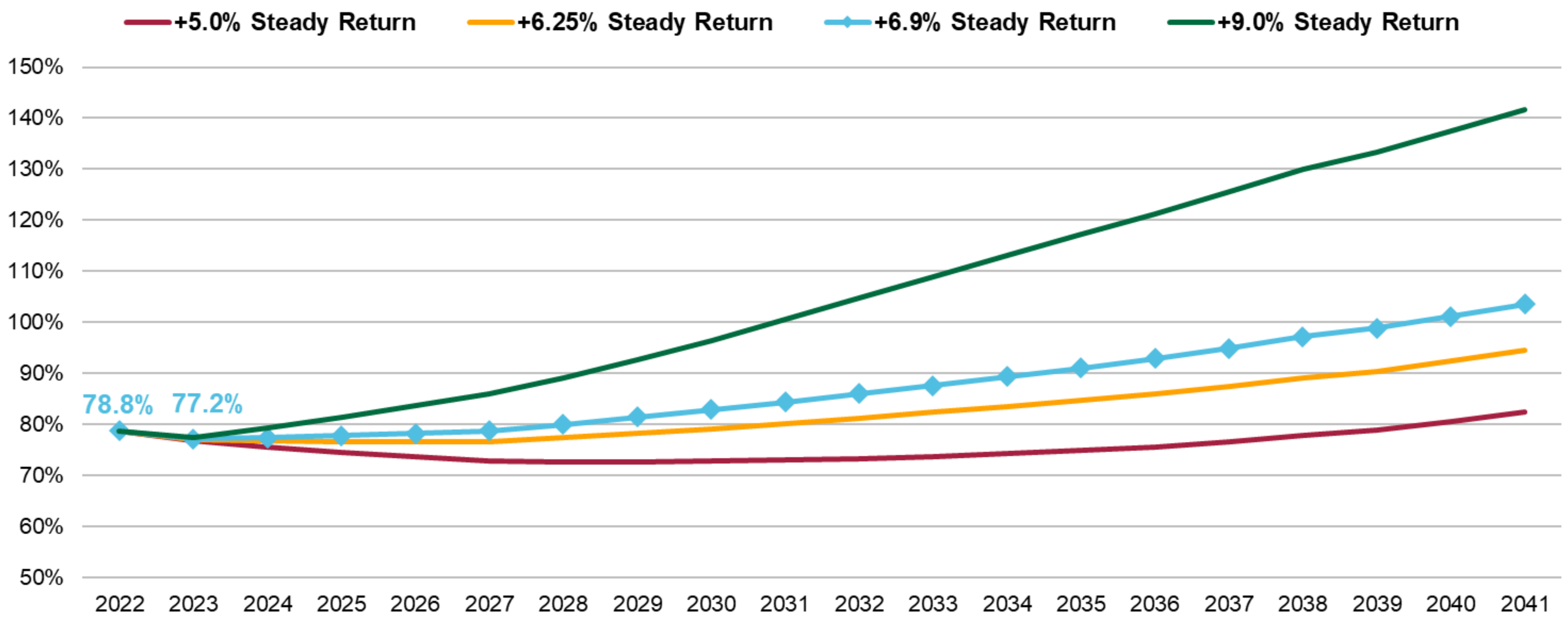
Milliman

System Funded Status (Excluding Side Accounts)



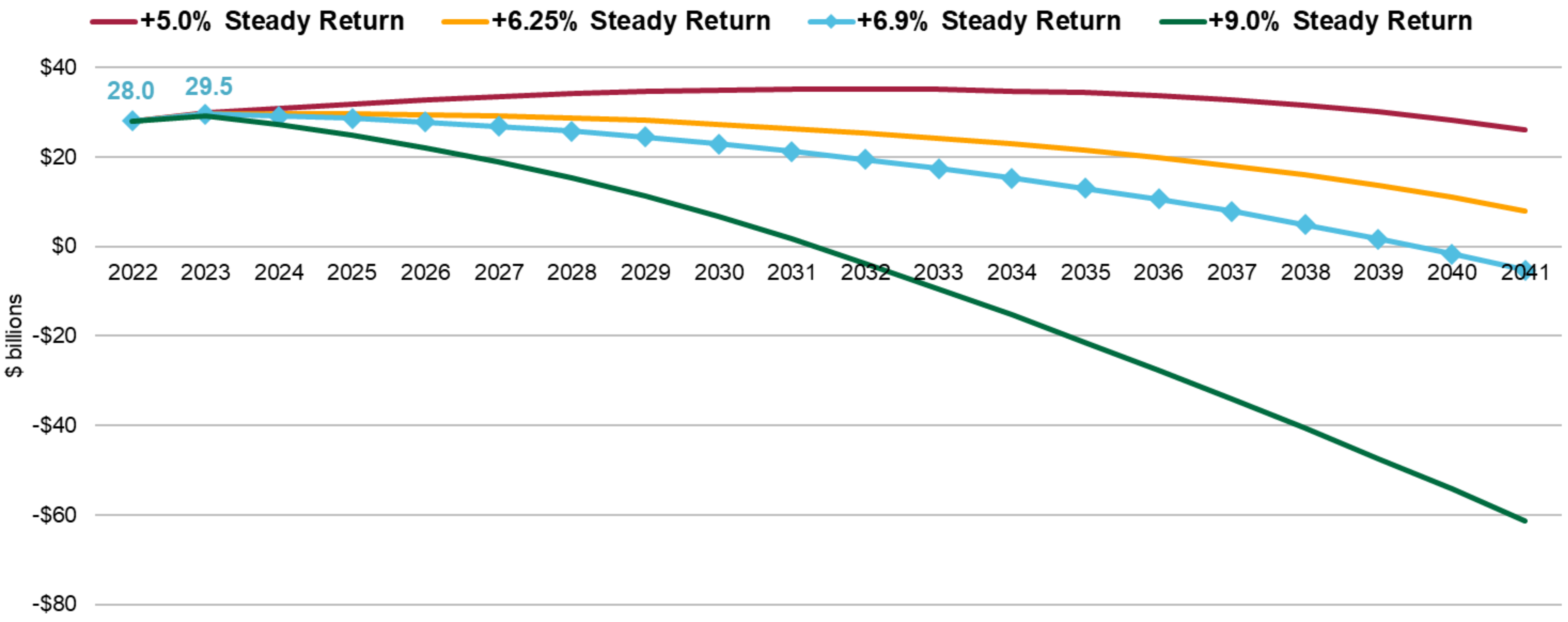
- 2023 funded status decreases due to estimated year-end 2023 investment returns
- In steady +6.9% return scenario, funded status projected to reach 100% in 2040

System Funded Status (Including Side Accounts)



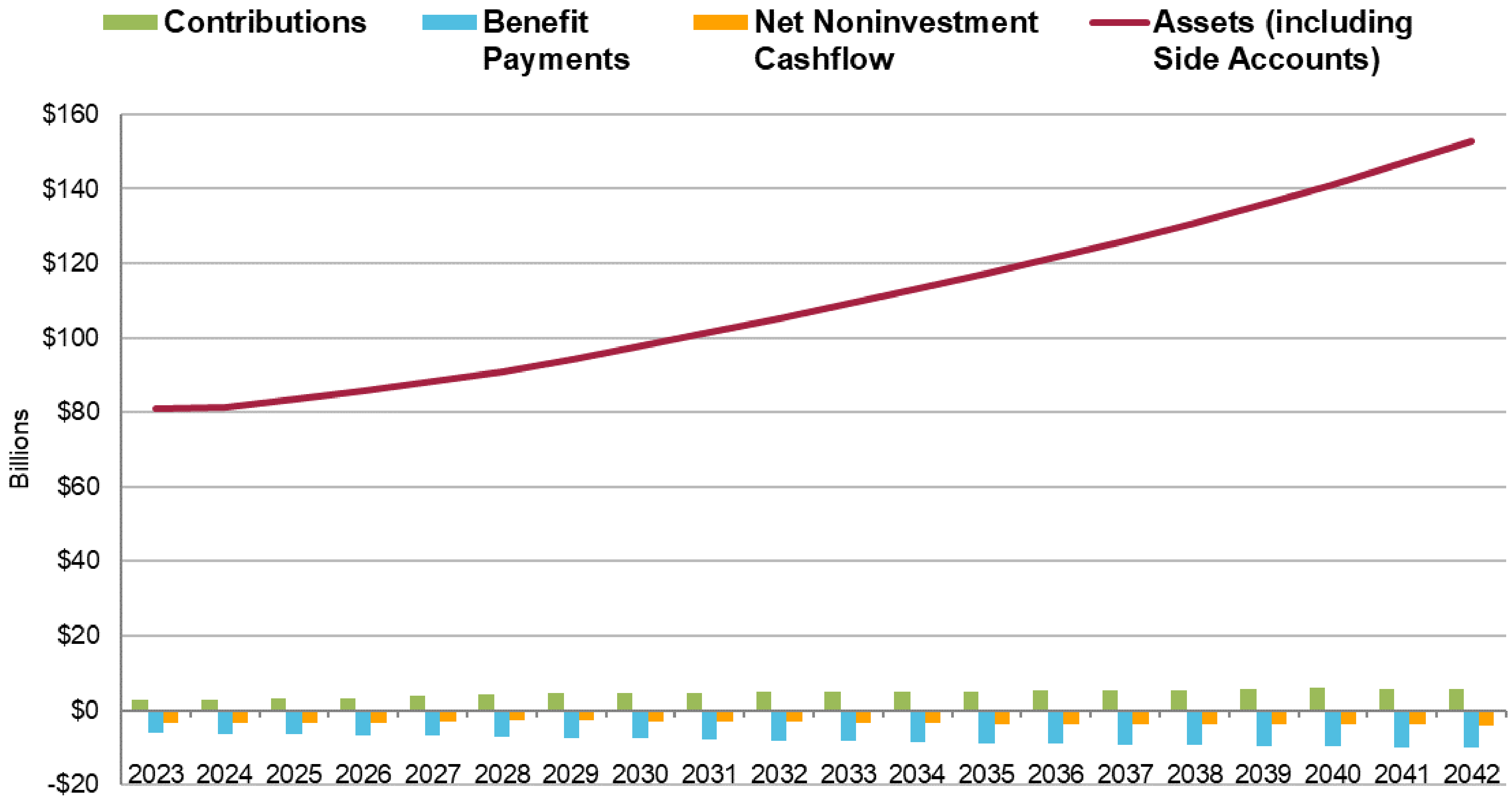
- 2023 funded status decreases due to estimated year-end 2023 investment returns
- In steady +6.9% return scenario, funded status projected to reach 100% in 2040

UAL (Unfunded Actuarial Liability) Excluding Side Accounts

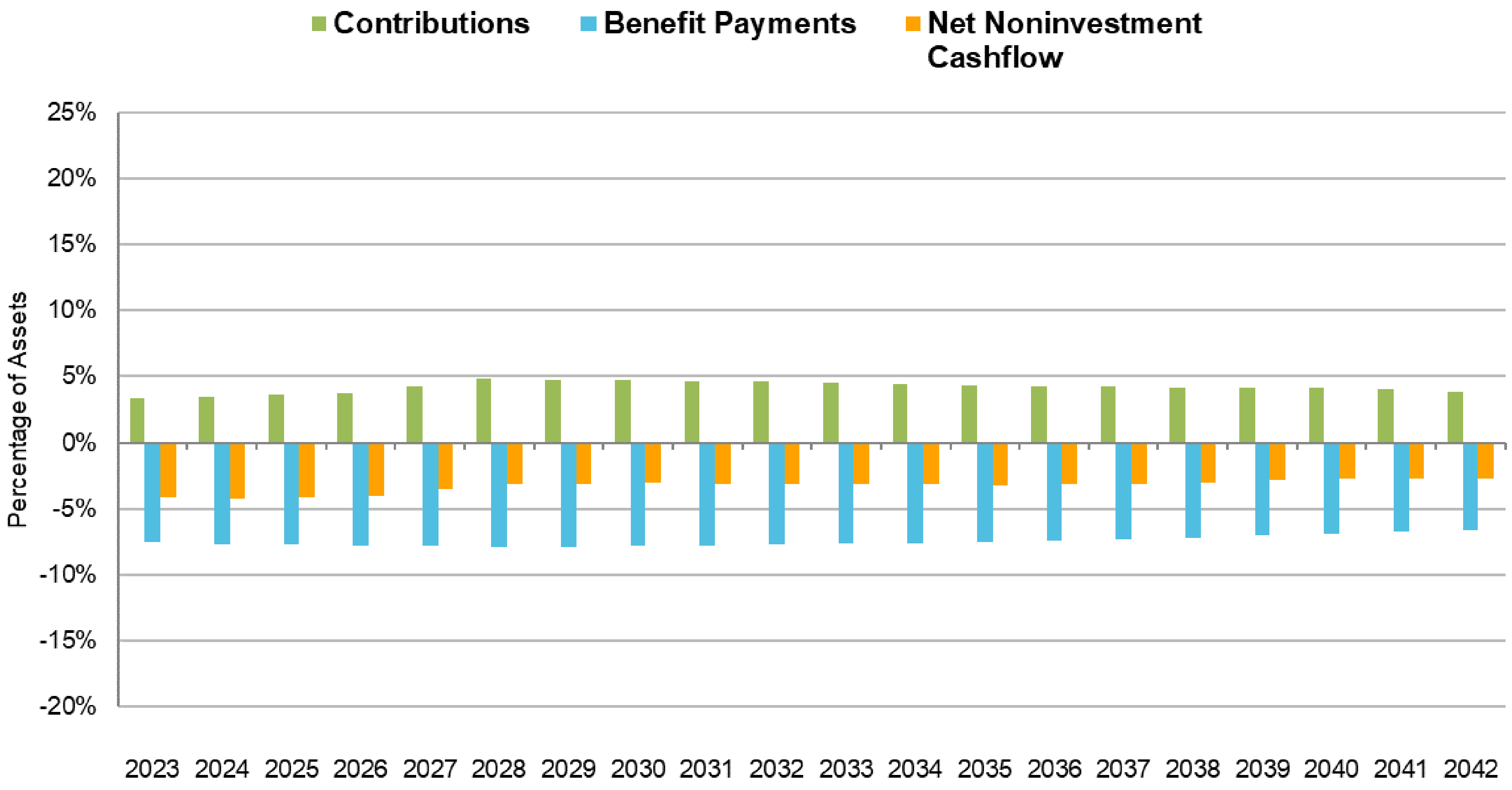


- 2023 UAL increases due to estimated year-end 2023 investment returns
- At steady +6.9% returns, UAL remains relatively level for a couple years before declining to below $0 at year-end 2040

Cash Flow and Asset Balance at +6.90% Actual Return

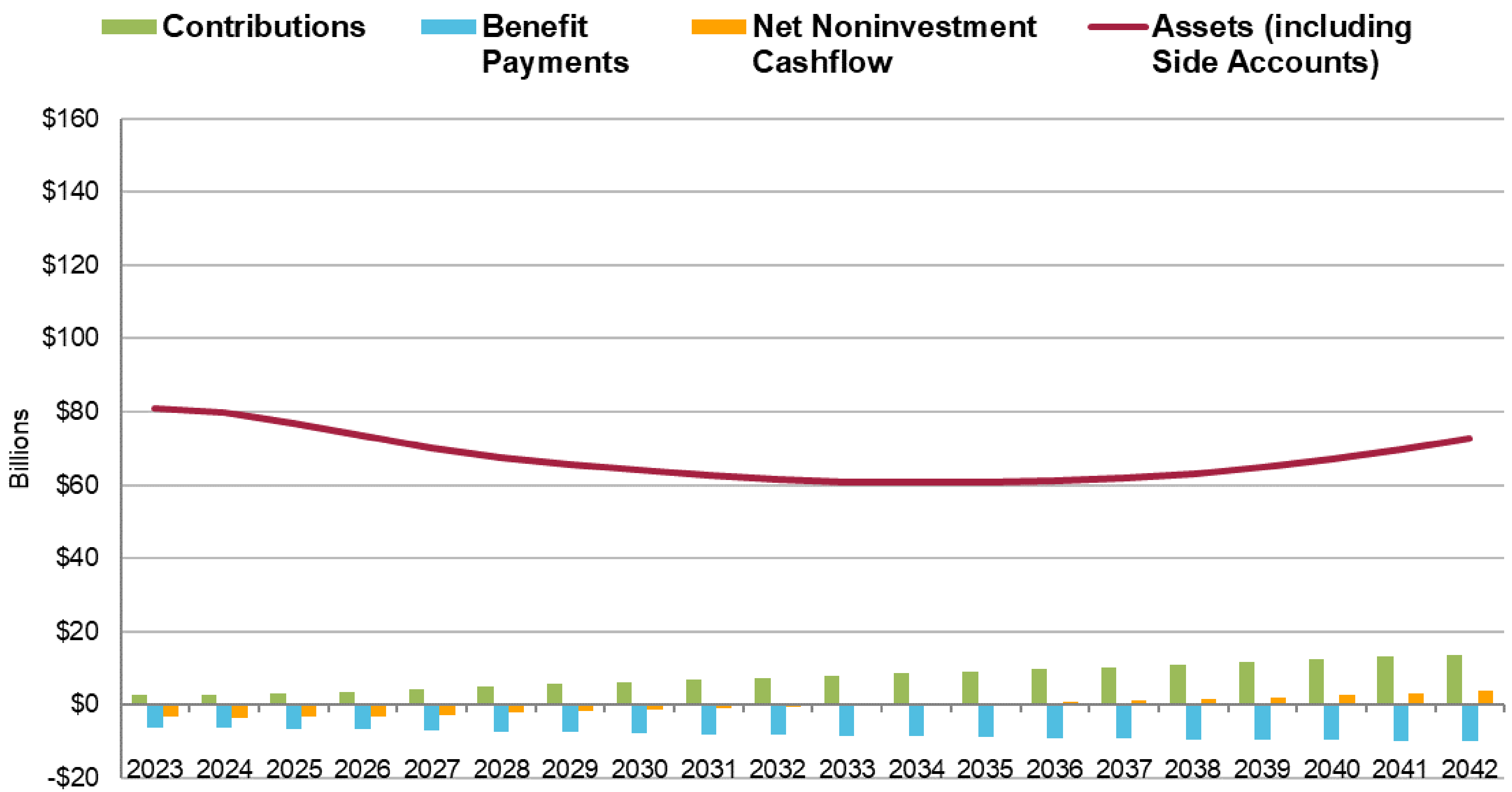


Cash Flows as % of Assets at +6.90% Actual Future Return

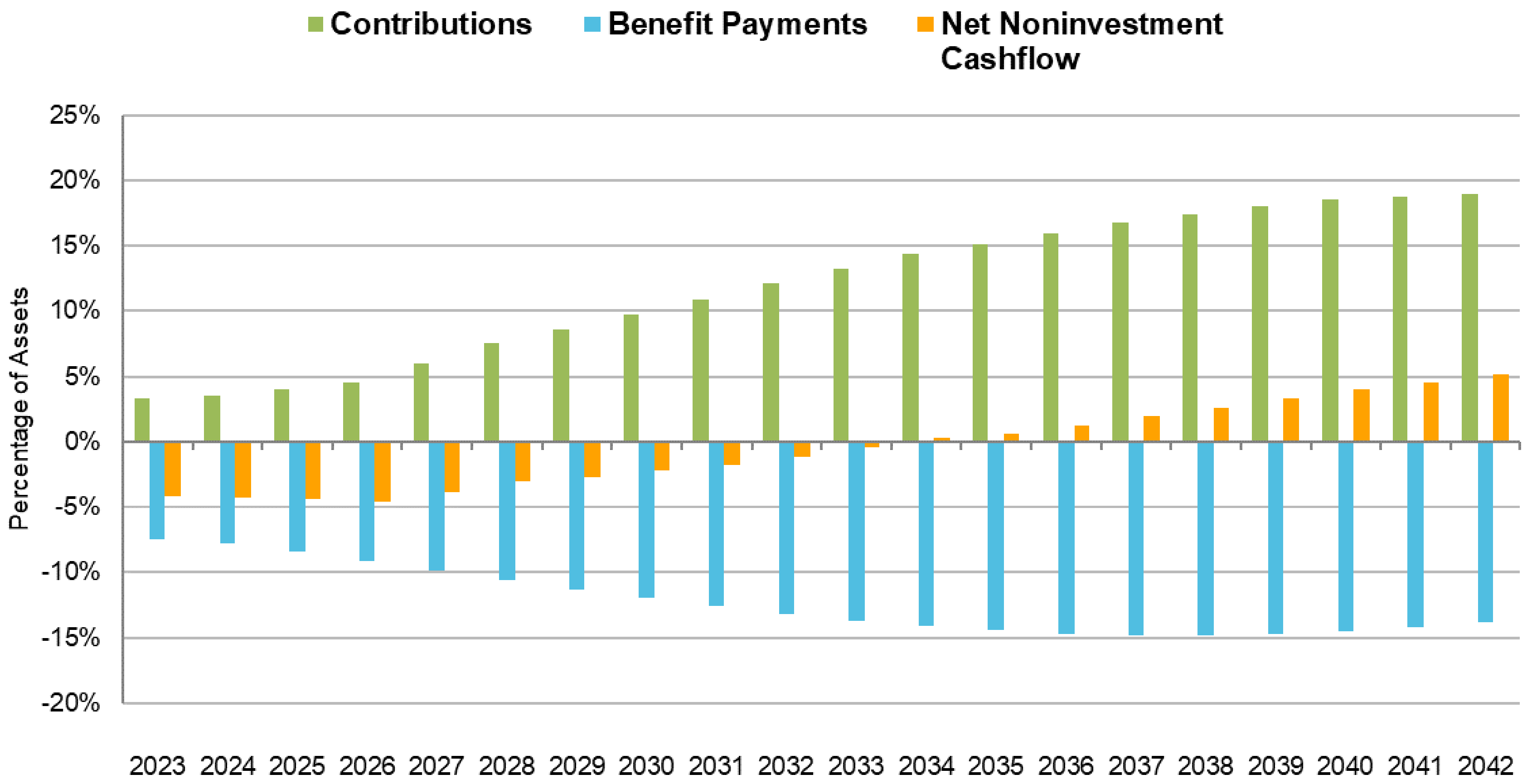


Net Noninvestment Cashflow = Contributions – Benefit Payments

Cash Flow and Asset Balance at +0.00% Actual Future Return



Cash Flows as % of Assets at +0.00% Actual Future Return



Net Noninvestment Cashflow = Contributions – Benefit Payments

Milliman

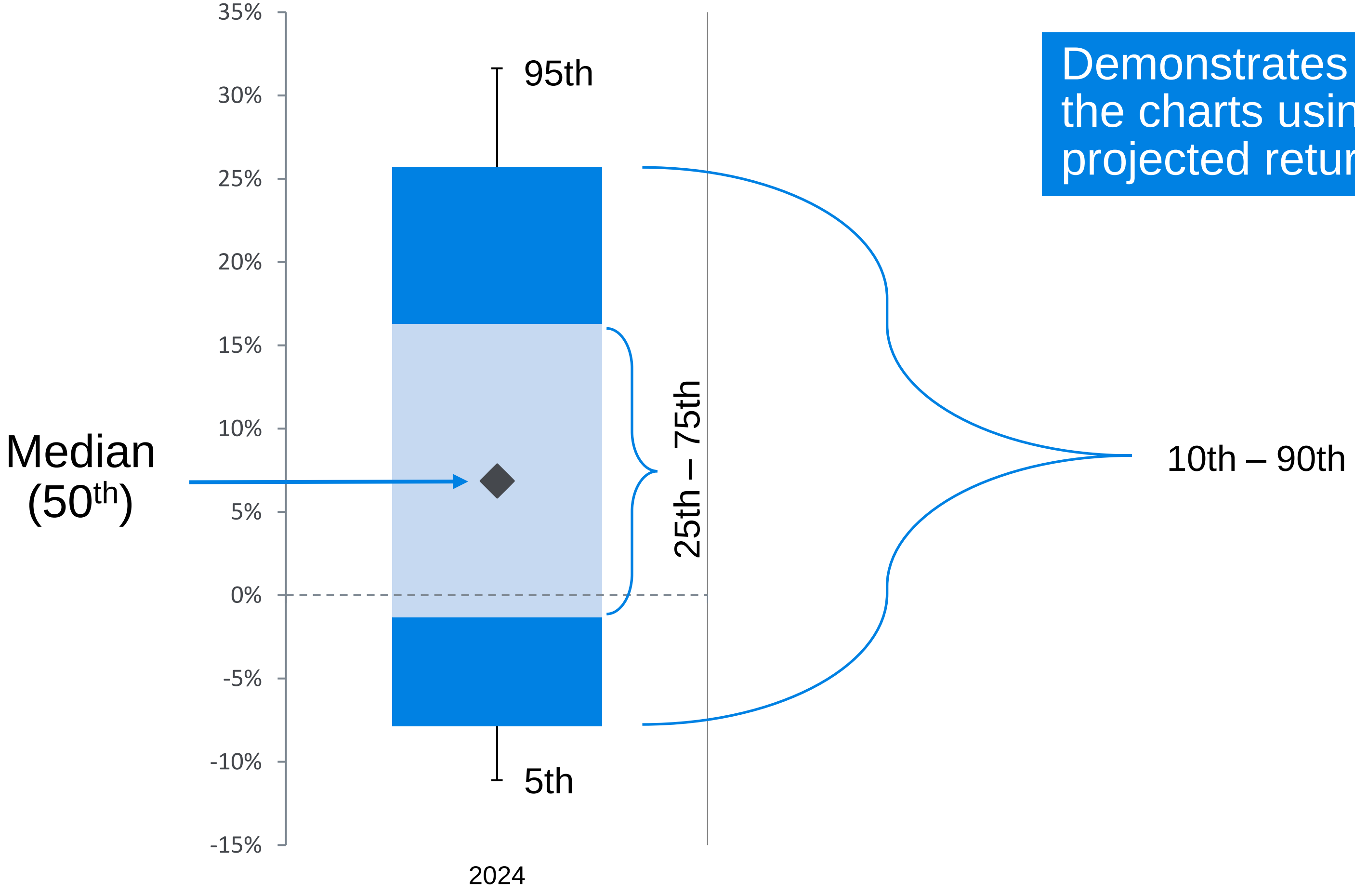
Variable Return Model

Variable Return Model

- Model results are likelihood ranges instead of a single amount
  - The range's distribution is based on a stochastic simulation using 10,000 trials
  - Scenarios were developed by our national capital market specialists, and use the OPERF target asset allocation policy (reflecting recent proposed changes as described in the appendix); for these scenarios, the **median annualized average geometric 20-year return is 7.33%**
  - **Model incorporates published returns through September 2023**
- In our results charts, the dots represent median (50^{th} percentile) outcomes
- We display model results from the 5^{th} to 95^{th} percentiles
  - Ten percent of model outcomes fall outside of the depicted range
- The chart format is demonstrated on the next slide

PERS Fund Rate of Return

Projected 2024 Investment Returns

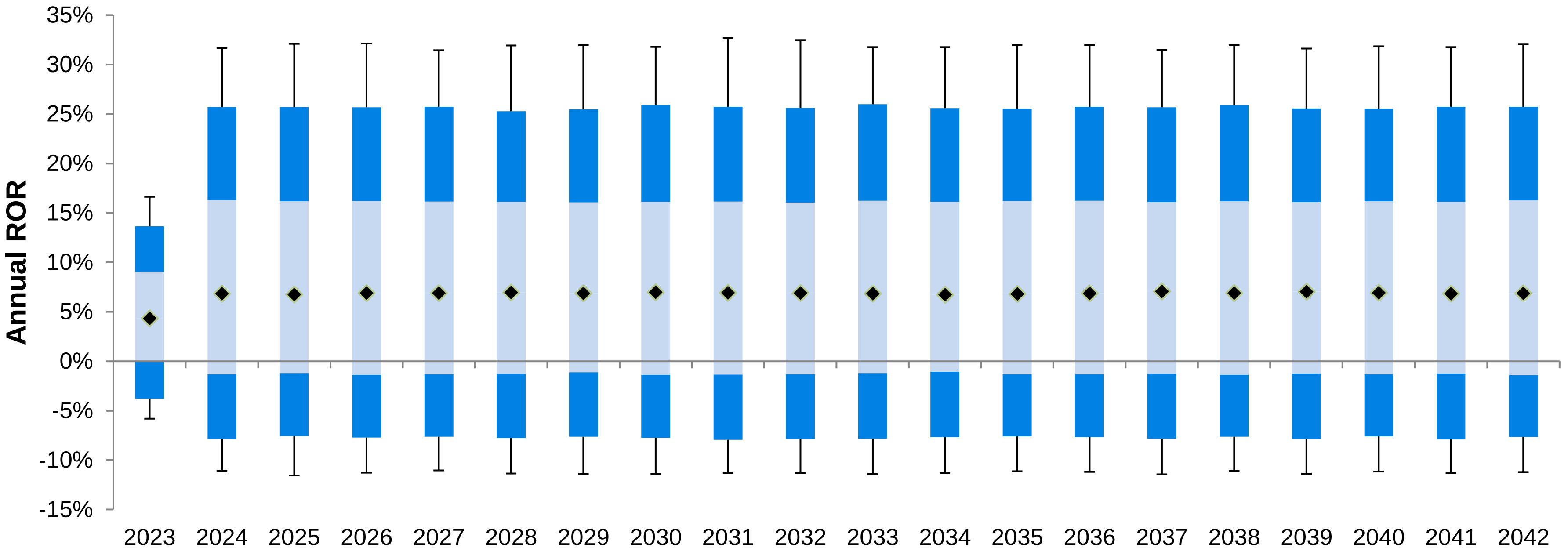


Demonstrates the format of the charts using single year projected returns in 2024.

PERS Fund Rate of Return

Single Calendar Year Investment Returns

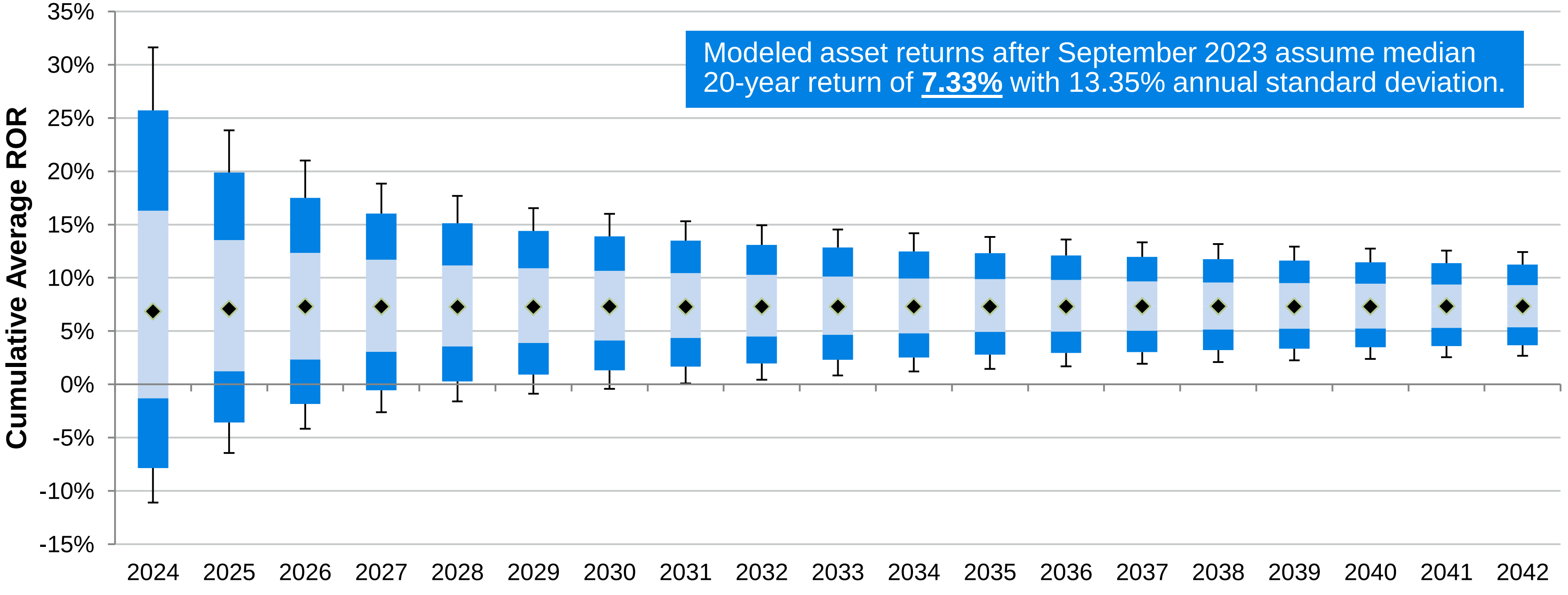
The distribution of returns for 2023 reflects known results through September combined with modeled results for the last quarter of the year. Starting in 2024, our capital market outlooks model projects similar return ranges throughout the modeling period.



	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
95th	16.6%	31.6%	32.1%	32.1%	31.5%	31.9%	32.0%	31.8%	32.7%	32.5%	31.8%	31.8%	32.0%	32.0%	31.5%	32.0%	31.6%	31.8%	31.8%	32.1%
90th	13.6%	25.7%	25.7%	25.7%	25.7%	25.3%	25.5%	25.9%	25.8%	25.6%	26.0%	25.6%	25.6%	25.8%	25.7%	25.9%	25.6%	25.5%	25.7%	25.7%
75th	9.0%	16.3%	16.2%	16.2%	16.1%	16.1%	16.1%	16.1%	16.2%	16.0%	16.3%	16.1%	16.2%	16.2%	16.1%	16.2%	16.1%	16.2%	16.1%	16.3%
50th	4.3%	6.9%	6.8%	6.9%	6.9%	7.0%	6.9%	7.0%	6.9%	6.9%	6.8%	6.7%	6.8%	6.9%	7.1%	6.9%	7.0%	6.9%	6.9%	6.9%
25th	0.0%	-1.3%	-1.2%	-1.4%	-1.3%	-1.3%	-1.1%	-1.4%	-1.3%	-1.3%	-1.2%	-1.1%	-1.3%	-1.3%	-1.3%	-1.4%	-1.2%	-1.3%	-1.2%	-1.4%
10th	-3.8%	-7.9%	-7.6%	-7.7%	-7.6%	-7.8%	-7.6%	-7.7%	-7.9%	-7.9%	-7.8%	-7.7%	-7.6%	-7.7%	-7.8%	-7.6%	-7.9%	-7.6%	-7.9%	-7.7%
5th	-5.8%	-11.1%	-11.5%	-11.3%	-11.0%	-11.4%	-11.4%	-11.4%	-11.3%	-11.3%	-11.4%	-11.3%	-11.1%	-11.2%	-11.5%	-11.1%	-11.4%	-11.2%	-11.3%	-11.2%

Average Annualized Rate of Investment Return

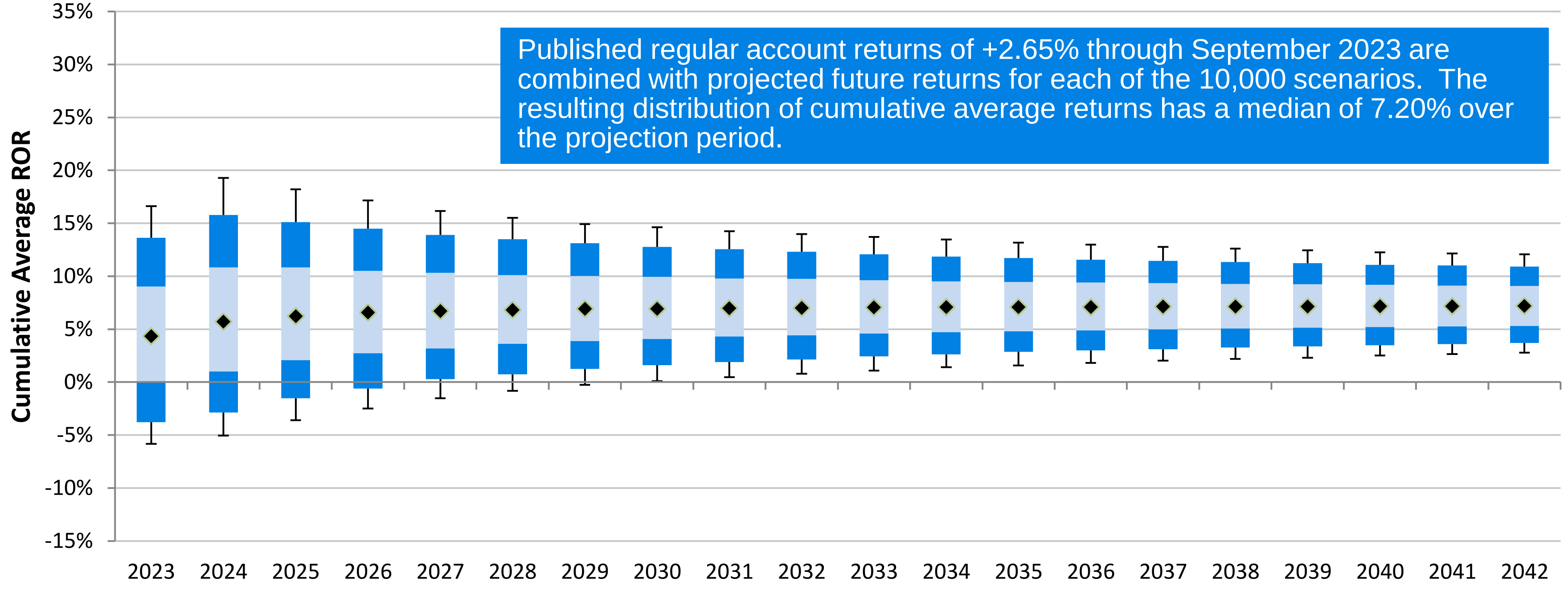
Post-2023 Modeled Returns (Geometric Average)



	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
95th	31.6%	23.9%	21.0%	18.9%	17.7%	16.5%	16.0%	15.3%	14.9%	14.5%	14.2%	13.8%	13.6%	13.3%	13.2%	12.9%	12.7%	12.6%	12.4%
90th	25.7%	19.9%	17.5%	16.0%	15.1%	14.4%	13.9%	13.5%	13.1%	12.8%	12.5%	12.3%	12.1%	12.0%	11.7%	11.6%	11.5%	11.4%	11.2%
75th	16.3%	13.5%	12.4%	11.7%	11.2%	10.9%	10.7%	10.4%	10.3%	10.1%	9.9%	9.9%	9.8%	9.7%	9.6%	9.5%	9.5%	9.4%	9.3%
50th	6.9%	7.1%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%
25th	-1.3%	1.2%	2.3%	3.1%	3.6%	3.9%	4.1%	4.4%	4.5%	4.7%	4.8%	4.9%	5.0%	5.0%	5.1%	5.2%	5.3%	5.3%	5.4%
10th	-7.9%	-3.6%	-1.8%	-0.6%	0.3%	0.9%	1.3%	1.7%	2.0%	2.3%	2.5%	2.8%	2.9%	3.0%	3.2%	3.4%	3.5%	3.6%	3.7%
5th	-11.1%	-6.4%	-4.2%	-2.6%	-1.6%	-0.9%	-0.4%	0.1%	0.4%	0.8%	1.2%	1.5%	1.7%	1.9%	2.1%	2.3%	2.4%	2.6%	2.7%

Average Annualized Rate of Investment Return

Post-2022 Modeled Returns (Geometric Average)

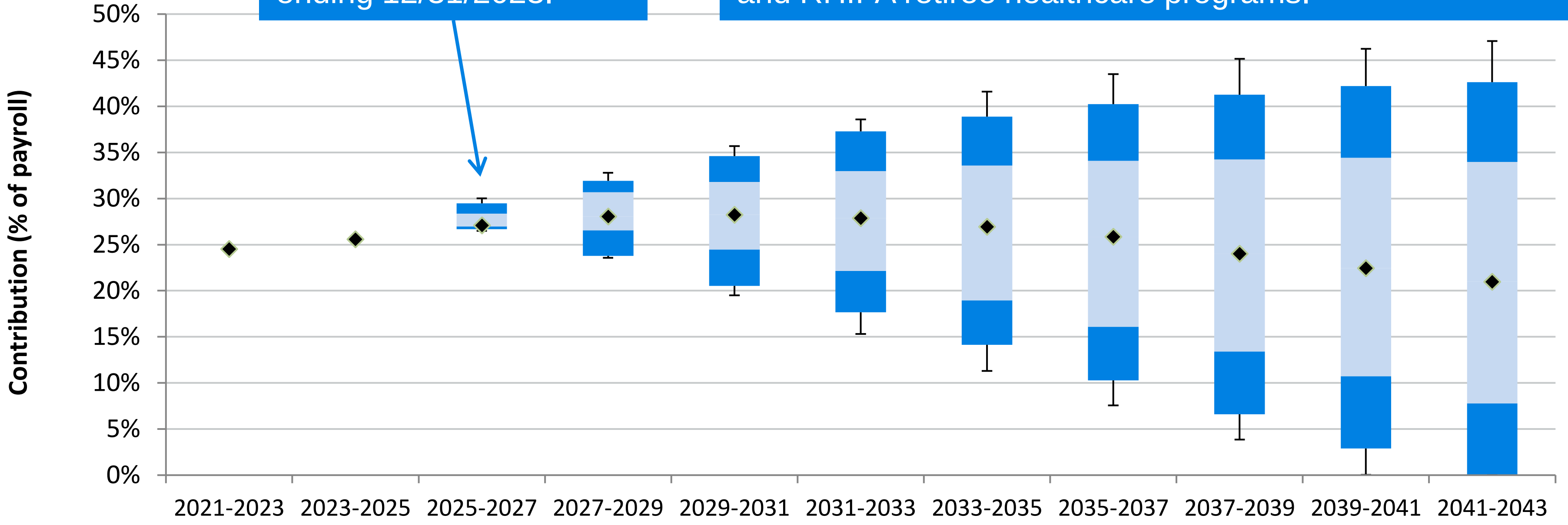


		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
95th	–	16.6%	19.3%	18.2%	17.2%	16.2%	15.5%	14.9%	14.6%	14.3%	14.0%	13.7%	13.5%	13.2%	13.0%	12.8%	12.6%	12.4%	12.3%	12.2%	12.1%
90th		13.6%	15.8%	15.1%	14.5%	13.9%	13.5%	13.1%	12.8%	12.6%	12.3%	12.1%	11.9%	11.7%	11.6%	11.5%	11.3%	11.2%	11.1%	11.0%	10.9%
75th		9.0%	10.8%	10.8%	10.5%	10.3%	10.1%	10.0%	9.9%	9.8%	9.8%	9.6%	9.5%	9.5%	9.4%	9.4%	9.3%	9.2%	9.2%	9.1%	9.1%
50th	•	4.3%	5.7%	6.2%	6.6%	6.7%	6.8%	6.9%	6.9%	7.0%	7.0%	7.1%	7.1%	7.1%	7.1%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%
25th		0.0%	1.0%	2.1%	2.7%	3.2%	3.6%	3.9%	4.1%	4.3%	4.4%	4.6%	4.7%	4.8%	4.9%	5.0%	5.1%	5.2%	5.2%	5.3%	5.3%
10th		-3.8%	-2.9%	-1.5%	-0.6%	0.3%	0.8%	1.3%	1.6%	1.9%	2.1%	2.4%	2.6%	2.9%	3.0%	3.1%	3.3%	3.4%	3.5%	3.6%	3.7%
5th	–	-5.8%	-5.1%	-3.6%	-2.5%	-1.5%	-0.8%	-0.3%	0.1%	0.5%	0.8%	1.1%	1.4%	1.6%	1.8%	2.0%	2.2%	2.3%	2.5%	2.7%	2.8%

Employer Collared Base Pension Rates (System Average)

Rates for 2025-2027 are based on the modeled returns for the period ending 12/31/2023.

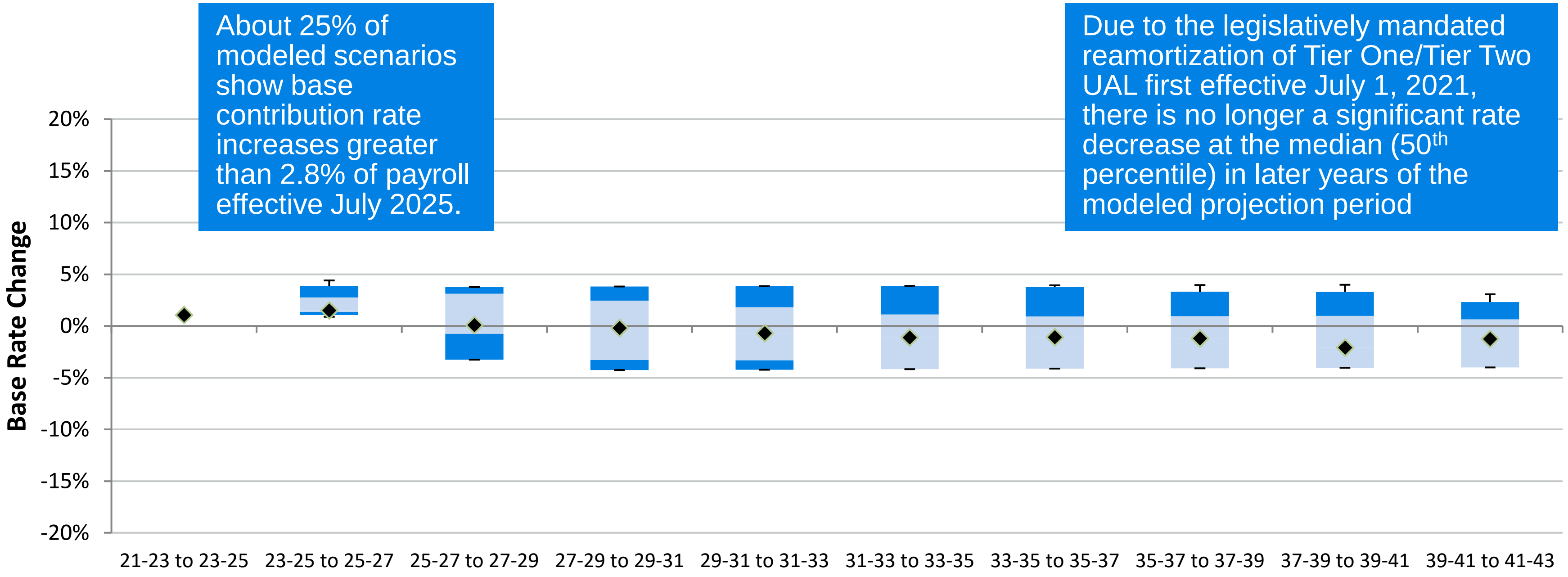
Employer "Base" rates are system average Tier One/Tier Two/OPSRP contribution rates excluding IAP contributions, the effect of side accounts & pension bond debt service, and contributions to the RHIA and RHIPA retiree healthcare programs.



	2021-2023	2023-2025	2025-2027	2027-2029	2029-2031	2031-2033	2033-2035	2035-2037	2037-2039	2039-2041	2041-2043
5th	24.5%	25.6%	30.0%	32.8%	35.7%	38.6%	41.5%	43.4%	45.0%	46.1%	47.0%
10th	24.5%	25.6%	29.5%	31.9%	34.6%	37.2%	38.8%	40.1%	41.2%	42.1%	42.5%
25th	24.5%	25.6%	28.4%	30.7%	31.8%	32.9%	33.5%	34.0%	34.2%	34.3%	33.8%
50th	24.5%	25.6%	27.1%	28.1%	28.3%	27.9%	27.0%	25.9%	24.1%	22.5%	20.9%
75th	24.5%	25.6%	27.0%	26.6%	24.5%	22.2%	19.0%	16.2%	13.5%	10.8%	7.9%
90th	24.5%	25.6%	26.7%	23.8%	20.5%	17.7%	14.1%	10.3%	6.7%	2.9%	0.0%
95th	24.5%	25.6%	26.5%	23.6%	19.5%	15.3%	11.3%	7.6%	3.9%	0.1%	0.0%

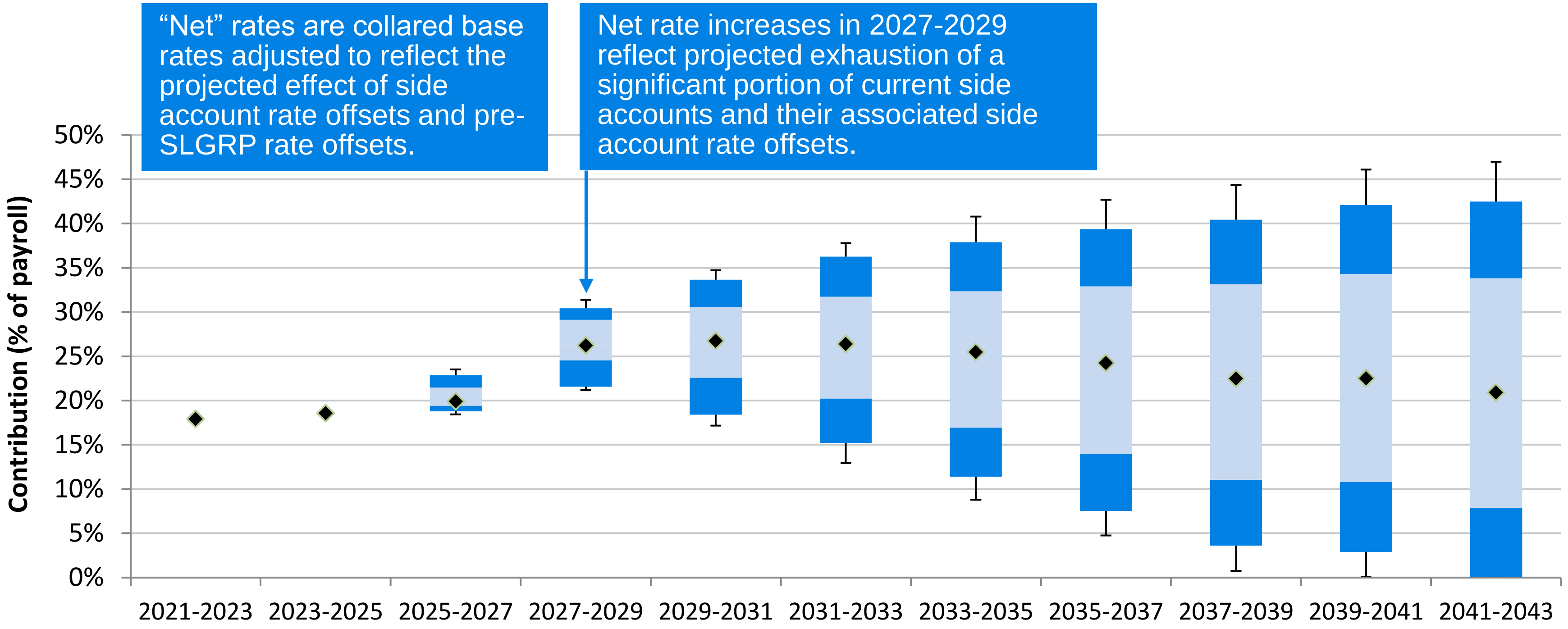
Biennial Change in Employer Collared Base Pension Rate

System Average Rates



	21-23 to 23-25	23-25 to 25-27	25-27 to 27-29	27-29 to 29-31	29-31 to 31-33	31-33 to 33-35	33-35 to 35-37	35-37 to 37-39	37-39 to 39-41	39-41 to 41-43
5th	1.1%	4.4%	3.8%	3.8%	3.9%	3.9%	3.9%	4.0%	4.0%	3.1%
10th	1.1%	3.9%	3.8%	3.8%	3.9%	3.9%	3.8%	3.3%	3.3%	2.3%
25th	1.1%	2.8%	3.1%	2.5%	1.8%	1.1%	0.9%	1.0%	1.0%	0.7%
50th	1.1%	1.5%	0.1%	-0.2%	-0.7%	-1.1%	-1.1%	-1.2%	-2.1%	-1.3%
75th	1.1%	1.4%	-0.8%	-3.3%	-3.3%	-4.2%	-4.1%	-4.1%	-4.0%	-4.0%
90th	1.1%	1.1%	-3.2%	-4.3%	-4.2%	-4.2%	-4.1%	-4.1%	-4.0%	-4.0%
95th	1.1%	0.9%	-3.2%	-4.3%	-4.2%	-4.2%	-4.1%	-4.1%	-4.0%	-4.0%

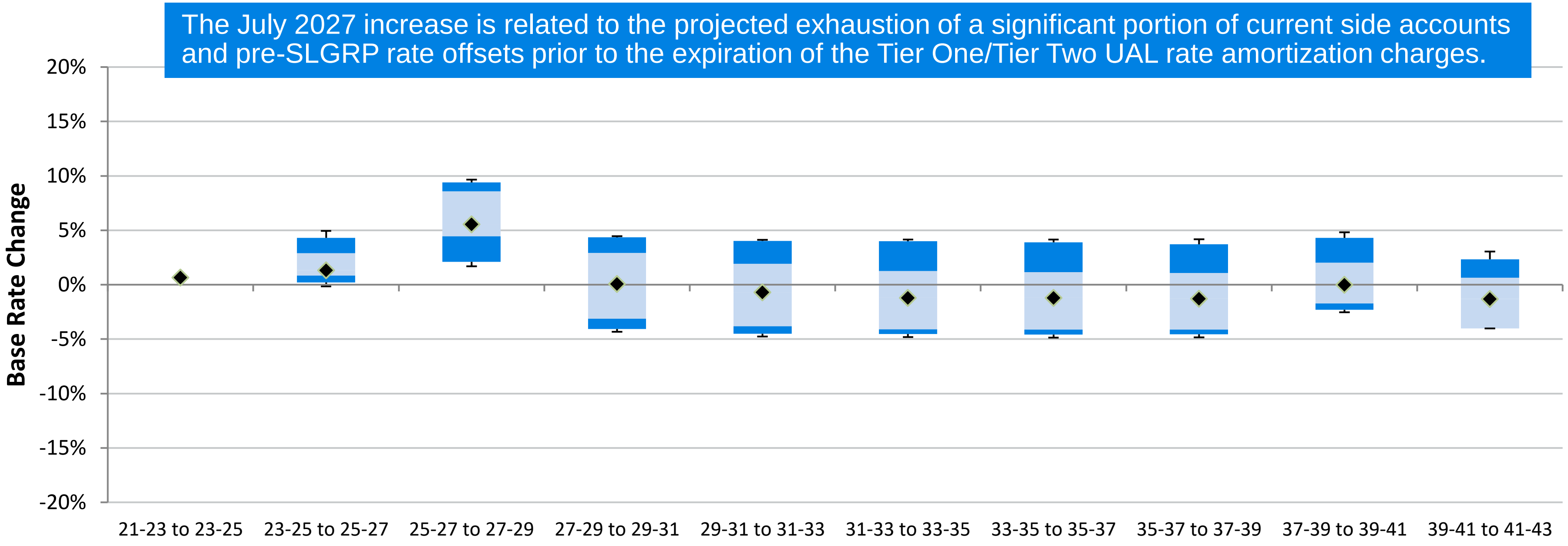
Employer Collared Net Pension Rates (System Average)



	2021-2023	2023-2025	2025-2027	2027-2029	2029-2031	2031-2033	2033-2035	2035-2037	2037-2039	2039-2041	2041-2043
5th	17.9%	18.6%	23.5%	31.4%	34.7%	37.8%	40.8%	42.7%	44.3%	46.1%	47.0%
10th	17.9%	18.6%	22.9%	30.4%	33.7%	36.3%	37.9%	39.4%	40.4%	42.1%	42.5%
25th	17.9%	18.6%	21.5%	29.1%	30.6%	31.7%	32.4%	32.9%	33.1%	34.3%	33.8%
50th	17.9%	18.6%	19.9%	26.2%	26.7%	26.4%	25.5%	24.2%	22.5%	22.5%	20.9%
75th	17.9%	18.6%	19.4%	24.5%	22.6%	20.2%	17.0%	13.9%	11.0%	10.8%	7.9%
90th	17.9%	18.6%	18.8%	21.6%	18.4%	15.2%	11.4%	7.5%	3.6%	2.9%	0.0%
95th	17.9%	18.6%	18.4%	21.2%	17.2%	12.9%	8.8%	4.7%	0.7%	0.1%	0.0%

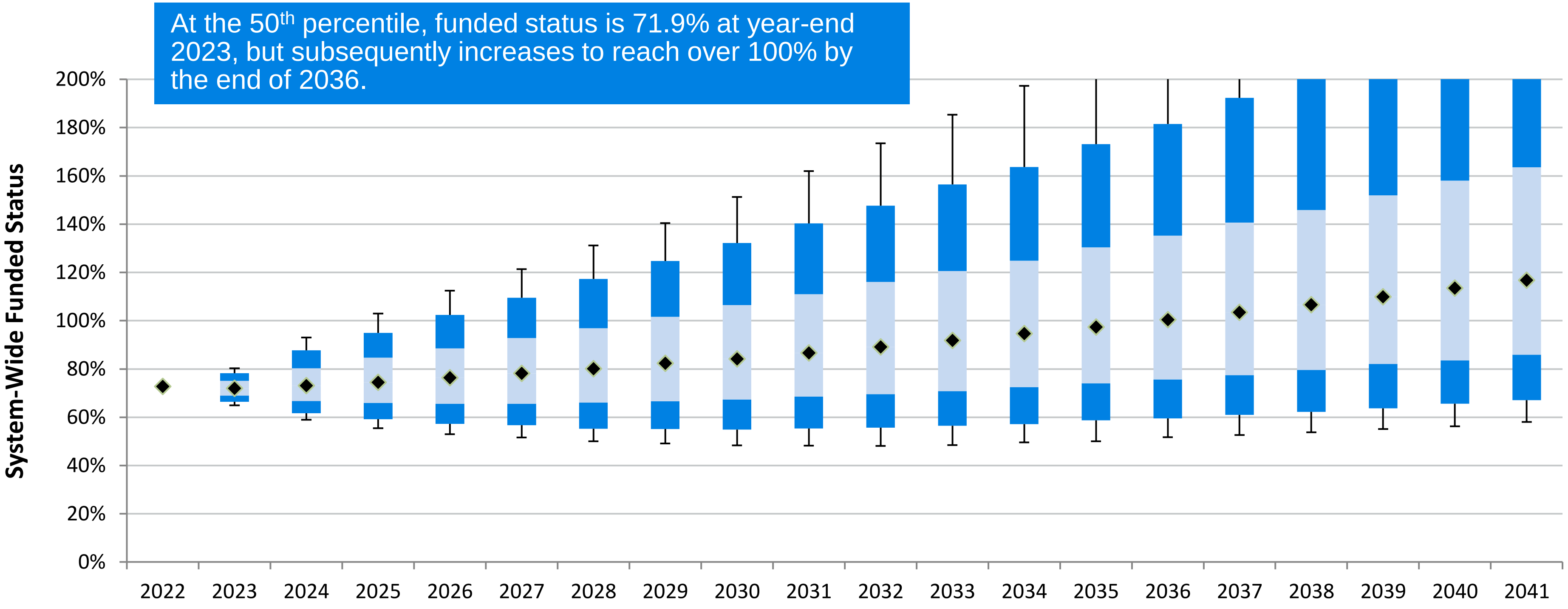
Biennial Change in Employer Collared Net Pension Rate

System Average Rates



5th		0.7%	5.0%	9.7%	4.5%	4.1%	4.2%	4.2%	4.2%	4.8%	3.1%
10th		0.7%	4.3%	9.4%	4.4%	4.0%	4.0%	3.9%	3.7%	4.3%	2.3%
25th		0.7%	2.9%	8.6%	2.9%	1.9%	1.3%	1.2%	1.1%	2.0%	0.7%
50th		0.7%	1.3%	5.6%	0.1%	-0.7%	-1.2%	-1.2%	-1.3%	0.0%	-1.3%
75th		0.7%	0.8%	4.5%	-3.1%	-3.8%	-4.1%	-4.1%	-4.1%	-1.7%	-4.0%
90th		0.7%	0.2%	2.1%	-4.1%	-4.5%	-4.5%	-4.6%	-4.6%	-2.3%	-4.0%
95th		0.7%	-0.2%	1.7%	-4.3%	-4.8%	-4.8%	-4.9%	-4.8%	-2.5%	-4.0%

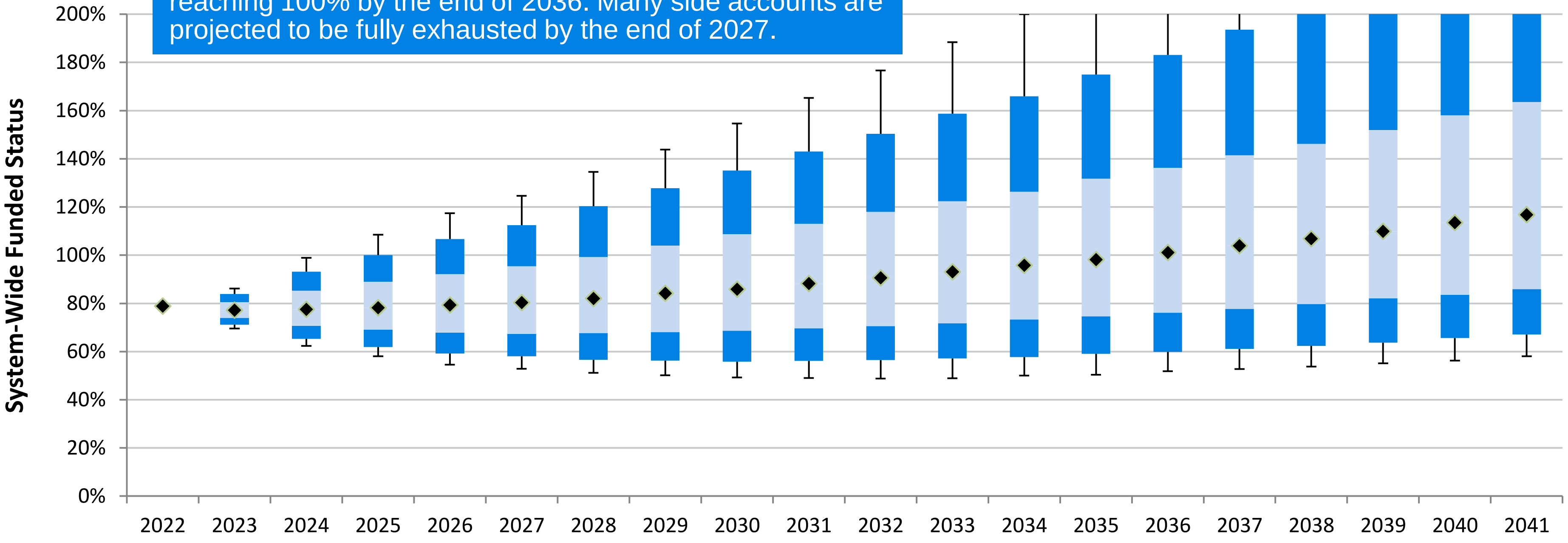
Funded Status (Excluding Side Accounts)



95th	72.8%	80.3%	93.1%	102.9%	112.5%	121.3%	130.8%	139.6%	150.9%	161.2%	172.9%	184.9%	196.5%	207.2%	219.7%	231.9%	246.0%	261.1%	270.1%	286.6%
90th	72.8%	78.3%	87.7%	94.9%	102.4%	109.5%	117.0%	124.2%	131.6%	139.9%	147.3%	156.0%	163.5%	172.6%	181.4%	192.0%	200.1%	209.9%	220.7%	232.1%
75th	72.8%	75.1%	80.3%	84.7%	88.6%	92.9%	96.7%	101.4%	106.2%	110.7%	115.7%	120.5%	124.6%	130.3%	135.1%	140.4%	145.8%	151.9%	158.2%	164.3%
50th	72.8%	71.9%	73.1%	74.5%	76.3%	78.2%	80.0%	82.4%	84.1%	86.6%	89.2%	91.9%	94.7%	97.2%	100.3%	103.4%	106.6%	109.8%	113.8%	117.2%
25th	72.8%	69.0%	66.8%	65.9%	65.7%	65.6%	66.2%	66.8%	67.5%	68.7%	69.6%	71.1%	72.6%	74.2%	75.8%	77.7%	79.7%	82.2%	83.8%	86.4%
10th	72.8%	66.4%	61.7%	59.2%	57.3%	56.7%	55.6%	55.4%	55.2%	55.5%	55.9%	56.7%	57.2%	58.8%	59.8%	61.1%	62.3%	63.8%	65.7%	67.3%
5th	72.8%	65.0%	59.0%	55.4%	53.0%	51.6%	50.3%	49.6%	48.8%	48.6%	48.4%	48.7%	49.9%	50.4%	51.8%	52.9%	53.9%	55.1%	56.6%	58.2%

Funded Status (Including Side Accounts)

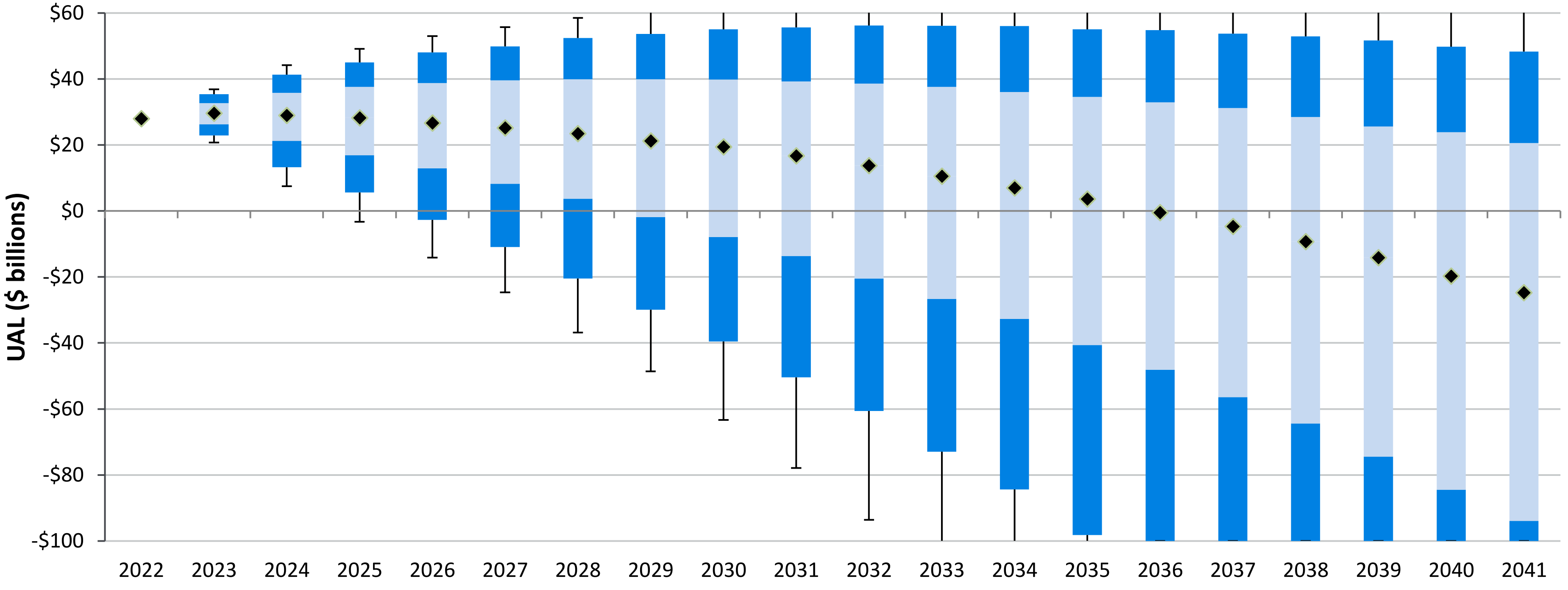
At the 50th percentile, funded status including side accounts is 77.1% at year-end 2023 but subsequently improves, reaching 100% by the end of 2036. Many side accounts are projected to be fully exhausted by the end of 2027.



95th	–	78.8%	86.1%	98.9%	108.5%	117.4%	124.6%	134.1%	143.0%	154.3%	164.5%	175.9%	187.9%	199.2%	209.8%	221.7%	233.3%	247.2%	261.1%	270.1%	286.6%
90th		78.8%	83.9%	93.1%	100.0%	106.7%	112.5%	119.9%	127.2%	134.5%	142.6%	149.8%	158.4%	165.6%	174.5%	182.9%	193.1%	201.1%	209.9%	220.7%	232.1%
75th		78.8%	80.5%	85.2%	89.0%	92.1%	95.4%	99.1%	103.7%	108.5%	112.8%	117.7%	122.3%	126.1%	131.6%	136.1%	141.2%	146.2%	151.9%	158.2%	164.3%
50th	•	78.8%	77.1%	77.5%	78.2%	79.3%	80.2%	82.0%	84.2%	85.8%	88.2%	90.6%	93.1%	95.7%	98.1%	101.0%	103.9%	106.8%	109.8%	113.8%	117.2%
25th		78.8%	73.9%	70.7%	69.1%	67.9%	67.3%	67.7%	68.3%	68.8%	69.9%	70.7%	71.9%	73.3%	74.8%	76.2%	77.9%	79.9%	82.2%	83.8%	86.4%
10th		78.8%	71.1%	65.3%	61.9%	59.1%	58.1%	56.8%	56.5%	56.2%	56.4%	56.6%	57.3%	57.8%	59.2%	60.0%	61.2%	62.3%	63.8%	65.7%	67.3%
5th	–	78.8%	69.6%	62.4%	58.0%	54.5%	52.9%	51.4%	50.5%	49.7%	49.4%	49.0%	49.2%	50.3%	50.7%	52.0%	53.0%	53.9%	55.1%	56.6%	58.2%

UAL (Excluding Side Accounts)

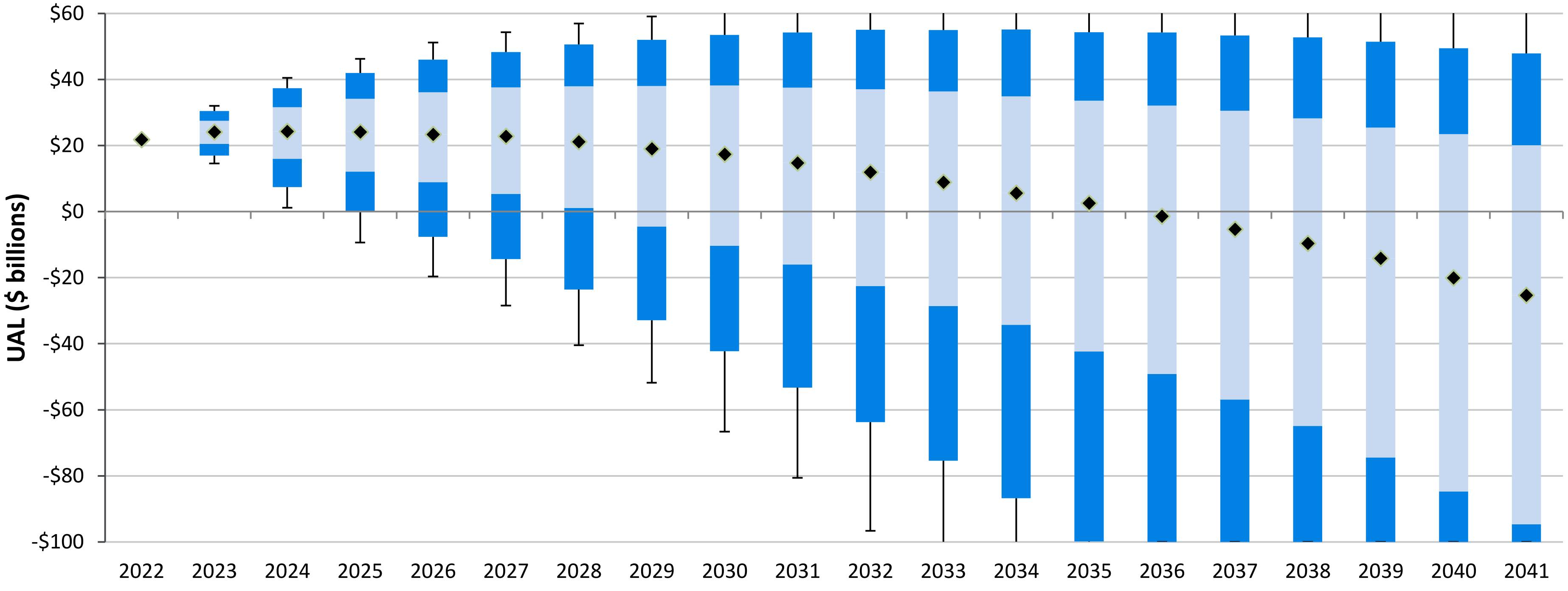
At the 50th percentile, the UAL excluding side accounts is $29.6 billion at year-end 2023, but subsequently declines to less than $0 by the end of 2036.



	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
5th	28.0	36.9	44.2	49.1	53.0	55.8	58.3	60.3	62.4	63.8	65.2	65.6	65.6	66.1	65.3	65.0	64.4	63.7	62.9	61.2
10th	28.0	35.4	41.3	45.0	48.1	49.9	52.1	53.4	54.7	55.4	56.0	55.8	55.8	54.9	54.6	53.6	52.8	51.5	49.5	47.9
25th	28.0	32.7	35.8	37.7	38.8	39.6	39.8	39.7	39.8	39.0	38.4	37.5	35.9	34.4	32.7	30.9	28.4	25.4	23.5	20.1
50th	28.0	29.6	29.0	28.2	26.7	25.2	23.4	21.2	19.4	16.7	13.7	10.6	7.0	3.7	-0.4	-4.7	-9.3	-14.2	-20.1	-25.3
75th	28.0	26.3	21.3	16.9	12.9	8.3	3.9	-1.7	-7.6	-13.4	-20.0	-26.4	-32.4	-40.6	-47.8	-55.9	-64.2	-74.5	-84.8	-94.7
90th	28.0	22.9	13.3	5.6	-2.7	-10.9	-20.1	-29.3	-38.8	-50.0	-60.5	-72.3	-83.9	-97.3	-110.9	-127.3	-141.9	-157.6	-176.5	-195.9
95th	28.0	20.8	7.5	-3.3	-14.1	-24.7	-36.4	-47.7	-62.5	-76.5	-92.7	-109.8	-127.7	-144.5	-162.7	-182.1	-205.7	-230.6	-249.7	-277.2

UAL (Including Side Accounts)

At the 50th percentile, the UAL including side accounts is $24.2 billion at year-end 2023, remains about that level for two years, and then declines to less than $0 by the end of 2036. Many side accounts are projected to be fully exhausted by the end of 2027.



	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
5th	21.8	32.0	40.5	46.3	51.2	54.3	57.0	59.1	61.4	62.9	64.4	64.9	65.1	65.6	65.1	64.8	64.3	63.7	62.9	61.2
10th	21.8	30.5	37.4	42.0	46.0	48.3	50.7	52.0	53.5	54.3	55.1	55.0	55.2	54.4	54.2	53.4	52.8	51.5	49.5	47.9
25th	21.8	27.5	31.6	34.1	36.2	37.6	37.9	38.0	38.2	37.5	37.1	36.4	34.9	33.6	32.2	30.6	28.3	25.4	23.5	20.1
50th	21.8	24.2	24.3	24.1	23.4	22.8	21.1	19.0	17.4	14.7	11.9	8.9	5.6	2.6	-1.3	-5.3	-9.6	-14.2	-20.1	-25.3
75th	21.8	20.5	16.0	12.1	8.9	5.4	1.1	-4.5	-10.4	-16.1	-22.5	-28.6	-34.3	-42.3	-49.2	-56.9	-64.9	-74.5	-84.8	-94.7
90th	21.8	16.9	7.4	0.0	-7.6	-14.4	-23.6	-32.9	-42.3	-53.3	-63.7	-75.4	-86.8	-99.8	-113.0	-128.9	-143.0	-157.6	-176.5	-195.9
95th	21.8	14.6	1.2	-9.4	-19.7	-28.5	-40.4	-51.8	-66.6	-80.6	-96.7	-113.7	-131.4	-147.5	-165.6	-184.4	-207.4	-230.6	-249.7	-277.2

Variable Return Model Stress Test

- As in recent years, we also used the variable return model to do a “stress test” of the likelihood of certain events in the 10,000 scenarios modeled
  - Testing is done at a system-average level; results for individual rate pools or employers may vary
- The percentage of modeled scenarios with funded status above a specified threshold at the end of the projection period is shown below
  - Median projected funded status excluding side accounts at year-end 2023 is 71.9%

Likelihood of Funded Status Level as of 12/31/2041	
Funded Status (Excluding Side Accounts) > 100%	63%
Funded Status (Excluding Side Accounts) > 90%	72%
Funded Status (Excluding Side Accounts) > 80%	80%
Funded Status (Excluding Side Accounts) > 70%	88%
Funded Status (Excluding Side Accounts) > 60%	94%

Variable Return Model Stress Test

- Median projected funded status excluding side accounts at year-end 2023 is 71.9%
- The likelihood of specified events occurring at some valuation date during the 20-year projection period is shown below

Likelihood of Event Occurring at Some Valuation Date in Next 20 Years	
Funded Status (Excluding Side Accounts) > 100%	79%
Funded Status (Excluding Side Accounts) < 60%	39%
Funded Status (Excluding Side Accounts) < 40%	4%

Variable Return Model Stress Test

- The likelihood of specified events occurring during the 20-year projection period is shown below

Likelihood of Event Occurring in at Least One Biennium in Next 20 Years	
Employer Collared Base Rate (Excluding Retiree Healthcare) < 10% of Pay	30%
Employer Collared Base Rate (Excluding Retiree Healthcare) > 30% of Pay	57%
Employer Collared Base Rate (Excluding Retiree Healthcare) > 40% of Pay	17%

- The system-average employer base rate for the 2023-2025 biennium is about 25.6%, per the December 31, 2021 valuation

Variable Return Model Stress Test

- As shown earlier, about 25% of modeled scenarios show an increase in the employer collared base rate above 2.8% of payroll at July 2025
- Table shows likelihood in the model of an employer collared base rate increase exceeding a selected threshold at the July 2025 and July 2027 rate change dates

Likelihood of the Employer Collared Base Rate Increase Exceeding Threshold		
Threshold Increase	July 2025	July 2027
2% of Pay	40%	32%
3% of Pay	21%	26%
4% of Pay	9%	<1%
5% of Pay	<1%	<1%

- Changes in net rates will vary by employer depending on the size and amortization schedule of any side account(s) the employer may have
  - Rate offsets for over half of existing side accounts are scheduled to expire in July 2027, which will increase net rates for affected employers

Wrap Up / Next Steps

- At the February 2, 2024 meeting, preliminary year-end 2023 investment results will be available
  - We can then comment as warranted on estimated impact on the 12/31/2023 actuarial valuation results, which will develop 2025 – 2027 contribution rates

Appendix

Certification

This presentation summarizes deterministic and stochastic modeling for the Oregon Public Employees Retirement System ("PERS" or "the System") over a 20-year period beginning December 31, 2022 under a wide range of potential economic scenarios. The results are based upon the same assumptions, methods, and plan provisions as described in the 2022 Experience Study and the December 31, 2022 System-Wide Actuarial Valuation Report, except where noted otherwise.

Actuarial computations presented in this report are for purposes of determining the recommended funding amounts consistent with the adopted funding policy of the System. The computations prepared for other purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding policy. The calculations in this report have been made on a basis consistent with our understanding of the plan provisions described in the appendix of this report. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

Actuarial assumptions, including discount rates, mortality tables, and others identified in this report, and actuarial cost methods are adopted by the PERS Board, which is responsible for selecting the plan's funding policy, actuarial valuation methods, asset valuation methods, and assumptions. The policies, methods, and assumptions used in this valuation are those that have been so adopted and are described in this report. The System is solely responsible for communicating to Milliman any changes required thereto. All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which, in our professional opinion, are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System and are expected to have no significant bias . The valuation results were developed using models intended for valuations that use standard actuarial techniques. We have reviewed the models, including their inputs, calculations, and outputs for consistency, reasonableness, and appropriateness to the intended purpose and in compliance with generally accepted actuarial practice and relevant actuarial standards of practice.

Certification

A valuation report is only an estimate of the System’s financial condition as of a single date. It can neither predict the System’s future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

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; 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. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. Our December 31, 2022 Actuarial Valuation Report provides additional discussion of the System’s risks. The PERS Board has the final decision regarding the appropriateness of the assumptions.

Milliman’s work is prepared solely for the internal business use of the Oregon Public Employees Retirement System. Milliman does not intend to benefit or create a legal duty to any third-party recipient of this report. No third-party recipient of Milliman's work product should rely upon this report. Such recipients should engage qualified professionals for advice appropriate to their own specific needs. No third-party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman’s advice is not intended to be a substitute for qualified legal or accounting counsel. The actuaries are independent of the plan sponsors. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board and the *Code of Professional Conduct* and *Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States* published by the American Academy of Actuaries. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Appendix

Actuarial Basis

Data

We have based our calculation of the liabilities on the data supplied by the Oregon Public Employees Retirement System and summarized in the Valuation Report.

Assets as of December 31, 2022, were based on values provided by Oregon PERS reflecting the Board's earnings crediting decisions for 2022, as shown in the Valuation Report. Financial model projections reflect September 30, 2023 investment results for regular and variable accounts as published by Oregon State Treasury.

Methods / Policies

Actuarial Cost Method: Entry Age Normal, adopted effective December 31, 2012.

UAL Amortization: The UAL for OPSRP and Retiree Health Care as of December 31, 2007 were amortized as a level percentage of combined valuation payroll over a closed 16-year period for OPSRP and a closed 10-year period for Retiree Health Care. For the Tier One/Tier Two UAL, the amortization period was reset at 20 years as of December 31, 2013. Senate Bill 1049 was signed into law in June 2019 and required a one-time re-amortization of Tier One/Tier Two UAL over a closed 22-year period at the December 31, 2019 rate-setting valuation which set actuarially determined contribution rates for the 2021-2023 biennium. Gains and losses between subsequent odd-year valuations are amortized as a level percentage of combined valuation payroll over the amortization period (20 years for Tier One/Tier Two, 16 years for OPSRP, 10 years for Retiree Health Care) from the odd-year valuation in which they are first recognized.

For the Retiree Health Care programs (RHIA and RHIPA), beginning with the December 31, 2021 rate-setting valuation the amortization policy when a program is over 100% funded status will be to amortize the actuarial surplus over Tier One/Tier Two payroll using a rolling 20-year amortization basis. The resulting negative UAL Rate will offset the normal cost rate for the program, but not below 0.0%. If either program subsequently fell below 100%, the UAL would be amortized over combined payroll following the 10-year closed, layered amortization policy.

Appendix

Actuarial Basis

Methods / Policies (cont'd)

***Contribution rate stabilization method**:* The UAL Rate contribution rate component for a rate pool (e.g. Tier One/Tier Two SLGRP, Tier One/Tier Two School Districts, OPSRP) is confined to a collared range based on the prior biennium's collared UAL Rate contribution rate component (prior to consideration of side account offsets, SLGRP transition liability or surplus rates, or pre-SLGRP liability rate charges or offsets).

Collar Width: the rate pool's new UAL Rate contribution rate component will generally not increase or decrease from the prior biennium's collared UAL Rate contribution rate component by more than the following amount:

- Tier One/Tier Two SLGRP and Tier One/Tier Two School District Pool: 3% of payroll
- OPSRP: 1% of payroll
- Tier One/Tier Two rates for independent employers: greater of 4% of payroll or one-third of the difference between the collared and uncollared UAL Rate at the prior rate-setting valuation. In addition, the UAL Rate will not be allowed to be less than 0.00% of payroll for any Tier One/Tier Two independent employer with a funded status (excluding side accounts) less than 100%.

UAL Rate decrease restrictions**:** the UAL Rate for any rate pool will not be allowed to decrease if the pool's funded status is 87% (excluding side accounts) or lower; the allowable decrease will phase into the full collar width from 87% funded to 90% funded.

***Expenses**:* System-wide administration expenses are assumed to be equal to $64.0M. The assumed expenses are allocated between Tier One/Tier Two and OPSRP based on projected payroll and are added to the respective normal costs.

***Actuarial Value of Assets**:* Equal to Market Value of Assets excluding Contingency and Tier One Rate Guarantee Reserves. The Tier One Rate Guarantee Reserve is not excluded from assets if it is negative (i.e. in deficit status). The Actuarial Value of Assets includes the value of Employee Pension Stability Accounts (EPSA).

Assumptions

Assumptions for valuation calculations are as described in the 2022 Experience Study Report.

Provisions

Provisions valued are as detailed in the December 31, 2022 System-Wide Actuarial Valuation Report.

Appendix

Rate Projection Basis

Assumptions

In general, all assumptions are as described in the 2022 Experience Study Report.

The major actuarial valuation assumptions used in our projections are shown below. They are aggregate average assumptions that apply to the whole population and were held constant throughout the projection period. The economic experience adjustments were allowed to vary in future years given the conditions defined in each economic scenario.

- Valuation interest rate – 6.90%
- Tier One Regular account growth – 6.90%
- Actual fund investment return – Varies by scenario according to capital market assumptions
- Variable account growth – Equal to investment return on public equity portion of the fund
- Inflation assumption – 2.40%
- Inflation experience – Varies by scenario according to capital market assumptions
- Wage growth assumption – 3.40%
- Wage growth experience – 1.00% greater than inflation experience
- Demographic experience – as described in 2022 Experience Study Report
- New entrant experience – New members are assumed to be hired at the rate necessary to keep the total number of members in each job class (General Service, School District, Police & Fire, and Judges) constant over the duration of the projection. All new entrants other than judges are assumed to join as OPSRP members. New entrant pay is assumed to grow at the rate necessary for overall system payroll to increase with wage growth experience, as described above.

Appendix
Rate Projection Basis

Reserve Projection

Contingency Reserve as of 12/31/2022 was $50.0M. No future increases or decreases to this reserve were assumed.

The Tier One Rate Guarantee Reserve (“RGR”) was $736.5M as of 12/31/2022. The RGR was assumed to grow with excess returns above the 6.90% target growth on Tier One Member Accounts. When modeled aggregate returns were below 6.90%, applicable amounts from the RGR were assumed to transfer to Tier One Member Accounts to maintain the 6.90% target growth rate. The RGR is allowed to be negative, but the reserve is not excluded from valuation assets when it is negative. We did not include in rates any potential additional employer levy that could be required to eliminate a persistent negative RGR.

Offset for Member Redirect Contributions

Under Senate Bill 1049, a portion of the 6% of pay member contribution previously made to the IAP was redirected to fund Tier One/Tier Two and OPSRP defined benefits beginning July 1, 2020. For Tier One/Tier Two members, the redirected amount will be 2.50% of pay, and for OPSRP it will be 0.75% of pay. Members with less than $2,500 in monthly pay (indexed in future years) will be exempt from the redirection.

For the rate projection, member redirect contributions are assumed to offset the contribution rates paid by employers. The offset is assumed to be 2.40% of total payroll for Tier One/Tier Two and 0.65% of total payroll for OPSRP.

Redirected member contributions are assumed to cease in a biennium following a rate-setting valuation where the funded status, including side accounts, is 90% or greater.

Work After Retirement Contributions

Under Senate Bill 1049, starting in 2020 and ending December 31, 2024, employers are required to pay PERS contribution rates on rehired retiree payroll. In 2023, HB 2296 extended the end date for this provision to December 31, 2034. For 2023, rehired retiree payroll was assumed to be approximately $244.2M for Tier One/Tier Two members and $15.4M for OPSRP members. After 2023, rehired retiree payroll was assumed to increase with the wage growth assumption.

Appendix
Rate Projection Basis

Capital Market Model

For each 20-year projection, we ran 10,000 stochastic scenarios for inflation and asset class rates of return. The scenarios were calibrated to represent Milliman's capital market assumptions in terms of expected average real returns, the expected year-to-year volatility of the returns, and the expected correlation between the returns of different asset classes. Annual rates of return for each of the asset classes and inflation are generated from a multivariate lognormal probability distribution. Rates of return are independent from year to year.

The variable return model includes 10,000 projected scenarios for possible future year-by-year system investment returns and levels of inflation. In developing that model, per Actuarial Standards of Practice we disclose reliance upon a Milliman colleague who is a credentialed actuary and also a credentialed investment professional with expertise in preparing capital outlook modeling. We reviewed overall model results for reasonability while, as part of his work, our investment professional colleague reviewed the investment projections for internal consistency.

For this purpose, we considered the Oregon PERS Fund to be allocated among the model's asset classes as shown on the following slide. This allocation is based on input provided by Meketa (OIC's primary consultant) and reflects changes to the OIC's target allocation for the Oregon PERS fund adopted at the January 25, 2023 OIC meeting.

Appendix

Rate Projection Basis

Capital Market Model

Reflects Milliman's capital market assumptions as of July 1, 2023.

	Annual Arithmetic Mean	20-Year Annualized Geometric Mean	Annual Standard Deviation	Policy Allocation
Global Equity	8.43%	6.89%	18.14%	27.500%
Private Equity	12.67%	8.59%	30.00%	25.500%
Real Estate	7.11%	6.03%	15.11%	12.250%
US Core Fixed Income	4.48%	4.38%	4.32%	25.000%
Hedge Fund – Macro	5.43%	5.21%	7.35%	5.625%
Hedge Fund – Equity Hedge	7.24%	6.47%	11.94%	0.625%
Hedge Fund – Multistrategy	6.67%	6.29%	8.97%	1.250%
Infrastructure	8.02%	6.61%	17.34%	1.500%
Master Limited Partnerships	9.47%	6.09%	26.92%	0.750%
US Inflation (CPI-U)	2.41%	2.40%	1.42%	**N/A**
Fund Total (reflecting asset class correlations)	**8.16%**	**7.35%***	**13.35%**	**100.00%**

* The model's 20-year annualized geometric median is **7.34%**.

Retirement System Risks

- Oregon PERS, like all defined benefit systems, is subject to various risks that will affect future system liabilities and contribution requirements, including:
  - **Investment risk**: the potential that investment returns will be different than assumed
  - **Demographic risks**: the potential that mortality experience, retirement behavior, or other demographic experience for the system membership will be different than assumed
  - **Contribution risk**: the potential that actual future contributions will be materially different than expected, for example if there are material changes in the system's covered payroll
- The results of an actuarial valuation are based on one set of reasonable assumptions, but it is almost certain that future experience will not exactly match the assumptions.
- Further discussion of system risks and historical information regarding system experience are shown in our annual actuarial valuations. In addition, our annual financial modeling presentation to the PERS Board illustrates future outcomes under a wide range of future scenarios reflecting variation in key risk factors.

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Actuarial Services – Cost Proposal

Solicitation #120961 O5

Prepared for Nebraska Public Employees Retirement Systems

March 21, 2025

Submitted by:

Milliman

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120961 O5

COST PROPOSAL

ACUTARIAL SERVICES FOR THE NEBRASKA PUBLIC EMPLOYEES RETIREMENT SYSTEMS (NPERS)

These costs shall be all-inclusive. Neither the State, the PERB, nor NPERS will be responsible for travel, out-of-pocket, or other expenses of the actuarial consultant/firm.

Bidder Name: ____Milliman, Inc.______________________

Description	Unit of Measure	Initial Year One	Initial Year Two	Initial Year Three
Consultation Service and Reports for the Annual Valuation of the School Defined Benefit Plan	$	28,000	28,700	29,400
Consultation Service and Reports for the Annual Valuation of the Omaha School Defined Benefit Plan	$	28,000	28,700	29,400
Consultation Service and Reports for the Annual Valuation of the Judges Defined Benefit Plan	$	22,000	22,600	23,200
Consultation Service and Reports for the Annual Valuation of the Patrol Defined Benefit Plan	$	22,000	22,600	23,200
Consultation Service and Reports for the Annual Valuation of the State Cash Balance Plan and ERBF	$	28,000	28,700	29,400
Consultation Service and Reports for the Annual Valuation of the County Cash Balance plan and ERBF	$	28,000	28,700	29,400
Consultation Services and Reports for GASB 67	$	25,000	25,600	26,200
Consultation Services and Reports for GASB 68	$	35,000	35,900	36,800
Annual 5-year projection report	EA	10,000	10,300	10,600
Annual 30-year projection report	EA	20,000	20,500	21,000
Projection modeling software	YR	Included	Included	Included
2025 Actuarial Experience Study for Omaha School Defined Benefit Plan	EA	30,000	N/A	N/A

One Time Benefit Adequacy Study to be completed as required by NPERS	EA	85,000		

OPTIONAL SUPPLEMENTAL SERVICES:

PLEASE LIST ALL POSITIONS THAT MIGHT BE UTILIZED FOR ADDITIONAL SUPPLEMENTAL SERVICES. (Add rows as needed.)

Hourly ranges will not be accepted. Please break out positions if needed. For example, Consulting Actuary I, Consulting Actuary II, Consulting Actuary III, etc.

Position Title	Initial Year One Hourly Rate	Initial Year Two Hourly Rate	Initial Year Three Hourly Rate
Principal and Consulting Actuary	500	515	530
Consulting Actuary	470	480	490
Analyst (credentialed)	325	335	345
Analyst (non-credentialed)	275	280	285
Support Staff	150	150	150

OPTIONAL THREE (3) YEAR - RENEWAL 1

Description	Unit of Measure	Optional Renewal One Year Four	Optional Renewal One Year Five	Optional Renewal One Year Six
Consultation Service and Reports for the Annual Valuation of the School Defined Benefit Plan	$	30,100	30,900	31,700
Consultation Service and Reports for the Annual Valuation of the Omaha School Defined Benefit Plan	$	30,100	30,900	31,700
Consultation Service and Reports for the Annual Valuation of the Judges Defined Benefit Plan	$	23,800	24,400	25,000
Consultation Service and Reports for the Annual Valuation of the Patrol Defined Benefit Plan	$	23,800	24,400	25,000

Consultation Service and Reports for the Annual Valuation of the State Cash Balance Plan and ERBF	$	30,100	30,900	31,700
Consultation Service and Reports for the Annual Valuation of the County Cash Balance plan and ERBF	$	30,100	30,900	31,700
Consultation Services and Reports for GASB 67	$	26,900	27,600	28,300
Consultation Services and Reports for GASB 68	$	37,700	38,600	39,600
Annual 5 year projection report	EA	10,900	11,200	11,500
Annual 30 year projection	EA	21,500	22,000	22,600
Projection modeling software	YR	Included	Included	Included
2028 Actuarial Experience Study for School, Judges, State Patrol, State Cash Balance, and County Cash Balance Plans	EA	N/A	33,100	N/A
2029 Actuarial Experience Study for Omaha School Defined Benefit Plan	EA	65,000	N/A	N/A

OPTIONAL SUPPLEMENTAL SERVICES DURING OPTIONAL RENEWAL PERIOD ONE:

PLEASE LIST ALL POSITIONS THAT MIGHT BE UTILIZED FOR ADDITIONAL SUPPLEMENTAL SERVICES (Add rows as needed.)

Hourly ranges will not be accepted. Please break out positions if needed. For example, Consulting Actuary I, Consulting Actuary II, Consulting Actuary III, etc.

Position title	Optional Renewal Two - Year Seven Hourly Rate	Optional Renewal Two - Year Eight Hourly Rate	Optional Renewal Two - Year Nine Hourly Rate
Principal and Consulting Actuary	545	560	575
Consulting Actuary	500	515	530
Analyst (credentialed)	355	365	375
Analyst (non-credentialed)	290	295	300
Support Staff	150	150	150

OPTIONAL THREE (3) YEAR - RENEWAL 2

Description	Unit of Measure	Optional Renewal Two Year Seven	Optional Renewal Two Year Eight	Optional Renewal Two Year Nine
Consultation Service and Reports for the Annual Valuation of the School Defined Benefit Plan	$	32,500	33,300	34,100
Consultation Service and Reports for the Annual Valuation of the Omaha School Defined Benefit Plan	$	32,500	33,300	34,100
Consultation Service and Reports for the Annual Valuation of the Judges Defined Benefit Plan	$	25,600	26,200	26,900
Consultation Service and Reports for the Annual Valuation of the Patrol Defined Benefit Plan	$	25,600	26,200	26,900
Consultation Service and Reports for the Annual Valuation of the State Cash Balance Plan and ERBF	$	32,500	33,300	34,100
Consultation Service and Reports for the Annual Valuation of the County Cash Balance plan and ERBF	$	32,500	33,300	34,100
Consultation Services and Reports for GASB 67	$	29,000	29,700	30,400
Consultation Services and Reports for GASB 68	$	40,600	41,600	42,600
Annual 5-year projection report	EA	11,800	12,100	12,400
Annual 30-year projection	EA	23,200	23,800	24,400
Projection modeling software	YR	Included	Included	Included
2032 Actuarial Experience Study for School, Judges, State Patrol, State Cash Balance, and County Cash Balance Plans	EA	N/A	N/A	36,500
2033 Actuarial Experience Study for Omaha School Defined Benefit Plan	EA	N/A	71,700	N/A

OPTIONAL SUPPLEMENTAL SERVICES DURING OPTIONAL RENEWAL PERIOD TWO:

PLEASE LIST ALL POSITIONS THAT MIGHT BE UTILIZED FOR ADDITIONAL SUPPLEMENTAL SERVICES (Add rows as needed.)

Hourly ranges will not be accepted. Please break out positions if needed. For example, Consulting Actuary I, Consulting Actuary II, Consulting Actuary III, etc.

Position title	Optional Renewal Two - Year Seven Hourly Rate	Optional Renewal Two - Year Eight Hourly Rate	Optional Renewal Two - Year Nine Hourly Rate
Principal and Consulting Actuary	590	605	620
Consulting Actuary	545	560	575
Analyst (credentialed)	385	395	405
Analyst (non-credentialed)	310	320	330
Support Staff	150	150	150