COUNTY OF TULARE
BOARD OF RETIREMENT

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AGENDA OF THE BOARD OF RETIREMENT
REGULAR RETIREMENT BOARD MEETING
Wednesday, October 25, 2023 at 8:30 a.m.
TCERA Board Room, 136 N. Akers Street, Visalia, CA 93291

NOTICE TO THE PUBLIC

Documents related to the items on this agenda are available for public inspection at the Retirement Office, 136 N Akers Street, Visalia, CA, during normal business hours. Such documents are also available on TCERA's website, www.tcera.org, subject to staff's ability to post the documents before the meeting.

Persons wishing to listen to the meeting in progress may access a live stream link located on TCERA's website www.tcera.org.

PUBLIC COMMENTS:

Any person addressing the Board will be limited to a maximum of five (5) minutes. A total of 15 minutes will be allotted for the Public Comment period unless otherwise extended by the Board Chair. If you are part of a large group that would like to comment on an agenda item, please consider commenting in writing or sending one spokesperson to speak on behalf of the group. Public comments are limited to any item of interest to the public that is within the subject matter jurisdiction of the Board of Retirement. (Gov't Code Section 54954.3(a).)

In Person: Persons who wish to address the Board of Retirement during public comment or regarding an item that is on the agenda may address the Board of Retirement in person at the meeting.

Email: Members of the public may also submit public comment via email to BORPublicComment@tularecounty.ca.gov any time before the start of the meeting. The comments received via email before the meeting will be read to the Board of Retirement in open session during the meeting provided that the comments meet the requirements for Public Comments as posted in the agenda.

As a courtesy to those in attendance, all individuals are requested to place cell phones and other electronic devices in the non-audible alert mode.

I. CALL TO ORDER

II. ROLL CALL

III. PLEDGE OF ALLEGIANCE

IV. PUBLIC COMMENT

At this time, members of the public may comment on any item not appearing on the agenda. Under state law, matters presented under this item cannot be discussed or acted upon by the Board at this time. For items appearing on the agenda, the public is invited to make comments at the time the item comes up for Board consideration. Any person addressing the Board will be limited to a maximum of five (5) minutes. Please state your name for the record.

V. X-AGENDA ITEMS

VI. DISABILITIES

1. Closed session to be held regarding disability matters listed on this agenda.
2. In the matter of the disability application of Shamika Woods, consider and take action regarding the application for a disability retirement.
3. In the matter of the disability application of Nicole Rymer, consider and take action regarding the application for a disability retirement.
4. In the matter of the disability application of Casey Vilhauer, consider and take action regarding the application for a disability retirement.
5. Accept as filed the Disability Status Report Overview.

VII. CONSENT CALENDAR

1. Approve Minutes of the following meetings:
    a. Retirement Board Minutes of October 11, 2023.
2. Approve payments to:
    a. County Counsel – invoice for legal services to the Board of Retirement in the amount of $1,844.50 for the period ending September 30, 2023.

VIII. NEW BUSINESS

1. Discussion and possible action regarding the following actuarial reports, including actuarial assumptions, methods, and contribution rates:
    a. June 30, 2023 Actuarial Valuation.
    b. June 30, 2023 GASB 67/68 Report.
    c. June 30, 2023 Three-Year Experience Study.
2. Discussion and possible action regarding SACRS Voting Proxy for the SACRS Conference to be held November 7-10, 2023.

IX. INVESTMENTS

1. Presentation from BlackRock regarding Fixed Income/Credit Spread Education. Discussion and possible action.
2. Presentation from Verus regarding Real Asset Market Environment Education. Discussion and possible action.
3. Discussion and possible action regarding TCERA's strategic investment allocation and investment managers, including performance, contracts, and fees.
    a. Asset Allocation Report

b. Verus Flash Report

X. EDUCATION ITEMS

1. Discussion and possible action regarding Summary Education Reports as filed:
   a. Leanne Malison – DWS Washington Analysis with Frank Kelly – October 10, 2023, 1 Hour
2. Discussion and possible action regarding available educational events.

XI. COMMUNICATIONS

1. SACRS Legislative Update, October 2023. Discussion and possible action.

XII. UPCOMING MEETINGS

1. Board of Retirement Meeting November 1, 2023, 8:30 a.m. - Note schedule change due to SACRS Conference.
1. Board of Retirement Meeting November 15, 2023, 8:30 a.m. – Note schedule change due to Thanksgiving holiday.
2. Administrative Committee Meeting November 15, 2023, 10:00 a.m.
3. Trustee Education/Presentation Calendar – Discussion and possible action.

XIII. TRUSTEE/STAFF COMMMENTS

Under state law, matters presented under this item cannot be discussed or acted upon by the Board at this time.

XIV. ADJOURNMENT

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the Secretary of the Board of Retirement at (559) 713-2900. Notification 48 hours prior to the meeting will help enable staff to make reasonable arrangements to ensure meaningful access. Documents related to the items on this Agenda submitted after distribution of the Agenda packet are available for public inspection at TCERA, 136 N. Akers Street, Visalia, CA. during normal business hours.

DISABILITY STATUS REPORT
Status as of October 18, 2023
(24 Active Disability Applications)

<u>02 - Pending Receipt of Medical Records</u>

7/31/23 Barron, Susan (Shiela Abrego) — **HHS-HS-CWS S Mooney Blvd/General Member Non-Service Connected Disability**

Retired — **Eligible for Service Retirement = Yes**

8/16/23 DMS Notified of Disability Application Filing
8/16/23 Disability Application Packet Received and Reviewed
8/16/23 Disability Application Documents Scanned
8/16/23 Disability File Folder Created
8/16/23 Disability Findings Summary Prepared
8/16/23 Employment Records Requested
8/16/23 Infolinx Setup
8/16/23 Tulare County Health Centers Records Received
8/24/23 HR & D Records Received
9/19/23 County Department Records Received

8/15/23 Rodriguez, Maria (Shiela Abrego) — **HHS-HS-Visalia District Off/General Member Psychiatric/Psychological/Service Connected Disability**

Active — **Eligible for Service Retirement = No**

8/16/23 Disability Application Packet Received and Reviewed
8/16/23 DMS Notified of Disability Application Filing
8/17/23 Disability Application Documents Scanned
8/17/23 Disability File Folder Created
8/17/23 Disability Findings Summary Prepared
8/17/23 Employment Records Requested
8/17/23 Infolinx Setup
8/22/23 Tulare County Health Centers Records Received
9/7/23 HR & D Records Received
9/19/23 County Department Records Received

7/5/23 Vigario, Joshua (Shiela Abrego)

Sher-Dt-Bob Wiley Det. Fac./Safety Member Psychiatric/Psychological/Service Connected Disability

Presumptive Indicator: N
Deferred Vested

Eligible for Service Retirement = No

7/5/23 DMS Notified of Disability Application Filing

7/5/23 Disability Application Packet Received and Reviewed

7/5/23 Disability Application Documents Scanned

7/5/23 Disability File Folder Created

7/5/23 Disability Findings Summary Prepared

7/5/23 Employment Records Requested

7/5/23 Infolinx Setup

7/13/23 County Department Records Received

7/13/23 Tulare County Health Centers Records Received

7/27/23 HR & D Records Received

<u>04 - IME Scheduled/Pending Report</u>

4/3/23 Sierra, George (Rebecca Cardenas)

Sher-Dt-Pre-Trial/Safety Member Orthopedic/ Service Connected Disability

Presumptive Indicator: N
Deferred Non-Vested

Eligible for Service Retirement = No

4/3/23 DMS Notified of Disability Application Filing

4/3/23 Disability Application Packet Received and Reviewed

4/4/23 Disability Application Documents Scanned

4/4/23 Disability File Folder Created

4/4/23 Disability Findings Summary Prepared

4/4/23 Employment Records Requested

4/4/23 Infolinx Setup

4/4/23 Tulare County Health Centers Records Received
Additional Remarks : Certification of No Records.

4/19/23 County Department Records Received

4/28/23 HR & D Records Received

6/2/23 Benefit Estimate Sent to DMS

6/2/23 Risk Management Records Received

6/30/23 Record Summarization Received

6/30/23 Record Summarization Requested

9/6/23 IME Appointment Letter to Member Sent

9/6/23 IME Appointment Scheduled
Additional Remarks : Appointment on 10/11/23 @12pm in Clovis w/ Dr. Donald Pompan

9/6/23 IME Requested

1/24/23 Tello, Eron (Rebecca Cardenas)
Prob-Juvenile Detention/Safety Member
Orthopedic/Service Connected Disability
Presumptive Indicator: N
Active
Eligible for Service Retirement = No

1/31/23 Disability Application Documents Scanned

1/31/23 Disability File Folder Created

1/31/23 Disability Findings Summary Prepared

1/31/23 Employment Records Requested

1/31/23 Infolinx Setup

2/23/23 HR & D Records Received

2/23/23 Tulare County Health Centers Records Received

3/14/23 County Department Records Received

6/2/23 DMS Notified of Disability Application Filing

6/2/23 Disability Application Packet Received and Reviewed

6/2/23 Risk Management Records Received

6/30/23 Record Summarization Requested
Additional Remarks : Requested new summarization for right knee records received after initial summary was completed.

8/10/23 Benefit Estimate Sent to DMS

10/12/23 IME Appointment Letter to Member Sent

10/12/23 IME Appointment Scheduled
Additional Remarks : IME Schedule 11/15/23 @ 12PM in Clovis w/ Dr. Donald Pompan

10/12/23 IME Requested

10/21/22 Corazzini, Tracie (Rebecca Cardenas)
Tulare County Fire Dept/Safety Member
Presumptive Indicator: N
Retired
Eligible for Service Retirement = Yes

10/21/22 Disability Application Documents Scanned

10/21/22 Disability File Folder Created

10/21/22 Disability Findings Summary Prepared

10/21/22 Employment Records Requested

10/21/22 Infolinx Setup

11/16/22 HR & D Records Received

11/17/22 Tulare County Health Centers Records Received

11/30/22 County Department Records Received

6/2/23 Benefit Estimate Sent to DMS

6/2/23 DMS Notified of Disability Application Filing

6/2/23 Disability Application Packet Received and Reviewed

6/2/23 Risk Management Records Received

7/26/23 IME Appointment Letter to Member Sent

7/26/23 IME Appointment Scheduled
Additional Remarks : IME scheduled on 9/20/23 @ 2pm in Clovis w/ Dr. Donald Pompan

7/26/23 IME Requested

5/23/23 Patterson, Donald (Rebecca Cardenas)
Presumptive Indicator: N
Active

Prob-Juvenile Detention/Safety Member
Orthopedic/Service Connected Disability

Eligible for Service Retirement = No

5/25/23 DMS Notified of Disability Application Filing

5/25/23 Disability Application Packet Received and Reviewed

5/26/23 Disability Application Documents Scanned

5/26/23 Disability File Folder Created

5/26/23 Infolinx Setup

5/26/23 Disability Findings Summary Prepared

5/26/23 Employment Records Requested

6/15/23 County Department Records Received

6/15/23 Risk Management Records Received

6/15/23 Tulare County Health Centers Records Received

6/22/23 HR & D Records Received

6/30/23 Benefit Estimate Sent to DMS

6/30/23 Record Summarization Requested

8/28/23 IME Appointment Letter to Member Sent

8/28/23 IME Appointment Scheduled
Additional Remarks : Appt on 9/9/23 @ 2pm in Tulare with Dr. Pavel Moldavskiy.

8/28/23 IME Requested

10/6/22 Smith, Ronald (Rebecca Cardenas) **Sher-Dt-Main Jail/Safety Member Orthopedic/ Service Connected Disability**

Presumptive Indicator: N
Retired **Eligible for Service Retirement = Yes**

10/6/22 Disability Application Packet Received and Reviewed
10/6/22 DMS Notified of Disability Application Filing
10/21/22 Disability Application Documents Scanned
10/21/22 Disability File Folder Created
10/21/22 Disability Findings Summary Prepared
10/21/22 Employment Records Requested
10/21/22 Infolinx Setup
11/30/22 HR & D Records Received
1/17/23 County Department Records Received
1/17/23 Tulare County Health Centers Records Received
6/2/23 Risk Management Records Received
6/30/23 IME Requested
6/30/23 Record Summarization Received
6/30/23 Record Summarization Requested
7/5/23 IME Appointment Letter to Member Sent
7/5/23 IME Appointment Scheduled
Additional Remarks : IME appt scheduled 8/18/23 @ 10am w/ Dr Donald Pompan in Clovis

11/17/22 Xiong, Ying (Darcy Nunes) **HHS-HS-Visalia District Off/General Member Orthopedic/Service Connected Disability**

Retired **Eligible for Service Retirement = Yes**

11/17/22 DMS Notified of Disability Application Filing
11/17/22 Disability Application Packet Received and Reviewed
11/18/22 Disability Application Documents Scanned
11/18/22 Disability File Folder Created
11/18/22 Disability Findings Summary Prepared
11/18/22 Employment Records Requested
11/18/22 Infolinx Setup
11/28/22 Tulare County Health Centers Records Received

12/20/22 HR & D Records Received

1/30/23 County Department Records Received

2/10/23 Risk Management Records Received

6/21/23 Employment Records Reviewed

6/21/23 IME Requested

6/21/23 Medical Records Received from Applicant

6/21/23 Record Summarization Received

6/21/23 Record Summarization Requested

6/28/23 IME Appointment Letter to Member Sent

6/28/23 IME Appointment Scheduled
Additional Remarks : Appt on 8/17/23 @ 1PM in Clovis w/ Dr. Donald Pompan

9/7/22 Vera, Raychel (Rebecca Cardenas) Sher-CS-Visalia Superior/Safety Member
Presumptive Indicator: N
Retired Eligible for Service Retirement = Yes

12/5/22 Benefit Estimate Sent to DMS

12/5/22 County Department Records Received

12/5/22 DMS Notified of Disability Application Filing

12/5/22 Disability Application Documents Scanned

12/5/22 Disability Application Packet Received and Reviewed

12/5/22 Disability File Folder Created

12/5/22 Employment Records Requested

12/5/22 HR & D Records Received

12/5/22 Infolinx Setup

12/5/22 Risk Management Records Received

12/5/22 Tulare County Health Centers Records Received

6/30/23 IME Requested

6/30/23 Record Summarization Received

6/30/23 Record Summarization Requested

7/5/23 IME Appointment Letter to Member Sent
Additional Remarks : Rescheduled IME letter mailed out 09/13/23

7/5/23 IME Appointment Scheduled
Additional Remarks : Rescheduled IME for 10/11/2023 @ 4pm in Clovis with Dr. Donald Pompan.
Appointment scheduled 8/18/2023 @11AM in Clovis w/ Dr. Donald Pompan

10/20/22 Nix, Brian (Rebecca Cardenas) Sher-Op-Porterville/Safety Member Cardiac/

DISABILITY STATUS REPORT

Status as of October 18, 2023
(24 Active Disability Applications)

Service Connected Disability

Presumptive Indicator: Y
Retired

Eligible for Service Retirement = Yes

10/20/22 DMS Notified of Disability Application Filing
10/20/22 Disability Application Packet Received and Reviewed
10/25/22 Disability Application Documents Scanned
10/25/22 Disability File Folder Created
10/25/22 Disability Findings Summary Prepared
10/25/22 Employment Records Requested
10/25/22 Infolinx Setup
11/17/22 Tulare County Health Centers Records Received
11/29/22 HR & D Records Received
1/17/23 County Department Records Received
6/2/23 Medical Records Received from Applicant
6/2/23 Risk Management Records Received
6/30/23 IME Requested
6/30/23 Record Summarization Received
6/30/23 Record Summarization Requested
7/11/23 IME Appointment Letter to Member Sent
7/11/23 IME Appointment Scheduled
Additional Remarks : Appt Schedule for 9/15/23 @ 10AM w/ Dr. Stephan Simonian in Visalia.

12/21/22 Cantu, Ricardo (Rebecca Cardenas)

DA-Visalia Courthouse/Safety Member
Orthopedic/Service Connected Disability

Presumptive Indicator: N
Retired

Eligible for Service Retirement = Yes

12/21/22 DMS Notified of Disability Application Filing
12/21/22 Disability Application Packet Received and Reviewed
12/23/22 Disability Application Documents Scanned
12/23/22 Disability File Folder Created
12/23/22 Disability Findings Summary Prepared
12/23/22 Employment Records Requested
12/23/22 Infolinx Setup
12/23/22 Medical Records Received from Applicant
12/23/22 Tulare County Health Centers Records Received
1/23/23 County Department Records Received
1/23/23 HR & D Records Received

6/30/23 Record Summarization Requested

8/28/23 IME Appointment Letter to Member Sent

8/28/23 IME Appointment Scheduled
Additional Remarks : Appt on 9/9/23 @ 2:20PM w/ Dr. Pavel Moldavskiy in Tulare.

8/28/23 IME Requested

05 - Accommodation Request/Pending Response

11/14/22 Arroyo, Veronica (Darcy Nunes) **HHS-HS-Dinuba District Off/General Member**

Retired **Eligible for Service Retirement = Yes**

11/14/22 Disability Application Packet Received and Reviewed

11/18/22 Disability Application Documents Scanned

11/18/22 Disability File Folder Created

11/18/22 Disability Findings Summary Prepared

11/18/22 Employment Records Requested

11/18/22 Infolinx Setup

11/28/22 Tulare County Health Centers Records Received

12/20/22 HR & D Records Received

12/30/22 County Department Records Received

4/27/23 IME Appointment Letter to Member Sent

4/27/23 IME Appointment Scheduled

4/27/23 IME Reports Received

4/27/23 IME Requested

10/12/23 Accommodation Memo Sent

10/12/23 Accommodation Response Received

10/12/23 Employment Records Reviewed

10/12/23 Record Summarization Received

10/12/23 Record Summarization Requested

10/12/23 IRC Meeting Scheduled
Additional Remarks : IRC 09/26/23

06 - Additional Information Pending

3/28/23 Uhl, David (Darcy Nunes) **Sher-Dt-Pre-Trial/Safety Member Orthopedic/ Service Connected Disability**

DISABILITY STATUS REPORT
Status as of October 18, 2023
(24 Active Disability Applications)

Presumptive Indicator: N
Active **Eligible for Service Retirement = No**

3/29/23 DMS Notified of Disability Application Filing

3/29/23 Disability Application Packet Received and Reviewed

3/29/23 Disability Application Documents Scanned

3/29/23 Disability File Folder Created

3/29/23 Disability Findings Summary Prepared

3/29/23 Employment Records Requested

3/29/23 Infolinx Setup

3/31/23 Tulare County Health Centers Records Received

4/6/23 County Department Records Received

4/27/23 HR & D Records Received

6/20/23 Employment Records Reviewed

6/20/23 IME Requested

6/20/23 Medical Records Received from Applicant

6/20/23 Record Summarization Received

6/20/23 Record Summarization Requested

6/20/23 Risk Management Records Received

6/30/23 IME Appointment Letter to Member Sent

6/30/23 IME Appointment Scheduled
Additional Remarks : Appt 8/18/23 @ 9AM in Clovis w/ Dr. Donald Pompan

9/12/23 Accommodation Memo Sent
Additional Remarks : Due 10/3/23

10/12/23 Accommodation Response Received

10/12/23 IME Reports Received

10/12/23 IRC Meeting Scheduled
Additional Remarks : 10/25/23

8/23/22 Negrete, Stephanie (Darcy Nunes) **Sher-Dt-Pre-Trial/Safety Member Service Connected Disability**

Presumptive Indicator: N
Active **Eligible for Service Retirement = No**

8/24/22 DMS Notified of Disability Application Filing

8/24/22 Disability Application Packet Received and Reviewed

8/24/22 Employment Records Requested

9/1/22 Disability Application Documents Scanned

9/1/22 Disability File Folder Created

9/1/22 Disability Findings Summary Prepared

9/1/22 Infolinx Setup

9/20/22 HR & D Records Received

10/26/22 County Department Records Received

1/31/23 Tulare County Health Centers Records Received

4/5/23 Medical Records Received from Applicant

4/5/23 Risk Management Records Received

5/22/23 IME Appointment Letter to Member Sent

5/22/23 IME Appointment Scheduled
Additional Remarks : IME scheduled on 6/22/23 at 12PM with Dr. Donald Pompan in Clovis.

5/22/23 IME Requested

10/12/23 Accommodation Memo Sent

10/12/23 Accommodation Response Received

10/12/23 Employment Records Reviewed

10/12/23 IME Reports Received

10/12/23 IRC Meeting Scheduled
Additional Remarks : 10/25/23

10/12/23 Record Summarization Received

10/12/23 Record Summarization Requested

10/12/23 Supplemental IME Requested

1/27/23 Chabiel, Dennis (Rebecca Cardenas) **Sher-Dt-Pre-Trial/General Member Orthopedic/ Service Connected Disability**

Active **Eligible for Service Retirement = No**

1/27/23 DMS Notified of Disability Application Filing

1/27/23 Disability Application Packet Received and Reviewed

2/1/23 Disability Application Documents Scanned

2/1/23 Disability File Folder Created

2/1/23 Disability Findings Summary Prepared

2/1/23 Employment Records Requested

2/1/23 Infolinx Setup

3/3/23 HR & D Records Received

3/6/23 County Department Records Received

3/6/23 Tulare County Health Centers Records Received

5/22/23 IME Appointment Letter to Member Sent

5/22/23 IME Appointment Scheduled
Additional Remarks : IME appt w/ Dr. Donald Pompan on 6/22/23 @ 1PM in Clovis

5/22/23 IME Requested
6/30/23 Record Summarization Received
6/30/23 Record Summarization Requested
8/9/23 Accommodation Memo Sent
8/9/23 IME Reports Received
8/9/23 Risk Management Records Received

8/12/22 Florez, Diana (Rebecca Cardenas) **Prob-Juvenile Detention/Safety Member**
Presumptive Indicator: N
Active **Eligible for Service Retirement = Yes**

8/12/22 Disability Application Packet Received and Reviewed
8/30/22 Employment Records Requested
9/1/22 Disability Application Documents Scanned
9/1/22 Disability File Folder Created
9/1/22 Disability Findings Summary Prepared
9/1/22 Infolinx Setup
9/7/22 Tulare County Health Centers Records Received
9/7/22 Medical Records Received from Applicant
9/27/22 HR & D Records Received
9/27/22 Risk Management Records Received
12/13/22 Record Summarization Requested
12/30/22 County Department Records Received
6/23/23 IME Appointment Scheduled
Additional Remarks : Appt on 7/27/23 in Clovis w/ Dr Donald Pompan @10AM
6/23/23 IME Requested
6/23/23 IME Appointment Letter to Member Sent
6/30/23 Record Summarization Received

9/21/22 Garcia, Francis (Rebecca Cardenas) **Prob-Admin-Visalia/Safety Member**
Orthopedic/Service Connected Disability
Presumptive Indicator: N
Retired **Eligible for Service Retirement = Yes**

9/21/22 DMS Notified of Disability Application Filing

9/21/22 Disability Application Packet Received and Reviewed

9/29/22 Disability Application Documents Scanned

9/29/22 Disability File Folder Created

9/29/22 Disability Findings Summary Prepared

9/29/22 Infolinx Setup

9/29/22 Employment Records Requested

10/17/22 Tulare County Health Centers Records Received
Additional Remarks : Certification of No Records

11/28/22 HR & D Records Received

11/28/22 County Department Records Received

3/13/23 Record Summarization Requested

3/13/23 Risk Management Records Received

6/6/23 IME Appointment Letter to Member Sent

6/6/23 IME Appointment Scheduled
Additional Remarks : IME schedule for 7/26/23 @ 10AM in Clovis w/ Dr. Donald Pompan.

6/6/23 IME Requested

8/10/23 Accommodation Memo Sent

8/10/23 IME Reports Received

1/24/23 Campos, Joseph (Rebecca Cardenas) **Sher-Dt-Pre-Trial/Safety Member Orthopedic/ Service Connected Disability**

Presumptive Indicator: N
Active **Eligible for Service Retirement = No**

1/27/23 DMS Notified of Disability Application Filing

1/27/23 Disability Application Packet Received and Reviewed

2/1/23 Disability Application Documents Scanned

2/1/23 Disability File Folder Created

2/1/23 Disability Findings Summary Prepared

2/1/23 Employment Records Requested

2/1/23 Infolinx Setup

2/16/23 County Department Records Received

3/2/23 HR & D Records Received

3/2/23 Tulare County Health Centers Records Received

6/30/23 IME Appointment Letter to Member Sent

6/30/23 IME Appointment Scheduled

6/30/23 IME Requested

6/30/23 Record Summarization Received
6/30/23 Record Summarization Requested
8/9/23 Accommodation Memo Sent
8/9/23 IME Reports Received

1/13/23 Lopez, Maria (Rebecca Cardenas) **Prob-Juvenile Detention/General Member**
Orthopedic/Service Connected Disability

Active **Eligible for Service Retirement = No**

1/13/23 DMS Notified of Disability Application Filing
1/13/23 Disability Application Packet Received and Reviewed
1/19/23 Disability Application Documents Scanned
1/19/23 Disability File Folder Created
1/19/23 Disability Findings Summary Prepared
1/19/23 Employment Records Requested
1/19/23 Infolinx Setup
1/23/23 Tulare County Health Centers Records Received
2/16/23 HR & D Records Received
2/17/23 Risk Management Records Received
2/21/23 County Department Records Received
6/30/23 IME Appointment Letter to Member Sent
6/30/23 IME Appointment Scheduled
Additional Remarks : IME Appt Schedule 6/16/23 @ 3PM in Clovis W/ Dr Don Williams
6/30/23 IME Requested
6/30/23 Record Summarization Received
6/30/23 Record Summarization Requested
8/10/23 Accommodation Memo Sent
8/10/23 IME Reports Received

08 - Board Agenda/Pending Decision

8/25/22 Woods, Shamika (Rebecca Cardenas) **Prob-Admin-Visalia/Safety Member**
Presumptive Indicator: N
Active **Eligible for Service Retirement = No**

8/25/22 Disability Application Packet Received and Reviewed
8/30/22 Employment Records Requested

8/31/22 Disability Application Documents Scanned
8/31/22 Disability File Folder Created
8/31/22 Infolinx Setup
8/31/22 Disability Findings Summary Prepared
9/7/22 Tulare County Health Centers Records Received
9/20/22 HR & D Records Received
10/26/22 County Department Records Received
10/26/22 DMS Notified of Disability Application Filing
10/26/22 Risk Management Records Received
4/6/23 IME Appointment Letter to Member Sent
4/6/23 IME Appointment Scheduled
4/6/23 IME Requested
6/1/23 Employment Records Reviewed
6/1/23 IME Reports Received
6/1/23 Record Summarization Received
6/1/23 Record Summarization Requested
6/30/23 IRC Meeting Scheduled
8/3/23 Supplemental IME Requested
10/9/23 Added to Board Meeting Agenda
10/9/23 Board Meeting Notification Letter Sent
10/9/23 Disability Packet Sent to Board Members

1/17/23 Vilhauer, Casey (Darcy Nunes)
Sher-CS-Visalia Superior/Safety Member
Orthopedic/Service Connected Disability

Presumptive Indicator: N
Retired
Eligible for Service Retirement = Yes

1/27/23 DMS Notified of Disability Application Filing
1/27/23 Disability Application Packet Received and Reviewed
2/2/23 Disability Application Documents Scanned
2/2/23 Disability File Folder Created
2/2/23 Disability Findings Summary Prepared
2/2/23 Employment Records Requested
2/2/23 Infolinx Setup
3/3/23 HR & D Records Received
3/9/23 County Department Records Received
3/9/23 Tulare County Health Centers Records Received

7/19/23 IME Appointment Letter to Member Sent

7/19/23 IME Appointment Scheduled
Additional Remarks : IME appt 7/26/23 @ 2pm in Clovis w/ Dr. Pompan

7/19/23 IME Requested

10/11/23 Added to Board Meeting Agenda
Additional Remarks : BOR date 10/25/23

10/11/23 Board Meeting Notification Letter Sent

10/11/23 IRC Meeting Scheduled
Additional Remarks : IRC date 09/26/23

10/11/23 Accommodation Memo Sent

10/11/23 Accommodation Response Received

10/11/23 Employment Records Reviewed

10/11/23 Medical Records Received from Applicant

10/11/23 Record Summarization Received

10/11/23 Record Summarization Requested

10/11/23 Risk Management Records Received

1/31/23 Rymer, Nicole (Rebecca Cardenas) — **HHS-MH-Crisis Response Team/General Member Disease/Non-Service Connected Disability**

Deferred Vested — **Eligible for Service Retirement = No**

2/2/23 DMS Notified of Disability Application Filing

2/2/23 Disability Application Packet Received and Reviewed

2/2/23 Disability Application Documents Scanned

2/2/23 Disability File Folder Created

2/2/23 Disability Findings Summary Prepared

2/2/23 Employment Records Requested

2/2/23 Infolinx Setup

2/16/23 Tulare County Health Centers Records Received

3/3/23 HR & D Records Received

3/3/23 County Department Records Received

3/3/23 Risk Management Records Received
Additional Remarks : Certification of No Records received 02/03/23

5/22/23 IME Appointment Letter to Member Sent

5/22/23 IME Appointment Scheduled
Additional Remarks : IME schedule 6/13/23 @ 12:45 w/ Dr Scott Anderson in Clovis.

5/22/23 IME Requested

6/30/23 Record Summarization Received

6/30/23 Record Summarization Requested

7/19/23 IME Reports Received

7/19/23 IRC Meeting Scheduled

10/10/23 Added to Board Meeting Agenda
Additional Remarks : 10/25/23

11/12/19 Milton, Sheryl (Rebecca Cardenas) **HHS-Admin Human Resources/General Member**
Multiple/Service Connected Disability

Active **Eligible for Service Retirement = No**

11/13/19 Supplemental IME Requested
Additional Remarks : received by mail 11/12/19

11/14/19 Disability Application Documents Scanned

11/14/19 Disability File Folder Created

11/14/19 Infolinx Setup

11/15/19 Disability Application Packet Received and Reviewed

11/15/19 Employment Records Requested
Additional Remarks : Due 12/16/19; 1/6/20 - All dept records received, pending medical recs from member; 3/12/2020 all records received, medical record summary ordered, due 4/2/2020

1/6/20 County Department Records Received
Additional Remarks : HHSA

1/6/20 HR & D Records Received

1/6/20 Risk Management Records Received

5/15/20 IME Appointment Scheduled
Additional Remarks : Ortho appt scheduled 5/28/20 in Clovis, CA, IME Cancelled because of high cost, added to 6/24/20 Board agenda for approval; Cost approved, IME rescheduled on 7/21/20 in Clovis

5/15/20 IME Appointment Letter to Member Sent

9/9/20 IRC Meeting Scheduled
Additional Remarks : On 2/26/20 IRC agenda; On 9/9/2020 IRC agenda

11/5/20 Added to Board Meeting Agenda
Additional Remarks : Added to 12/9/20 Board agenda; 12/7/20 Case removed from Board agenda and placed on 12/16/20 IRC agenda; Added to 1/13/21 Board agenda

12/29/20 Board Meeting Notification Letter Sent

1/15/21 Board Decision Letter Sent to Applicant
Additional Remarks : hearing request due 1/25/21

1/27/21 Hearing Request Form Received

Additional Remarks : Formal Hearing Request

1/27/21 County Counsel Client Request Form Sent
Additional Remarks : Parties have been assigned, Hearing Officer Assignment notice mailed on 2/26/21. Deadline for distribution of exhibits is 4/12/21.

4/8/21 Exhibits Prepared and Sent
Additional Remarks : Designation of records due 5/10/21; Atty notice received from applicant; 5/7/21 amended letter re initial exhibits sent to parties with notice of hearing (9/17/21); Received list of designated, physical records due on 7/7/21

7/21/21 Augmented Exhibits Prepared and Sent, if applicable
Additional Remarks : 7/21/21 - 1st set of augmented exhibits sent (still pending more designated records), also sent new Notice of Hearing (hearing rescheduled on 10/19/21); 9/14/21 Notice re: witnesses sent, also sent final augmented exhibits (phase for augmented recs complete); Hearing rescheduled on 6/14/22 and 6/15/22

3/6/23 Added to Board Meeting Agenda
Additional Remarks : 3/8/23

COUNTY OF TULARE
BOARD OF RETIREMENT

Leanne Malison
Retirement Administrator

136 N AKERS STREET
VISALIA, CALIFORNIA 93291

TELEPHONE (559) 713-2900
FAX (559) 730-2631
www.tcera.org

MINUTES OF THE BOARD OF RETIREMENT
TULARE COUNTY BOARD OF SUPERVISORS
AND
REGULAR RETIREMENT BOARD MEETING
Wednesday, October 11, 2023, at 8:30 a.m.
TCERA Board Room, 136 N. Akers Street, Visalia, CA 93291

I. CALL TO ORDER

The joint meeting was called to order at 8:31 a.m. by Pete Vander Poel, Board of Retirement Chair and Dennis Townsend, Board of Supervisors Chair.

II. ROLL CALL

Voting Trustees Present:	Cass Cook, Ty Inman, Gary Reed, Jim Young, Pete Vander Poel, Nathan Polk (Left at 9:37 a.m.)
Trustees Absent:	Roland Hill
Voting Alternate Trustees Present:	David Vasquez (Voting for Seat 3), George Finney (Voting for Seat 8)
Alternate Trustees Present:	Jorge Garcia
Supervisors Present:	Dennis Townsend, Pete Vander Poel, Eddie Valero, Larry Micari, and Amy Shuklian (Arrived at 8:37 a.m.)
Staff Members Present:	Leanne Malison, Retirement Administrator, Paul Sampietro, Assistant Retirement Administrator, Melanie Tyler, Secretary II
Board of Retirement Counsel Present:	Aaron Zaheen, Deputy County Counsel, Paula Clark, Deputy County Counsel
Board of Supervisors Counsel Present:	Jennifer Flores, Deputy County Counsel
Actuary Present:	Graham Schmidt, Cheiron, Steven Hastings, Cheiron
Also Present:	Melinda Benton, Chief Clerk of the Board of Supervisors, Jason Britt, County Administrative Officer, John Hess, Assistant County Administrative Officer

III. PLEDGE OF ALLEGIANCE

IV. PUBLIC COMMENT

At this time, members of the public may comment on any item not appearing on the agenda. Under state law, matters presented under this item cannot be discussed or acted upon by the Board at this time. For items appearing on the agenda, the public is invited to make comments at the time the item comes up for Board consideration. Any person addressing the Board will be limited to a maximum of five (5) minutes. Please state your name for the record.

V. X-AGENDA ITEMS

None

VI. JOINT MEETING ITEMS

1. Educational presentation from Cheiron regarding June 30, 2023 actuarial information including preliminary results of the three-year experience study, TCERA actuarial data, statistics, assumptions, and projections.

Mr. Schmidt and Mr. Hastings provided a detailed presentation on TCERA's actuarial data, statistics, assumptions, projections, and results of the three-year experience study. The presentation included recommendations for changes in the following actuarial assumptions for the June 30, 2023 actuarial valuation:

Mortality Assumptions: Minor changes to factors used to adjust standard tables to TCERA experience and update mortality improvement assumption to use latest published table (MP-2021)
Termination Rates: Adopt service-only based assumptions, and minor adjustments to rates of refund vs. deferred vested.
Other Changes: Increase merit/longevity pay increase rates at higher service levels for Safety members, and minor changes to family composition and optional form elections.

The chair authorized 1 hour of continuing education credit for trustees and staff present during the joint meeting presentation.

VII. SUPERVISOR / TRUSTEE / STAFF COMMENTS

1. Under state law, matters presented under this item cannot be discussed or acted upon by the Board at this time.

Mr. Vander Poel noted that he enjoys serving on the Board of Retirement and appreciates the collaboration between Tulare County, the Board of Supervisors and TCERA because without the collaboration it would have a negative impact on the Retirement Board and the Plan Sponsor.

VIII. ADJOURN THE JOINT MEETING OF THE BOARD OF RETIREMENT AND THE TULARE COUNTY BOARD OF SUPERVISORS

Adjourned 9:37 a.m.

IX. CONVENE AS THE BOARD OF RETIREMENT

The Board of Retirement Meeting was called to order at 9:47 a.m. by Pete Vander Poel, Chair

X. CONSENT CALENDAR

1. Approve Minutes of the following meetings:
   a. Retirement Board Minutes of September 27, 2023.
2. Approve payments to:
   a. Verus – invoice for investment consulting services in the amount of $22,500 for the month ended September 30, 2023.
   b. Leeward Investments – invoice for investment management services in the amount of $53,536.97 for the quarter ended September 30, 2023.
3. Pension Board Reports and Actions
   a. Ratify Retirement Administrator actions regarding Retirement Application approvals and Option Selections for the month of September 2023.
   b. Approve Reports regarding Retirement Applications, Option Selections and Deceased Pensioners and 30-Year Members for the month of September 2023.

4. Administrative Financial Reports and Actions
   a. TCERA and TCERA Property, Inc. Preliminary Financial Statements – August 31, 2023.

      Motion to approve Consent Calendar as presented.

      Motion: Cook
      Second: Young

      Ayes: Cook, Inman, Vander Poel, Reed, Young, Vasquez, Finney
      Absent: Hill, Polk
      Motion passed.

XI. NEW BUSINESS

1. Discussion and possible action regarding Cheiron actuarial information including preliminary results of the three-year experience study, TCERA actuarial data, statistics, assumptions, and projections dated June 30, 2023.

Ms. Malison noted that this action item is to provide direction to Cheiron regarding any changes to the assumptions either as recommended or any that may interest the Board.

Motion to approve the changes to the actuarial assumptions and recommendations made by Cheiron as listed in the materials presented during the joint meeting and direct Cheiron to incorporate those changes in the June 30, 2023 actuarial valuation.

Motion: Reed
Second: Young

Ayes: Cook, Inman, Vander Poel, Reed, Young, Vasquez, Finney
Absent: Hill, Polk
Motion passed.

XII. OLD BUSINESS

1. Education policy revision. Discussion and possible action.

   Motion to adopt the updated education policy which incorporates the previous action regarding additional fees charged for spouse/significant other attendance at approved conferences into policy.

   Motion: Young
   Second: Vasquez

   Ayes: Cook, Inman, Vander Poel, Reed, Young, Vasquez, Finney
   Absent: Hill, Polk
   Motion passed.

XIII. EDUCATION ITEMS

2. Discussion and possible action regarding Summary Education Reports as filed:
   a. Jorge Garcia-Perez – CALAPRS Principles of Pension Governance – August 28-31, 2023, 15.5 Hours
   b. Leanne Malison – CALAPRS Administrators Institute – September 27 - 29, 2023, 10.25 Hours
   c. Leanne Malison – BlackRock Global Outlook Q4 Update – October 4, 2023, 1 Hour

      Motion to accept the summary reports as filed.

Motion: Reed
Second: Finney

Ayes: Cook, Inman, Vander Poel, Reed, Young, Vasquez, Finney
Absent: Hill, Polk
Motion passed.

3. Discussion and possible action regarding available educational events.

No Action

XIV. UPCOMING MEETINGS

1. Board of Retirement Meeting October 25, 2023, 8:30 a.m.
2. Board of Retirement Meeting November 1, 2023, 8:30 a.m.
3. Board of Retirement Meeting November 15, 2023, 8:30 a.m.
4. Administrative Committee Meeting November 15, 2023, 10:00 a.m.
5. Trustee Education/Presentation Calendar – Discussion and possible action.

Ms. Malison highlighted the November Board Meeting dates which are moved up due to Thanksgiving Holiday and SACRS Fall Conference. She also noted that BlackRock will be here on October 25, 2023 for the requested education on fixed income and credit spread and how those may impact a trigger fund and TCERA's participation in such a fund.

No Action

XV. TRUSTEE/STAFF COMMMENTS

Mr. Zaheen introduced his back-up for TCERA, Paula Clark, Deputy County Counsel, who will give legal counsel to TCERA when he is not available.

XII. ADJOURNMENT

The meeting was adjourned at 9:54 a.m.

____

Pete Vander Poel, Chair

TULARE COUNTY COUNSEL

Meeting the legal and risk management challenges facing the County of Tulare in partnership with you

Invoice No. RET_0923

INVOICE

Customer

Name: Board of Retirement
Address: 136 North Akers Street
City: Visalia State: CA ZIP: 93291
Phone: (559) 713-2900

Misc

Date: 10/10/2023
Exp Cat.:

Statement Number	Matter ID	Description	TOTAL
155087	RETBD-General	9/1/23-9/30/23 Legal Services	$ 938.80
155088	RETBD-General2	9/1/23-9/30/23 Legal Services	$ 1,110.90
155089	RETDIS-General	9/1/23-9/30/23 Legal Services	$ 25.80
	RETBD-General2	Credit for Check Payment	$ (231.00)
Other Expenses:			
		Mail payment to: **Tulare County Counsel** **Attn: Billing Clerk** **2900 W. Burrel Ave.** **Visalia, CA 93291**	

SubTotal		$ 1,844.50
Shipping		$ -
Tax Rate(s)	0.00%	$ -
TOTAL		**$ 1,844.50**

Payment Other Journal Voucher

Comments: *Call or e-mail if questions*
Name: Kim Rojas
Phone: 559-636-4959
E-mail: KRojas1@tularecounty.ca.gov
Deposit to: 001-080-2150-5415

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JV

Classic Values, Innovative Advice

Tulare County Employees' Retirement Association

Actuarial Valuation Report as of June 30, 2023

Produced by Cheiron

October 2023

www.cheiron.us 1.877.CHEIRON (243.4766)

TABLE OF CONTENTS

October 20, 2023

Board of Retirement
Tulare County Employees' Retirement Association
136 N. Akers St.
Visalia, CA 93291

Dear Members of the Board:

At your request, we have conducted an actuarial valuation of the Tulare County Employees' Retirement Association (TCERA, the System, the Fund, the Plan) as of June 30, 2023. This report contains information on the System's assets, liabilities, and discloses employer contribution levels. Your attention is called to the Foreword in which we refer to the general approach employed in the preparation of this report.

The purpose of this report is to present the results of the annual actuarial valuation of TCERA. This report was prepared for the TCERA Board of Retirement for the purposes described herein and for use by the plan auditor in completing an audit related to the matters herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to such other users.

This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

Sincerely,
Cheiron

Graham A. Schmidt, ASA, EA, FCA, MAAA
Consulting Actuary

Steven M. Hastings, FSA, EA, FCA, MAAA
Consulting Actuary

FOREWORD

Cheiron has performed the actuarial valuation of the Tulare County Employees' Retirement Association as of June 30, 2023. The valuation is organized as follows:

- In Section I, the **Executive Summary,** we describe the purpose of an actuarial valuation, summarize the key results found in this valuation, and disclose important trends.

- The **Main Body** of the report presents details on the System's

    - Section II – Disclosures Related to Risk
    - Section III – Assets
    - Section IV – Liabilities
    - Section V – Contributions
    - Section VI –Annual Comprehensive Financial Reporting Information

- In the **Appendices,** we conclude our report with detailed information describing plan membership (Appendix A), actuarial assumptions and methods employed in the valuation (Appendix B), a summary of pertinent plan provisions (Appendix C), a glossary of key actuarial terms (Appendix D), and tables containing member contribution rates (Appendix E).

Future results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the assumptions; changes in assumptions; and, changes in plan provisions or applicable law.

This report was prepared using census data and financial information as of the valuation date, June 30, 2023. Events following that date are not reflected in this report. Actual experience, both demographic and economic, will be reflected in subsequent valuations as experience emerges.

In preparing our report, we relied on information (some oral and some written) supplied by the TCERA staff. This information includes, but is not limited to, plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

SECTION I – EXECUTIVE SUMMARY

The primary purpose of the actuarial valuation and this report is to measure, describe, and identify the following as of the valuation date:

- The funded status of the System,
- Past and expected trends in the funding progress of the System,
- Employer and employee contribution rates for Plan Year 2024-2025,
- An assessment and disclosure of key risks, and
- Information required by the GFOA for the Annual Comprehensive Financial Report (ACFR).

In the balance of this Executive Summary, we present (A) the basis upon which this year's valuation was completed, (B) the key findings of this valuation including a summary of all key results, (C) an examination of the historical trends, and (D) the projected outlook for the System.

A. Valuation Basis

This valuation determines the employer contributions required for the employers' fiscal years beginning July 1, 2024. The System's funding policy is to collect contributions from the employers and employees equal to the sum of (1) the normal cost under the Entry Age Normal Cost Method and (2) amortization of the Unfunded Actuarial Liability.

The Unfunded Actuarial Liability (UAL) is the excess of the Actuarial Liability over the Actuarial Value of Assets. Based on the funding policy adopted by the Board at its October 28, 2015 meeting, the UAL payment in the current valuation is the amount needed to fund the June 30, 2015 UAL over a closed 19-year period with payments as a level percentage of payroll, assuming payroll increases of 3.00% per year, with subsequent gains and losses being amortized over new 19-year closed periods, also as a level percentage of payroll.

Actuarial experience studies are performed every three years. This valuation was performed using the economic and demographic assumptions adopted by the Board, which are based on the experience study presented by Cheiron on October 11, 2023 and described in detail in a follow-up report delivered to the Board on October 25, 2023. There were changes to the mortality and termination rates, the merit/longevity pay increase rates, the form of payment assumptions, and various other demographic assumptions. The discount rate remains 7.00%. A summary of the assumptions and methods used in the current valuation is shown in Appendix B.

The contribution determined under these policies and assumptions represents a reasonable actuarially determined contribution (ADC) in accordance with Actuarial Standard of Practice (ASOP) No. 4. The actuarial methods have been selected to balance benefit security, intergenerational equity, and stability of actuarially determined contributions. The selection of the actuarial methods has taken into account the demographics of plan members, the funding goals and objectives of the Board, and the need to accumulate assets to make benefit payments when due.

SECTION I – EXECUTIVE SUMMARY

At the direction of the Board, the UAL and contribution rates shown in Tables I-1 and I-4 do not reflect any estimated liabilities associated with future transfers to the Supplemental Retiree Benefit Reserve (SRBR). An estimate of this liability has been disclosed in Table IV-4.

This valuation was prepared based on the plan provisions shown in Appendix C. There have been no changes to the plan provisions since the last valuation. This valuation does not include any consideration of external liabilities (or related debt service payments) incurred by the Plan sponsors outside of TCERA, such as those related to pension obligation bonds, which would be disclosed in Tulare County's Annual Comprehensive Financial Report.

B. Key Findings of this Valuation

The key results of the June 30, 2023 actuarial valuation are as follows:

- The average actuarially determined employer contribution rate increased from 16.01% of payroll to 16.81% of payroll. Information on the contribution rates and changes from last year to this year may be found in Tables I-4 and I-5.

- There was a 0.56% increase in the employer rate due to investment losses for the plan year ending June 30, 2023. On a Market Value of Assets basis, the Plan earned 6.74%, as compared to the prior year's 7.00% assumed return. On a smoothed (Actuarial Value of Assets) basis, the return was 5.77%.

- The UAL is the excess of the System's Actuarial Liability over the Actuarial Value of Assets. The System experienced an increase in the UAL from $207.2 million as of June 30, 2022 to $271.6 million as of June 30, 2023. The $64.3 million increase in the UAL was primarily due to investment ($22.6 million) and liability ($76.7 million) losses, partially offset by the impact of assumption changes which reduced the UAL by $28.7 million. A detailed reconciliation of the components of change in the UAL is shown in Table I-3.

- The remaining balance of the June 30, 2015 UAL is being amortized over 11 years and the remaining balances for each of the subsequent UAL layers are being amortized over periods that extend by one additional year each (e.g., the UAL loss from the plan year ending June 30, 2016 is being amortized over 12 years). Finally, the UAL loss for the plan year ending June 30, 2023 is being amortized as a new 19-year layer.

- The System's funded ratio, the ratio of actuarial assets over Actuarial Liability, decreased from 89.9% last year to 87.6% as of June 30, 2023. On a market value basis, the funded ratio decreased from 83.3% last year to 81.9% this year. The Actuarial Value of Assets is higher than the market value, meaning that there are deferred investment losses that will be recognized in the Actuarial Value of Assets (and employer contributions) in future years.

- During the 2022-2023 Plan year, the actuarial liabilities of the System increased more than expected. The liability losses were associated primarily with higher salary and post-retirement Cost-of-Living-Adjustments (COLAs) than expected and increases in the COLA banks during the year.

- Overall participant membership increased compared to last year, from 10,484 to 10,820. The total active population increased from 4,432 to 4,505 and total projected payroll increased from $293,444,953 to $323,042,880. The number of inactives increased from 2,467 to 2,633, while the number of retirees increased from 3,585 to 3,682.

- In Table IV-4 of this valuation, we have disclosed a liability of $124.5 million associated with future transfers to the Supplemental Retiree Benefit Reserve (SRBR). This is similar to the estimated liability from the prior valuation ($118.7 million), which was expected since

SECTION I – EXECUTIVE SUMMARY

the return on the Market Value of Assets was reasonably close to the assumption and there are still $124.4 million in unrecognized asset losses reflected in the Actuarial Value of Assets. These losses will flow to the Actuarial Value of Assets over 10 years and reduce the likelihood of future transfers.

The liability associated with future transfers is based on a simulation of investment returns and represents the accrued portion of the present value of SRBR transfers expected to result from future returns on the Actuarial Value of Assets in excess of the 7.00% assumption. It has not been reflected in the calculation of the employer contribution rate. Future SRBR transfers would result in lower net asset experience, which will be reflected in future amortization layers.

If the liability for future SRBR transfers were to be pre-funded, the employer contribution would be approximately $10.0 million higher, or about 3.1% of pay. We have also disclosed a liability of $105.0 million associated with the current SRBR balance, which is equal to the current balance of the SRBR, less the portion assumed to represent future benefit accruals. Note that the disclosure of these liabilities does not imply that the current benefit levels are guaranteed. Our understanding is that the Board has the power to adjust the benefit amounts paid from the SRBR.

On the following pages, we present Tables I-1 and I-2, which summarize the key results of the valuation with respect to TCERA assets, liabilities, Unfunded Actuarial Liability, funded ratios, and membership. The results are presented and compared for both the current and prior plan year.

The leverage ratios are equal to the Market Value of Assets (or Actuarial Liability) divided by payroll and represent a measure of the size of the plan relative to the plan sponsor. For additional discussion, see the discussion of maturity measures in Section II of this report.

SECTION I – EXECUTIVE SUMMARY

Table I-1
Summary of Key Valuation Results - Funded Status
(in thousands)

Valuation Date	June 30, 2022	June 30, 2023	% Change
Actuarial Liability	$ 2,047,350	$ 2,187,273	6.8%
Market Value of Assets	$ 1,819,009	$ 1,904,054	4.7%
Market Value of Assets (Excluding SRBR)	1,705,307	1,791,352	5.0%
Actuarial Value of Assets (Excluding SRBR)	1,840,109	1,915,710	4.1%
Unfunded Actuarial Liability (UAL)			
- based on Market Value of Assets	$ 342,043	$ 395,921	15.8%
- based on Actuarial Value of Assets	207,241	271,563	31.0%
Funding Ratio - Market value basis	83.3%	81.9%	-1.4%
Funding Ratio - Actuarial value basis	89.9%	87.6%	-2.3%
Expected Payroll	$ 293,445	$ 323,043	10.1%
Asset Leverage Ratio (Excluding SRBR)	5.8	5.5	-4.6%
Actuarial Liability Leverage Ratio	7.0	6.8	-3.0%
Interest on UAL (MVA basis)	$ 23,943	$ 27,714	15.8%
Interest Cost as Percent of Payroll	8.2%	8.6%	0.4%

Numbers may not add to totals due to rounding.

SECTION I – EXECUTIVE SUMMARY

Table I-2
Membership Total

Item	June 30, 2022	June 30, 2023	% Change
Actives	4,432	4,505	1.6%
Inactives	2,467	2,633	6.7%
Members Receiving Benefits	3,585	3,682	2.7%
Total Members	10,484	10,820	3.2%
Ratio of Retired Members to Active Members	80.9%	81.7%	0.8%
Active Member Projected Payroll for FYE June 30, 2023 and 2024	$ 293,444,953	$ 323,042,880	10.1%
Average Pay per Active	$ 66,211	$ 71,708	8.3%

The Unfunded Actuarial Liability (UAL) for TCERA increased by $64.3 million, from $207.2 million to $271.6 million. Table I-3 below presents the specific components of the change in the UAL.

The UAL was expected to decrease by $6.6 million, due to the scheduled amortization payment being greater than the interest on the UAL. Asset losses – i.e., the smoothed investment return below last year's assumed rate of 7.00% – increased the UAL by $22.6 million, which was compounded by liability experience losses of $76.7 million. Contributions were slightly less than the actuarial cost, due to the phase-in of prior assumption changes, increasing the UAL by $0.3 million. A detailed breakdown of the liability experience can be found in Table IV-2.

Table I-3
Change in Unfunded Actuarial Liability

Experience	(in thousands)
Unfunded actuarial liability, 6/30/2022	$ 207,241
Expected change in unfunded actuarial liability	(6,634)
Increase due to investment loss	22,555
Increase due to contributions less than actuarial cost	349
Increase due to liability loss	76,717
Increase due to assumption changes	(28,664)
Total change in unfunded actuarial liability	$ 64,322
Unfunded actuarial liability, 6/30/2023	$ 271,563

Numbers may not add to totals due to rounding.

Employer and Employee Contributions

Table I-4 below compares the net employer contribution rate and its components to those from the prior year. The overall net employer contribution rate increased by 0.80% for the June 30, 2023 valuation. The net employer normal cost rate decreased by 0.39% and the UAL rate increased by 1.19%. The average employee rate decreased by 0.25%, from 9.07% to 8.82%.

Additional details on contributions may be found in Section V, including separate rates for the County versus the other employers, which have been included in this report to reflect the Board's decision to allocate the cost impact of the POB contribution to the County only. Future investment experience related to the POB contribution will be shared amongst all TCERA employers.

Table I-4
Summary of Contributions

	FYE 2024	FYE 2025	Change
Contribution Rates			
Net Employer Contribution Rate	16.01%	16.81%	0.80%
Estimated Employee Contribution Rate	9.07%	8.82%	-0.25%
Total Contribution Rate	25.08%	25.64%	0.55%
Net Employer Contribution Rate	16.01%	16.81%	
Estimated Net Employer Contributions *(in thousands)*	$ 48,372	$ 55,905	$ 7,533
Total Contribution Rate			
Estimated Employee Contribution Rate	9.07%	8.82%	-0.25%
Employer Normal Cost Rate	9.03%	8.64%	-0.39%
Total Normal Cost Rate	18.10%	17.47%	-0.64%
UAL Rate			
Interest on Market Value UAL	8.16%	8.58%	0.42%
Principal on Market Value UAL	-1.18%	-0.41%	0.77%
Total UAL Rate	6.98%	8.17%	1.19%
Total Contribution Rate	25.08%	25.64%	0.55%

Numbers may not add to totals due to rounding.

SECTION I – EXECUTIVE SUMMARY

Table I-5 summarizes the changes in the employer contribution rate. As discussed earlier in this section, the largest sources of change were increases due to the liability and investment losses. The increases were partially offset by payroll growing faster than expected, which reduced the amortization payment as a percentage of payroll, and assumption changes which lowered the normal cost and unfunded liability. In aggregate, the employer contribution rate increased from 16.01% for FYE 2024 to 16.81% for FYE 2025.

Table I-5
Employer Contribution Reconciliation

Item	Normal Cost	Amortization	Total
FYE 2024 Net Employer Contribution Rate	9.03%	6.98%	16.01%
Change due to asset loss	0.00%	0.56%	0.56%
Change due to contributions less than actuarial cost	0.00%	0.01%	0.01%
Change due to demographic gains and losses	0.04%	1.85%	1.89%
Change due to payroll more than expected	0.00%	-0.57%	-0.57%
Change due to assumption changes	-0.43%	-0.66%	-1.09%
Total Change in Employer Rate	-0.39%	1.19%	0.80%
FYE 2025 Net Employer Contribution Rate	8.64%	8.17%	16.81%

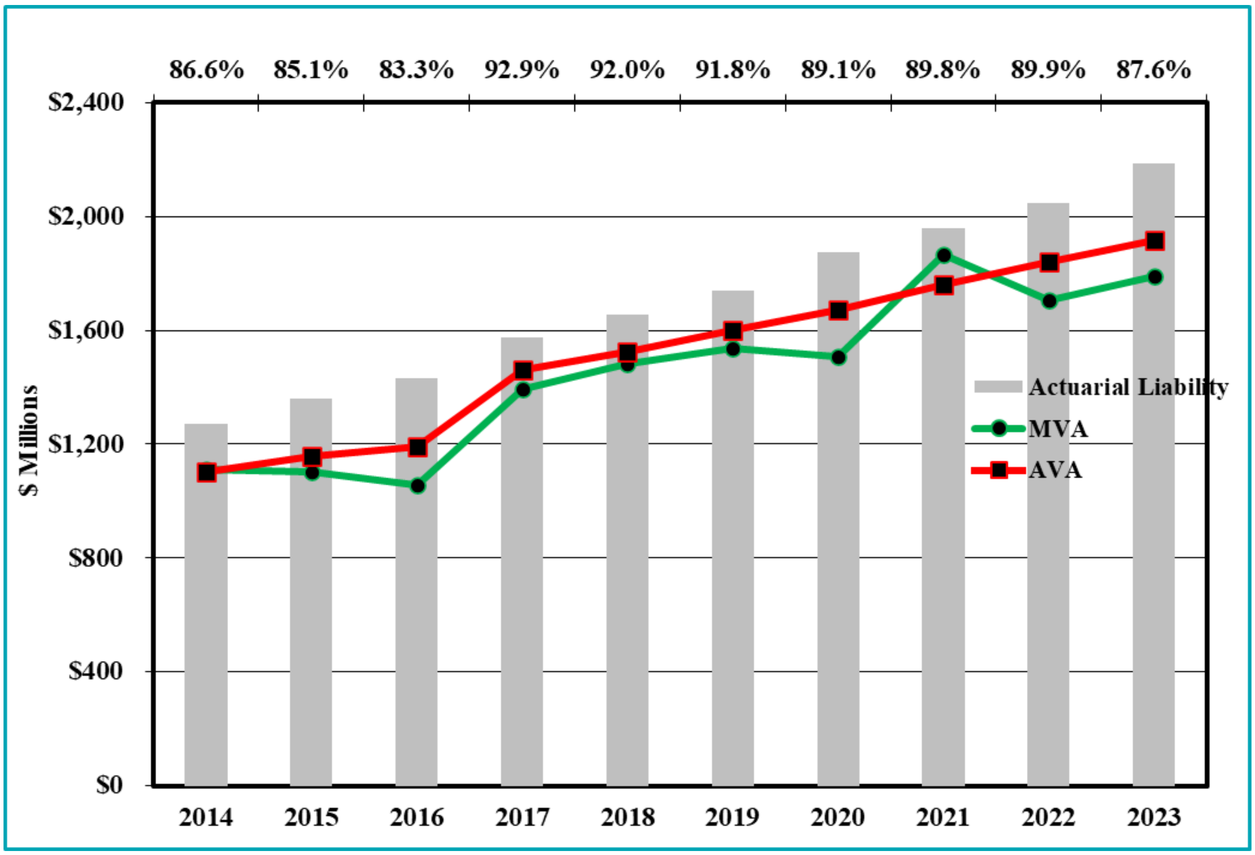
Numbers may not add to totals due to rounding.

C. Historical Trends

Despite the fact that for most retirement plans the greatest attention is given to the current valuation results and in particular the size of the current Unfunded Actuarial Liability and the employer contribution, it is important to remember that each valuation is merely a snapshot in the long-term progress of a pension fund. It is important to judge the current year's valuation results relative to historical trends, as well as trends expected into the future.

Assets and Liabilities

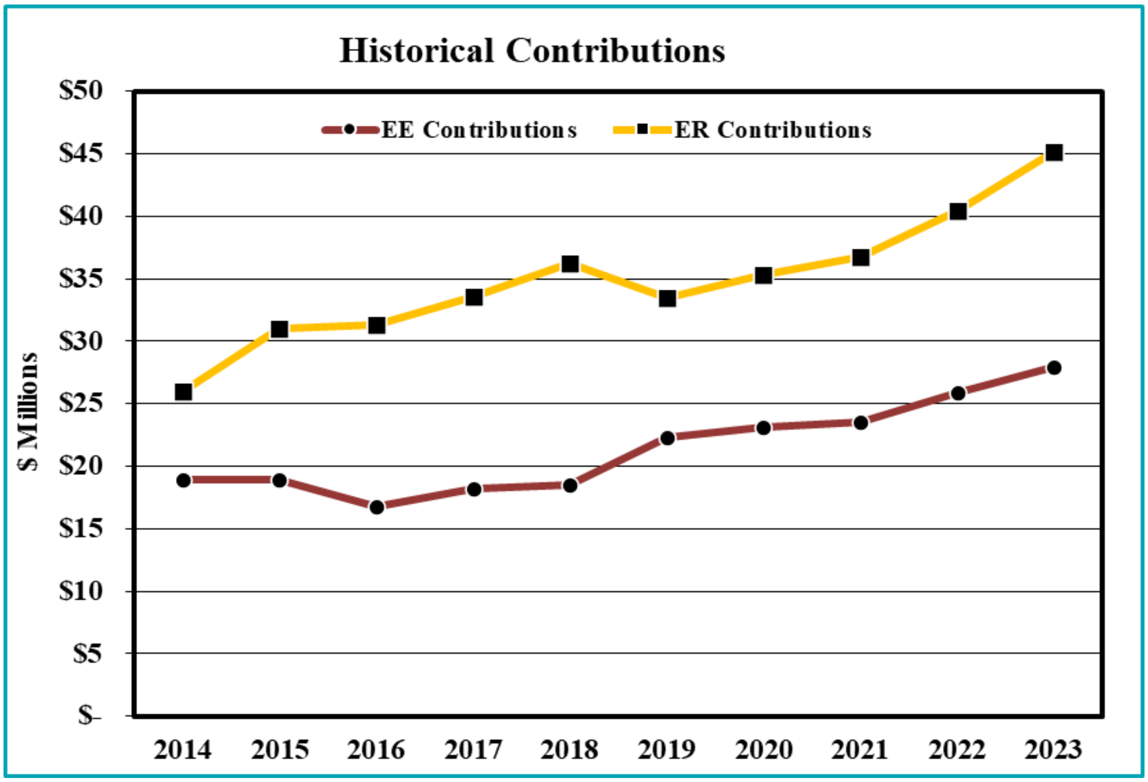
The chart below compares the Market Value of Assets (MVA) and Actuarial Value of Assets (AVA) to the actuarial liabilities. The percentage shown in the graph is the ratio of the Actuarial Value of Assets to the Actuarial Liability (the funded ratio). The funded ratio has remained relatively stable over the past decade. The largest factor for the funding ratio decline from 2014-2017 was the recognition of deferred asset losses from 2008-2009, and the significant increase in the funded ratio from 2017 to 2018 was due to the contribution from POB proceeds. For the 2023 plan year, the funding ratio decreased to 87.6%, primarily as result of the liability and smoothed asset losses.



Contribution Trends

In the chart below, we present the historical trends for the TCERA employer and employee contributions. The employer contribution rates have increased as a result of the 2008-2009 asset losses that were phased in over 10 years. TCERA has also made assumption changes and experienced additional asset losses, further increasing the employer contribution rates, though the assumption changes implemented with the current valuation decreased rates. The growth in payroll this year increased the dollar amount of the contributions.

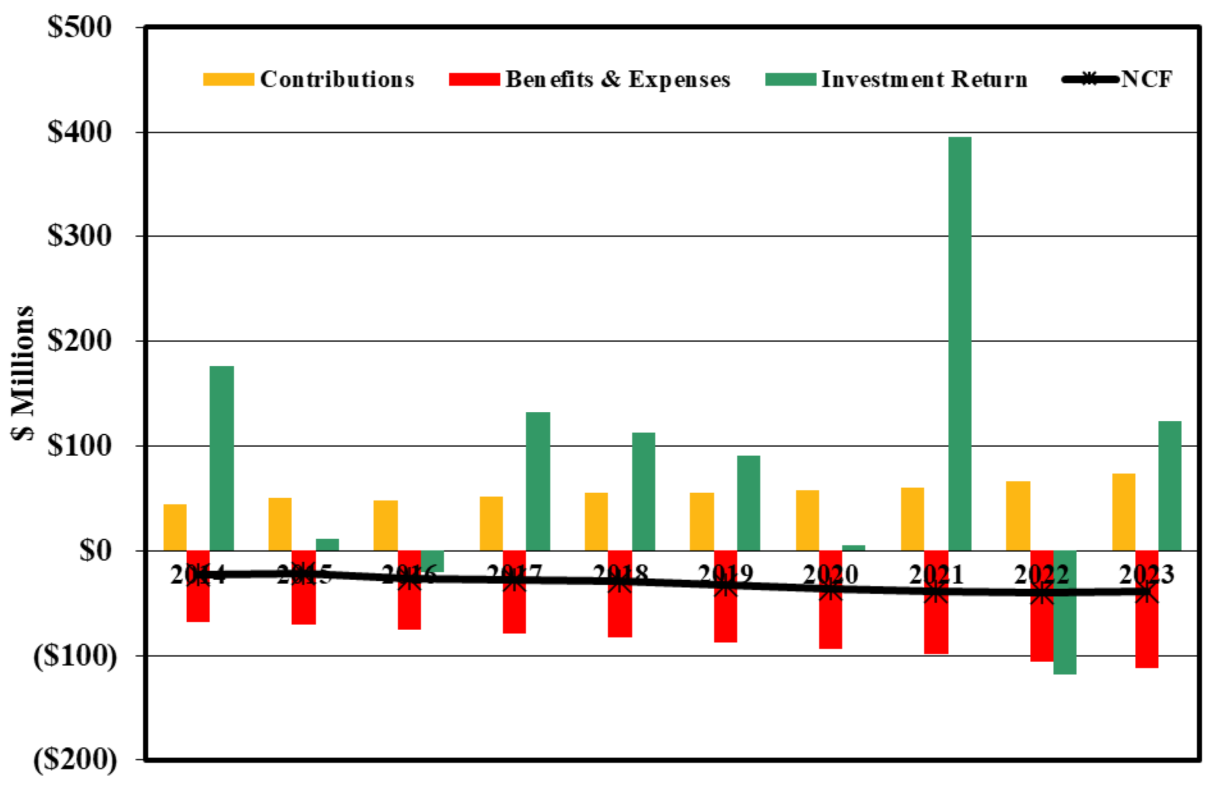
Note that the employer contributions shown below do not include the contribution from POB proceeds in FY2017-2018 that exceeded the regular actuarially determined amounts.



SECTION I – EXECUTIVE SUMMARY

Cash Flows

The chart below shows the Plan's cash flow (contributions less benefit payments and administrative expenses). This is a critical measure, as it reflects the ability to have funds available to meet benefit payments without having to make difficult investment decisions, especially during volatile markets. Note that the contributions do not include the excess contributions from POB proceeds.



In the chart above, the contributions, benefit payments plus expenses, and investment returns are shown as bars and the Plan's net cash flow (NCF) is shown as a black line. The NCF, which is equal to contributions less benefit payments and administrative expenses, began close to zero at the beginning of the 10-year period, but has grown consistently more negative over time. For the most recent year, the plan had negative cash flow of approximately 2.2% of assets.

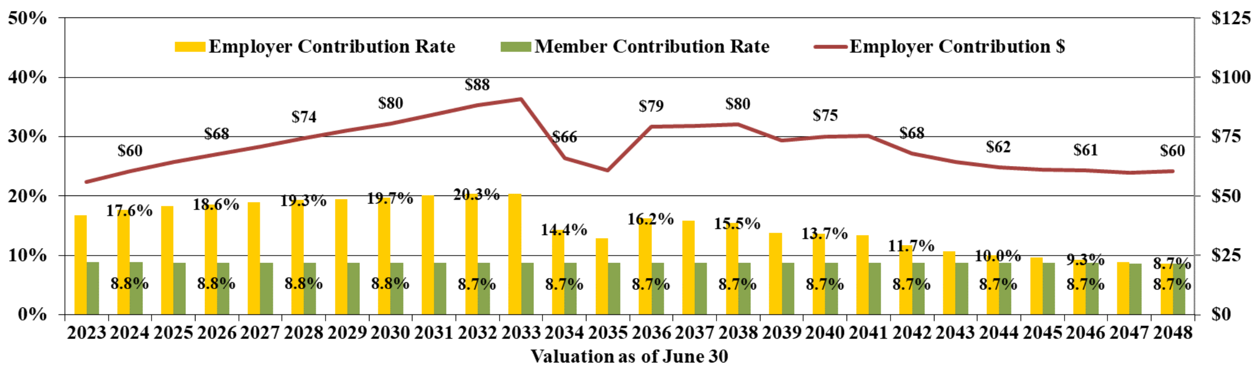
A negative cash flow magnifies the losses during a market decline hindering the Plan in its ability to absorb market fluctuations. The implications of a plan in negative cash flow are that the impact of market fluctuations can be more severe: as assets are being depleted to pay benefits in down markets, there is less principal available to be reinvested during favorable return periods. However, a negative cash flow is also a positive for a well-funded mature plan, as the investment earnings reduce the contributions needed to pay benefits.

D. Future Expected Financial Trends

The analysis of projected financial trends is an important component of this valuation. In this section, we present our assessment of the implications of the June 30, 2023 valuation results in terms of future projected contribution rates and benefit security (assets over liabilities). All the projections in this section are based on an investment return assumption of 7.00%. We have assumed future increases in total pensionable payroll of 3.00% per year.

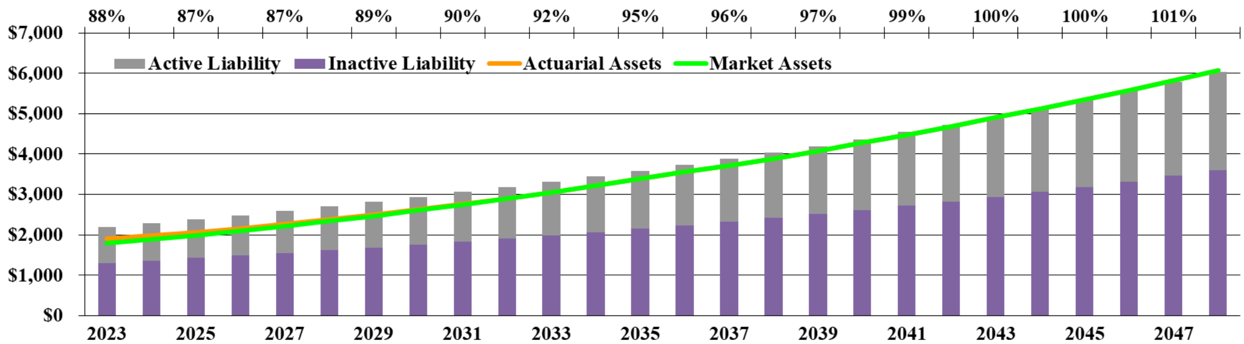
The following graph shows the expected employer contribution rate (gold bars) and employee contribution rate (green bars) determined as of the valuation date, and the employer contribution in millions of dollars (red line) for the following fiscal year, based on achieving the investment assumption **each year** for the next 25 years. This scenario is highly unlikely: even if the Plan does achieve the assumed return **on average** over this time period, the returns in each given year will certainly vary.

The contribution graph shows that the employer contribution rate is expected to increase for the next 10 years as the current deferred investment losses (approximately $124 million) are recognized, then drop significantly after 2033 when the UAL layer from 2015 is paid off.



SECTION I – EXECUTIVE SUMMARY

The following graph shows the projection of assets and liabilities assuming that assets will earn the investment assumption each year during the projection period (dollars shown in millions). The percentages at the top of the graph represent the funded ratio or status of the System.



The funded status, based on the Actuarial Value of Assets, is expected to reach 100% by 2043 assuming the actuarial assumptions are achieved, which is the same as in last year's report. The Market Value of Assets is currently lower than the actuarial value – due to the deferred losses mentioned above – and the funded status on this basis is currently about 6% lower but is expected to converge to the actuarial value over time if the investment return assumption is met.

However, as with the projection of contribution rates, it is the **actual** return on System assets that will determine the future funded status.

SECTION II – RISK IDENTIFICATION AND ASSESSMENT

Actuarial valuations are based on a set of assumptions about future economic and demographic experience. These assumptions represent a reasonable estimate of future experience, but actual future experience will undoubtedly be different and may vary significantly. This section of the report is intended to identify the primary risks to the Plan, provide some background information about those risks, and provide an assessment of those risks.

Identification of Risks

The fundamental risks to the pension plan are that the contributions needed to pay the benefits become unaffordable or that the contributions needed to support the Plan may differ significantly from expectations. While there are a number of factors that could lead to either of these events, we believe the primary risks are:

- Investment risk,
- Assumption change risk, and
- Contribution and payroll risk.

Other risks that we have not identified may also turn out to be important.

Investment risk is the potential for investment returns to be different than expected. Lower investment returns than anticipated will increase the Unfunded Actuarial Liability necessitating higher contributions in the future unless there are other gains that offset these investment losses. The potential volatility of future investment returns is determined by the Plan's asset allocation and the affordability of the investment risk is determined by the amount of assets invested relative to the size of the plan sponsors or other contribution base.

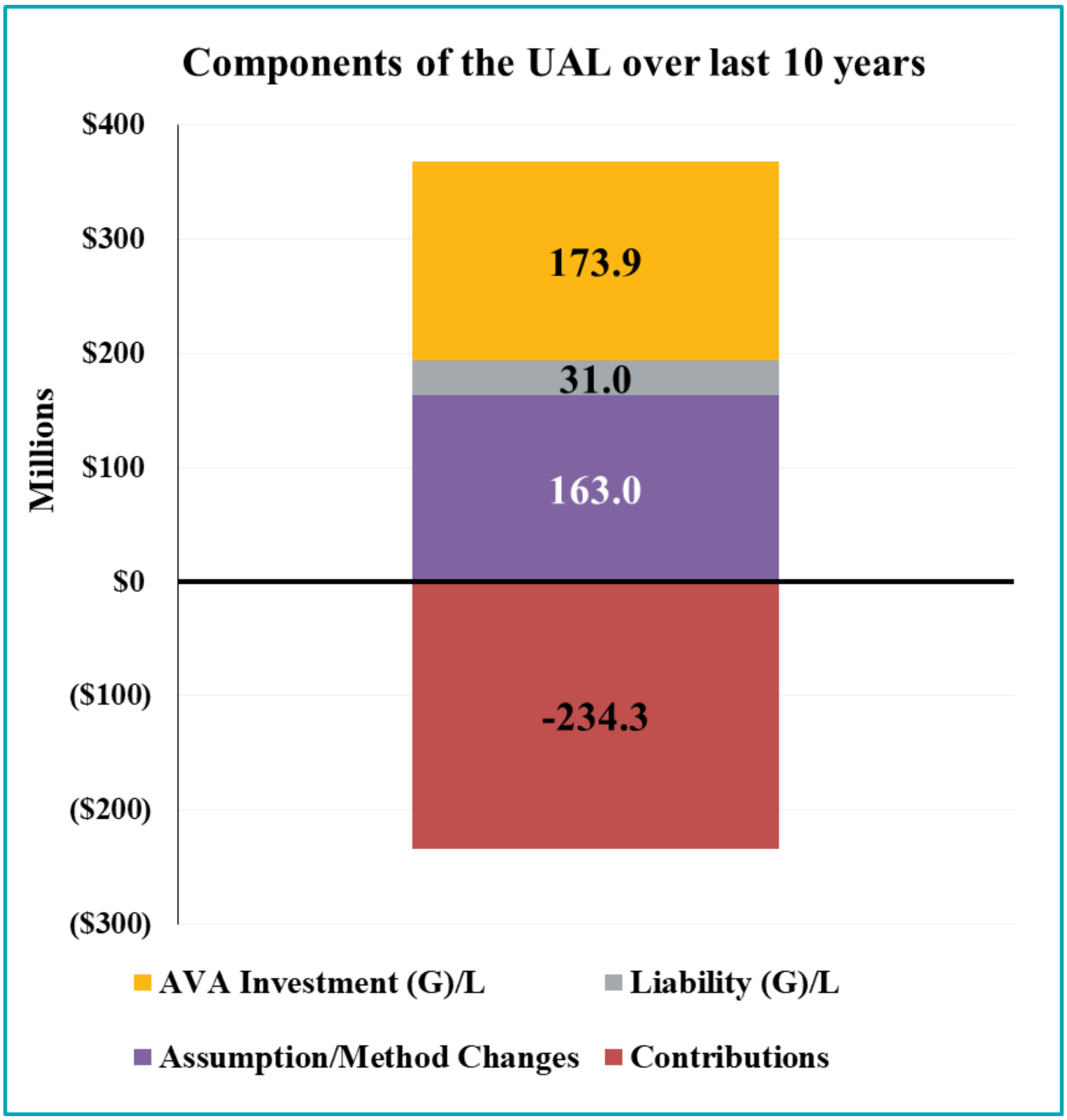
Assumption change risk is the potential for the environment to change such that future valuation assumptions are different than the current assumptions. For example, declines in interest rates over the last three decades (which have recently reversed) resulted in higher investment returns for fixed-income investments, but lower expected future returns necessitating either a change in investment policy, a reduction in discount rate, or some combination of the two. Assumption change risk is an extension of the other risks identified, but rather than capturing the risk as it is experienced, it captures the cost of recognizing a change in environment when the current assumption is no longer reasonable.

Contribution risk is the potential for actual future contributions to deviate from expected future contributions. There are different sources of contribution risk such as the sponsor choosing to not make contributions in accordance with the funding policy. As another example, the contribution requirement might become a financial strain on the sponsor as a result of material contribution base changes (e.g., covered employees, covered payroll) that affect the amount of contributions the Plan can collect.

SECTION II – RISK IDENTIFICATION AND ASSESSMENT

The chart below shows the components contributing to the Unfunded Actuarial Liability (UAL) from July 1, 2013 through June 30, 2023. Over the last 10 years, the UAL has increased by approximately $133.7 million. The investment losses (gold bar) of $173.9 million on the Actuarial Value of Assets (AVA) and assumption/method changes (purple bar) resulting in a total UAL increase of $163.0 million are the primary sources in the UAL growth. Net liability losses (gray bar) of $31.0 million also increased the UAL. Contributions in excess of the "tread water" level (red bar) of $234.3 million, primarily resulting from a pension obligation bond contribution of approximately $250 million, have partially offset the UAL growth.

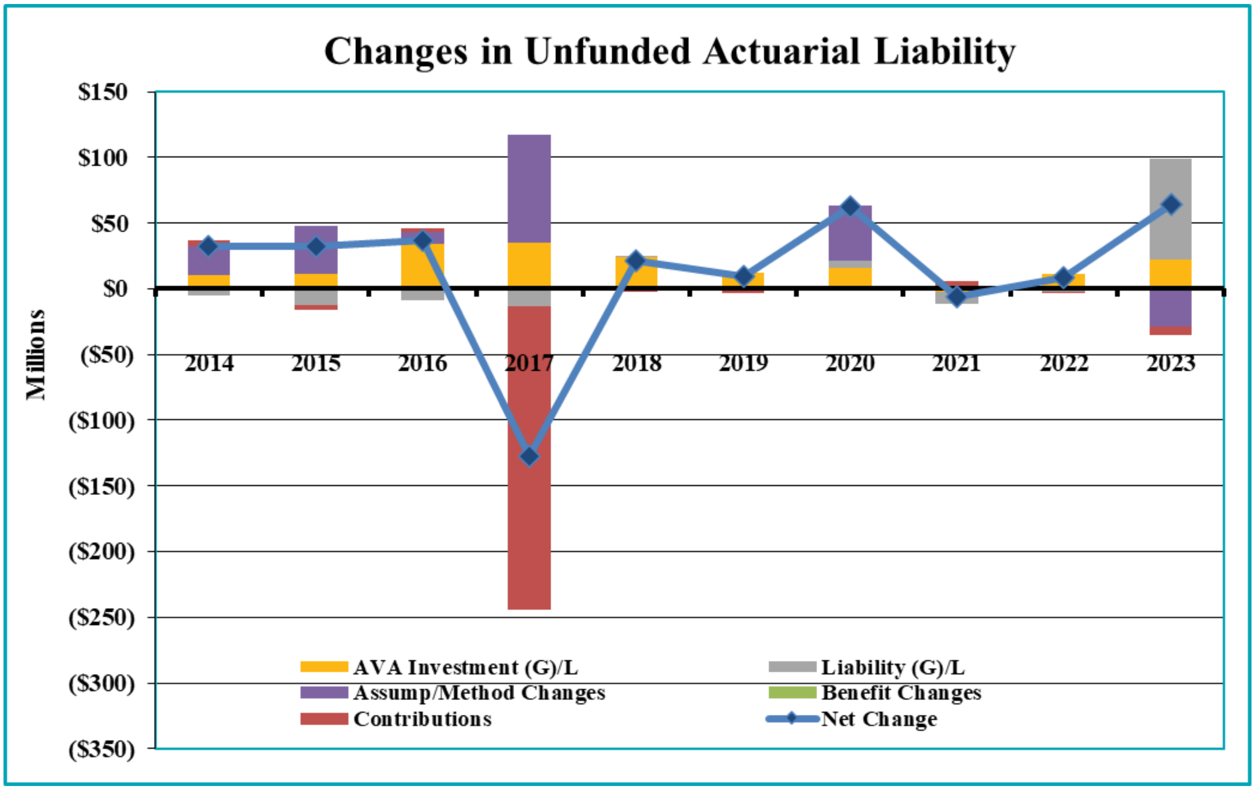
Chart II-1



SECTION II – RISK IDENTIFICATION AND ASSESSMENT

Chart II-2 below details the annual sources of the UAL change (colored bars) for the plan years ending June 30. The net UAL change for each year is represented by the blue diamonds.

Chart II-2



On a smoothed basis, the average annual geometric return over the 10-year period is 6.0%, with losses occurring on the AVA every year, except 2021, which have increased the UAL. As of June 30, 2023, there are approximately $124 million of deferred losses that will be recognized over the next nine years. As a result, even if the Plan earns above the expected return of 7.00% on a market basis, there could still be a loss on the smoothed value of assets.

Over the same time period, the assumed rate of return decreased from 7.90% to 7.00%. It is important to note that these changes simply reflect a downward revision to the estimate of future investment earnings; ultimately costs will be determined by actual investment earnings. Future expectations of investment returns may continue to decline necessitating further reductions in the discount rate.

The net impact of assumption changes is represented by the purple bars and includes changes to demographic assumptions that decreased the UAL in some years.

SECTION II – RISK IDENTIFICATION AND ASSESSMENT

Each year the UAL is expected to increase for benefits earned in the current year (the normal cost), administrative expenses, and interest on the UAL. This expected increase is referred to as the tread water level. If contributions are greater than the tread water level, the UAL is expected to decrease. Conversely, if contributions are less than the tread water level, the UAL is expected to increase. The amortization policy (as well as the contribution-timing lag) can impact whether or not the contributions exceed the tread water level.

The County issued bonds worth approximately $250 million and included a similar amount as a receivable contribution for the June 30, 2017 valuation. This large contribution went directly toward paying down the principal on the UAL as seen below in Table II-1, which numerically summarizes the changes in the UAL for each year by source over the last 10 years. It should be noted that for bonds to have positive long-term financial impact, pension investments will need to outperform debt service payments over the length of the bonds.

The Board adopted 19-year layered amortization of the UAL at its October 28, 2015 meeting. Under this approach, contributions are typically above the tread water level each year. However, the Board's election to phase-in the impact of the 2020 assumption changes over three years was the primary cause for the contributions to be less than the tread water level for the 2021 fiscal year end. Contributions for the 2023 fiscal year end were $6.3 million more than the tread water level and subsequently decreased the UAL by that amount.

Table II-1

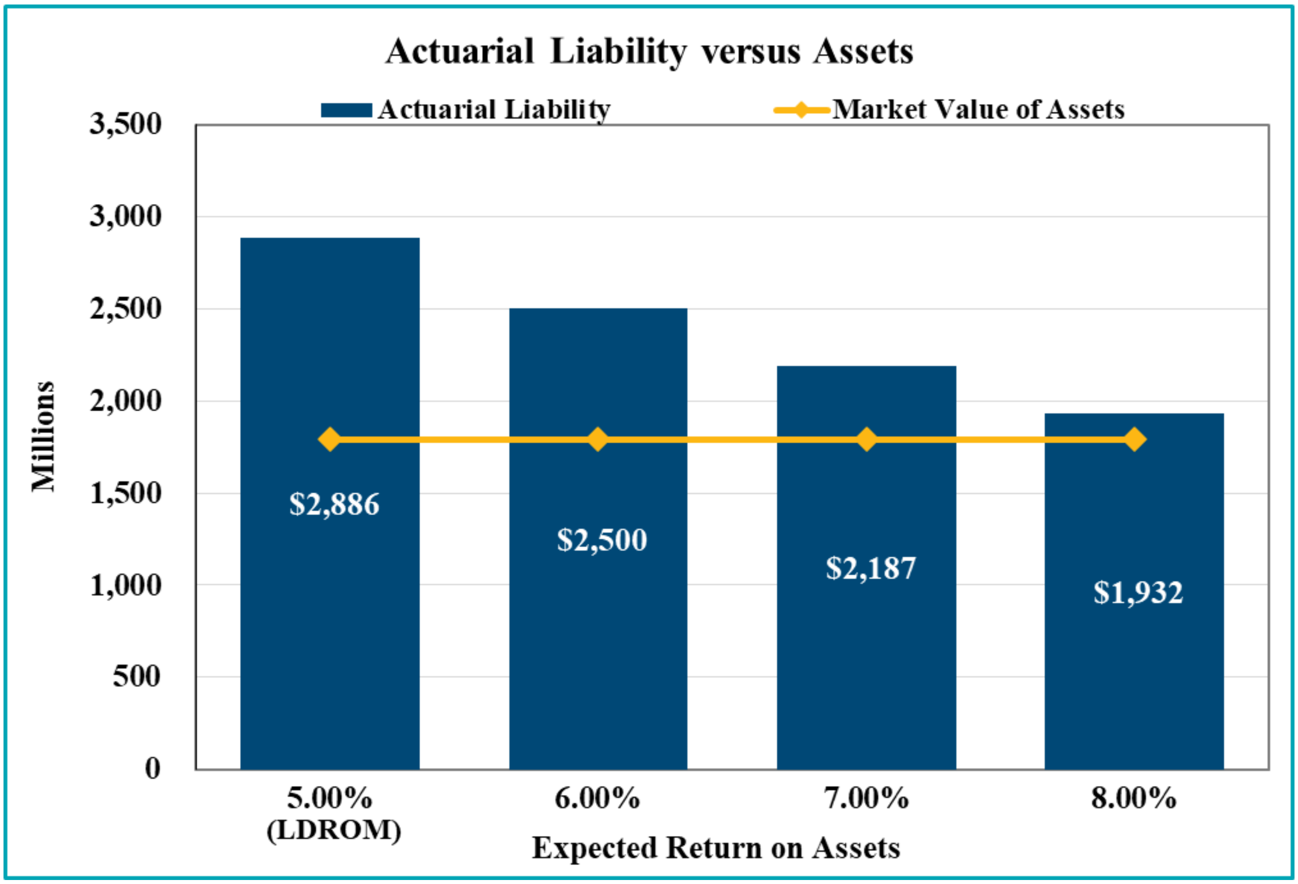
Unfunded Actuarial Liability (UAL) Change by Source					
June 30,	Contributions	Assumption/ Method Changes	Liability Experience	Investment Experience	Total UAL Change
2014	$ 5,138,315	$ 21,095,393	$ (5,070,085)	$ 10,841,064	$ 32,004,687
2015	(3,043,058)	36,744,870	(12,668,401)	10,912,537	31,945,948
2016	2,775,153	9,170,277	(8,948,443)	33,948,354	36,945,341
2017	(231,452,683)	82,259,297	(12,982,692)	35,033,717	(127,142,361)
2018	(2,307,142)	0	285,647	23,696,427	21,674,932
2019	(2,726,065)	0	(161,312)	12,412,582	9,525,205
2020	(1,439,104)	42,435,148	5,587,388	15,576,636	62,160,068
2021	5,856,076	0	(9,839,957)	(2,067,958)	(6,051,840)
2022	(806,901)	0	(1,919,754)	11,007,851	8,281,196
2023	(6,285,142)	(28,664,047)	76,716,587	22,554,969	64,322,367
Total	**$ (234,290,552)**	**$ 163,040,938**	**$ 30,998,978**	**$ 173,916,178**	**$ 133,665,543**

Assessing Costs and Risks

Sensitivity to Investment Returns

The chart below compares the Market Value of Assets (line) to the actuarial liabilities (bars) discounted at the current expected rate of return (7.00%) and at discount rates 100 basis points above and below the expected rate of return. This year we have added an additional measurement, the Low Default Risk Obligation Measure (LDROM), which is based on a discount rate of 5.00% for the current valuation.

Chart II-3



If investments return 7.00% annually, the Plan will need approximately $2.2 billion in assets today to pay the benefits associated with service earned to date, compared to current assets of $1.8 billion (excluding assets and liabilities related to the Supplemental Retiree Benefit Reserve). If investment returns are only 6.00%, the Plan would need approximately $2.5 billion in assets today, and if investment returns are 8.00%, the Plan would need approximately $1.9 billion in assets.

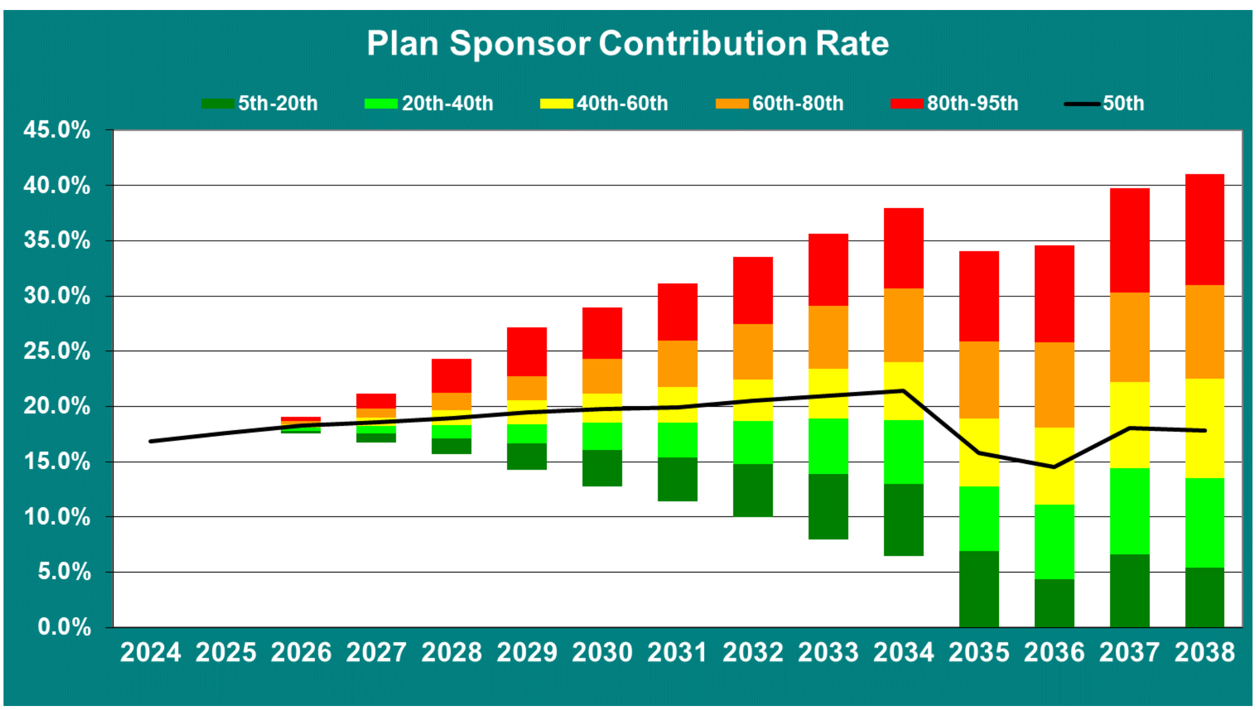
SECTION II – RISK IDENTIFICATION AND ASSESSMENT

TCERA invests in a diversified portfolio with the objective of maximizing investment returns at a reasonable level of risk. The lowest risk portfolio for a pension plan would be composed entirely of low-default-risk fixed income securities whose cash flows match the benefit cash flows of the plan. As of June 30, 2023, we estimate that such a portfolio would have an expected return of 5.00%, and TCERA would need $2.9 billion to pay all benefits attributed to past service. This amount is the LDROM, and the $700 million difference between the LDROM and the current Actuarial Liability represents the expected savings from bearing the risk of investing in TCERA's diversified portfolio. Alternatively, it also represents the cost of eliminating the investment risk.

Because TCERA invests in a diversified portfolio and not the LDROM portfolio, the reported funded status is higher, and expected employer contributions are lower. Benefit security for members of TCERA depends on a combination of TCERA assets, the investment returns generated on those assets, and the ability of the employers to make any needed future contributions. An LDROM portfolio would generate more predictable but lower expected investment returns, potentially changing the level of reliance on future contributions to secure benefits.

Sensitivity to Investment Returns - Stochastic Projections

Stochastic projections serve to show the range of probable outcomes of various measurements. The graphs below and on the following page show the projected range of the employer contribution rate and of the funded ratio on an Actuarial Value of Assets basis. The range in both scenarios is driven by the volatility of investment returns, assumed to be based on a 12.75% standard deviation of annual returns, as indicated by the analysis of Verus and other investment consultants' capital market assumptions contained in the 2023 Experience Study Report.

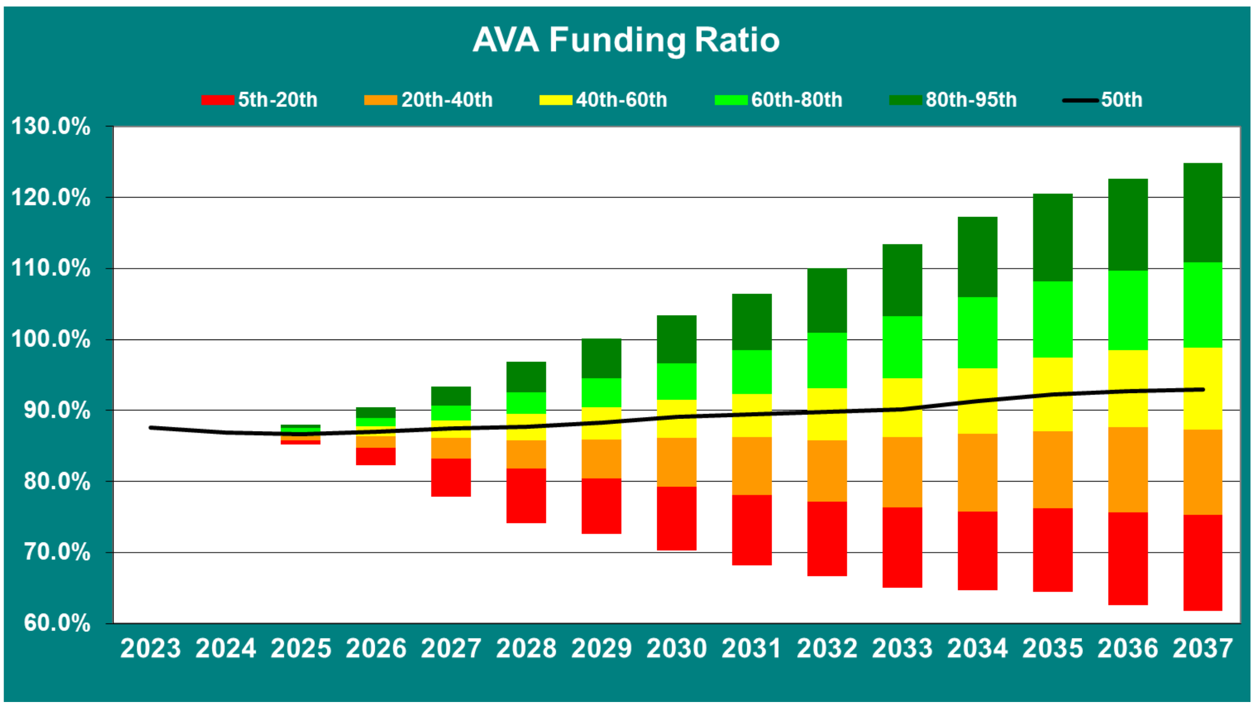


SECTION II – RISK IDENTIFICATION AND ASSESSMENT

The stochastic projection of employer contributions as a percent of pay shows the probable range of future contribution rates. The baseline contribution rate (black line) is based on the median of the simulations using an average return of 7.00%. It is similar to the *deterministic* projections discussed in subsection D (page 12) of the Executive Summary of this report, where the returns are expected to be exactly 7.00% each year. However, the median results are somewhat higher than the deterministic projections because of the impact of the SRBR, which may result in fewer assets available to fund the basic benefits in years where the smoothed returns exceed 7.00%.

In the most pessimistic scenario shown, the 95th percentile, the projected employer contribution rate is over 35% of pay in 2034 and 2037-2038. Conversely, the most optimistic scenario shown, the 5th percentile, the projected employer contribution rate declines to 0% in 2035.

We note that these projections only allow the employers' contribution to drop below their share of the normal cost if the Plan becomes extremely overfunded (i.e., a funded ratio above 120%), as is required under PEPRA.



The graph above shows the projection of the funded ratio based on the Actuarial Value of Assets. While the median funded ratio (black line) is projected to be approximately 93% at the end of the 15-year period shown here, there is a wide range of potential outcomes. Good investment returns have the likelihood of bringing the funded ratio well over 100%. Due to the current funding policy of the Plan, even in scenarios with unfavorable investment returns, the Plan is projected to remain over 60% funded on an Actuarial Value of Assets basis, as long as the actuarially determined contributions continue to be made.

SECTION II – RISK IDENTIFICATION AND ASSESSMENT

Contribution Risk

While investment returns are typically the dominant factor in volatility, contribution rates can also be sensitive to future salary increases and the hiring of new members. When member payroll growth stagnates or even declines, the dollar level of contributions made to the Plan also stagnates or declines since contributions are based on payroll levels.

There is also a risk of the contribution rate increasing even higher when payroll decreases since the Plan's funding policy amortizes the UAL as a level percentage of pay. This means that the UAL payments increase at the assumed payroll growth rate of 3.00%, so that the payment is expected to remain constant as a percentage of payroll. If payroll growth is less than the expected 3.00% or there is a decline in payroll, the UAL payments are spread over a smaller payroll base and the contribution rate as a percentage of pay increases, potentially making the Plan less affordable.

Plan Maturity Measures

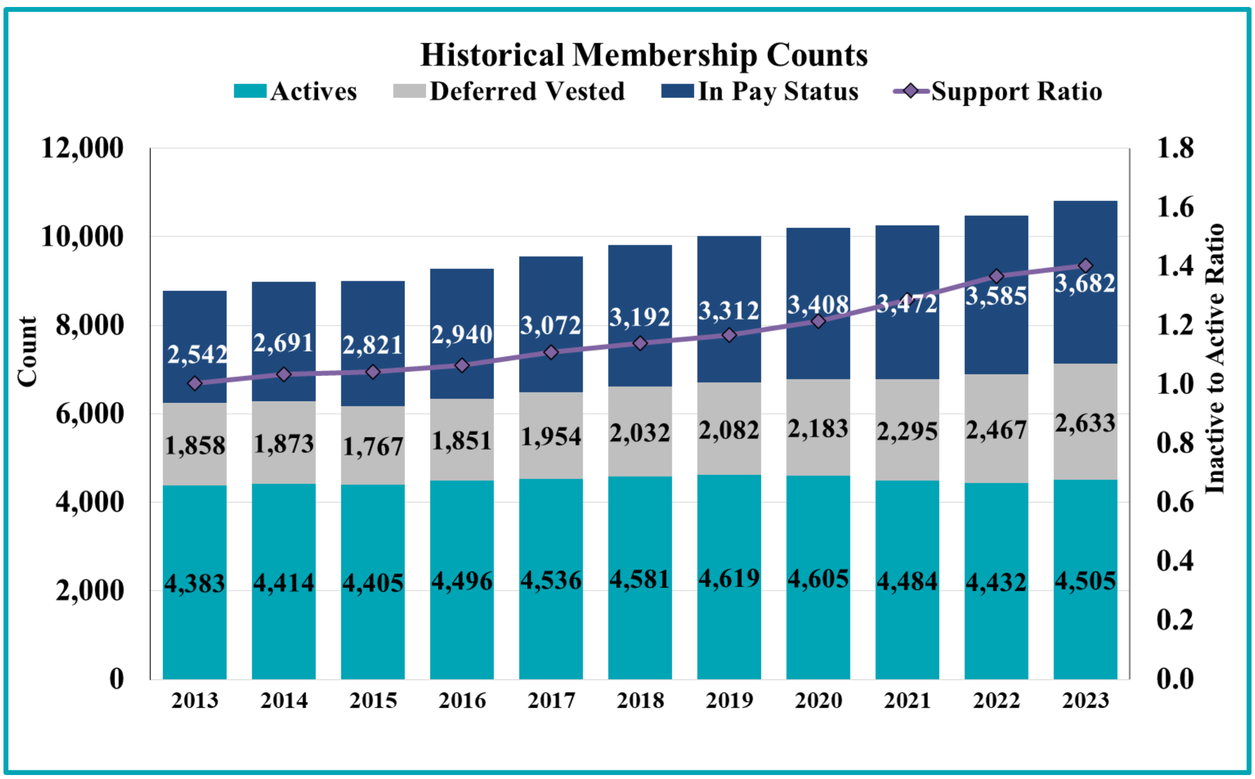
The future financial condition of a mature pension plan is more sensitive to each of the risks identified above than a less mature plan. Before assessing each of these risks, it is important to understand the maturity of the Plan and how the maturity has changed over time.

Plan maturity can be measured in a variety of ways, but they all get at one basic dynamic – the larger the plan is compared to the contribution or revenue base that supports it; the more sensitive the plan will be to risk. The measures below have been selected as the most important in understanding the primary risks identified for the Plan.

Inactives per Active (Support Ratio)

One simple measure of plan maturity is the ratio of the number of those receiving benefits or those entitled to a deferred benefit to the number of active members. The Support Ratio is expected to increase gradually as a plan matures. The chart below shows the growth in the Support Ratio from 2013 to 2023. The inactive membership level was about equal to the active membership level in 2013, so the Support Ratio was approximately 1.0. During the past few years, the growth in retired membership has exceeded the growth in active membership, increasing the Support Ratio to approximately 1.4. That means for 2023, there are approximately 1.4 inactive members per active member.

Chart II-4



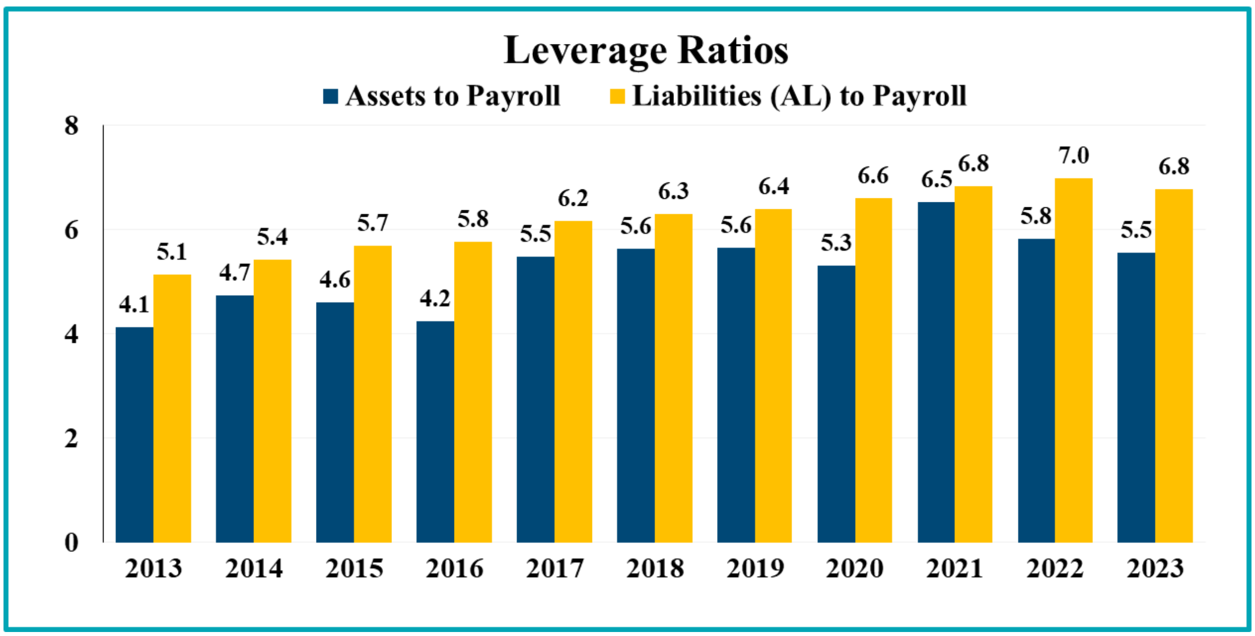
SECTION II – RISK IDENTIFICATION AND ASSESSMENT

Leverage Ratios

Leverage or volatility ratios measure the size of the plan compared to its revenue base more directly. The asset leverage ratio is simply the Market Value of Assets to active member payroll and indicates the sensitivity of the Plan to investment returns. The liability leverage ratio is the plan's Actuarial Liability to active member payroll and indicates the sensitivity of the Plan to assumption changes or demographic experience.

The chart below shows the historical leverage ratios of the Plan. The liability leverage ratio has increased since 2013, driven by changes to more conservative actuarial assumptions and a continued maturing of the Plan, though there was a small decline in the ratio this year due to the increase in payroll. The asset leverage ratios have also increased, but with more volatility, based on variations in investment experience and with a large jump due to the pension obligation bond contribution for 2017. The asset leverage ratio also jumped significantly in 2021 due to strong asset returns but came back down for 2022 following poor investment performance.

Chart II-5



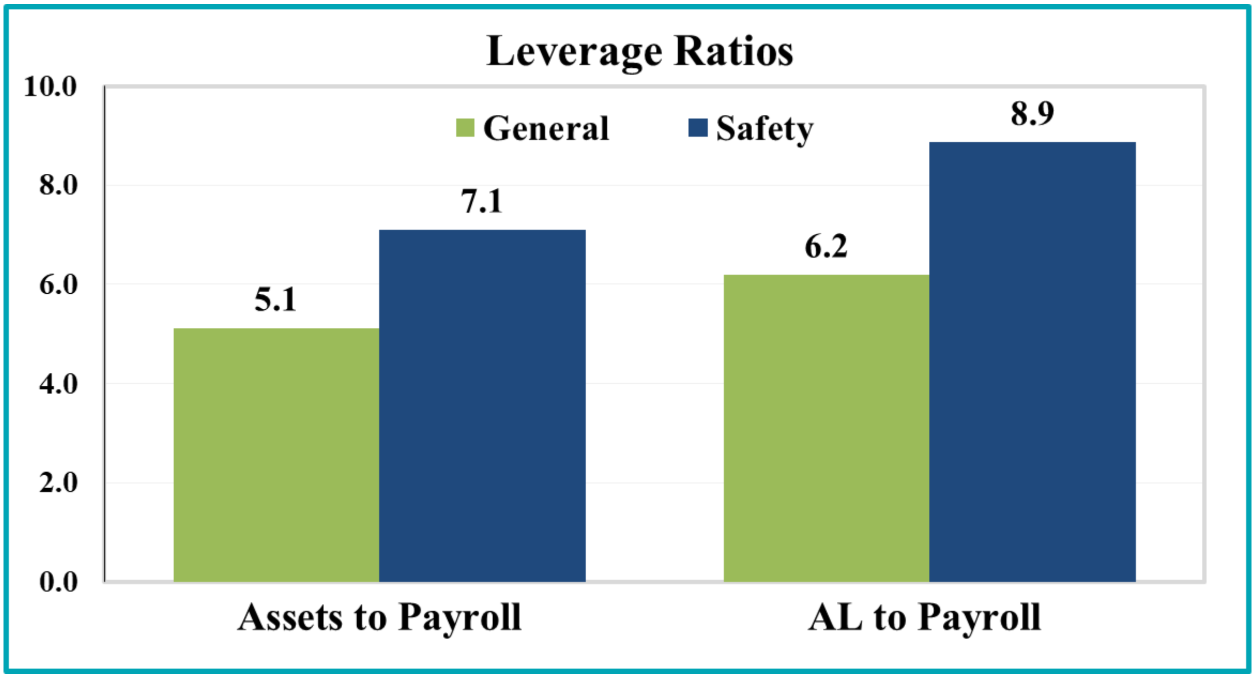
To appreciate the impact of the ratio of assets to payroll on plan cost, consider the situation for a new plan with almost no assets. Even if the assets suffer a bad year of investment returns, the impact on the plan cost is nil, because the asset level is so small.

As the Plan becomes better funded, the asset leverage ratio will increase, and if it was 100% funded, the asset leverage ratio would be 6.8 times payroll, or the Actuarial Liability (AL) leverage ratio.

SECTION II – RISK IDENTIFICATION AND ASSESSMENT

The following chart shows that the ratio of both assets and liabilities to payroll, and therefore the sensitivity to investment returns, is higher for the Safety members compared to the General members. This is because of the higher benefit amounts and the earlier average retirement ages for Safety.

Chart II-6



The General asset leverage ratio of 5.1 means that if the Plan's assets lose 10% of their value, which is a 17.00% actuarial loss compared to the expected return of 7.00%, the loss would be equivalent to 87% of payroll (17.00% times 5.1). The same investment loss for the Safety group with an asset ratio of 7.1 would be equivalent to approximately 121% of payroll. As illustrated by this example, the contribution rates for the Safety members will generally be more volatile than those of the General members.

More Detailed Assessment

While a more detailed assessment is always valuable to enhance the understanding of the risks identified above, we believe the scenarios illustrated above cover the primary risks facing the Plan at this time. We would be happy to provide the Board with a more in-depth analysis at their request.

SECTION III – ASSETS

Pension plan assets play a key role in the financial operation of the System and in the decisions the Board may make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely impact benefit levels, employer contributions, and the ultimate security of participants' benefits.

In this section, we present detailed information on System assets including:

- **Disclosure** of System assets as of June 30, 2022 and June 30, 2023;
- Statement of the **changes** in market values during the year;
- Development of the **Actuarial Value of Assets**;
- An allocation of the assets by **reserve balances**; and,
- An assessment of historical **investment performance versus inflation**.

Disclosure

There are two types of asset values disclosed in the valuation, the Market Value of Assets and the Actuarial Value of Assets. The market value represents "snap-shot" or "cash-out" values which provide the principal basis for measuring financial performance from one year to the next. The Actuarial Value of Assets reflects smoothing of annual investment returns.

Table III-1 on the next page discloses and compares the market value of assets as of June 30, 2022 and June 30, 2023.

SECTION III – ASSETS

Table III-1
Statement of Assets at Market Value

	June 30, 2022	June 30, 2023
Cash and Securities Lending Collateral:		
Cash and Short Term Investments	$ 36,024,000	$ 28,197,000
Collateral on Loaned Securities	28,722,000	24,440,000
Total Cash and Securities Lending Collateral	$ 64,746,000	$ 52,637,000
Receivables:		
Sales of Investments	$ 9,575,000	$ 3,071,000
Interest and Dividends	839,000	1,981,000
Employee and Employer Contributions	998,000	1,579,000
Other Receivables	0	9,000
Total Receivables	$ 11,412,000	$ 6,640,000
Investments, at Fair Value:		
Fixed Income	$ 363,409,000	$ 339,281,000
Equities	797,565,000	891,419,000
Real Estate	393,078,000	393,413,000
Alternative Investments (Hedge Funds, Private Equity, Private Credit, Futures, Commodities)	241,242,000	262,074,000
Total Investments, at Fair Value	$ 1,795,294,000	$ 1,886,187,000
Capital Assets		
Land	$ 370,000	$ 370,000
Building, Office Equipment and Furniture Net of Accumulated Depreciation	746,000	707,000
Intangible Assets, Pension Administration System Net of Accumulated Depreciation	0	0
Total Capital Assets	$ 1,116,000	$ 1,077,000
Total Assets	$ 1,872,568,000	$ 1,946,541,000
Current Liabilities:		
Purchase of Investments	$ 17,507,000	$ 9,161,000
Obligations under Security Lending Program	28,722,000	24,440,000
Refunds Payable	4,102,000	5,715,000
Accounts Payable	3,122,000	3,057,000
Total Current Liabilities	$ 53,453,000	$ 42,373,000
Long-Term Liabilities:		
Compensated Absences	$ 106,000	$ 114,000
Total Long-Term Liabilities	$ 106,000	$ 114,000
Total Liabilities	$ 53,559,000	$ 42,487,000
Total Market Value of Assets for Valuation	**$ 1,819,009,000**	**$ 1,904,054,000**

Numbers may not add to totals due to rounding.

Changes in Market Value

The components of asset change are:

- Contributions (employer and employee)
- Benefit payments
- Expenses (investment and administrative)
- Investment income (realized and unrealized)

Table III-2 below and on the following page shows the components of change in the Market Value of Assets during the fiscal years ending June 30, 2022 and June 30, 2023.

Table III-2
Changes in Market Values

	June 30, 2022	June 30, 2023
Additions:		
Contributions		
Employer	$ 40,392,000	$ 45,174,000
Plan Member	25,880,000	27,965,000
Total Contributions	$ 66,272,000	$ 73,139,000
Investment Income		
Net Appreciation/(Depreciation) in		
Fair Value of Investments	$ (127,368,000)	$ 113,150,000
Interest	3,296,000	5,111,000
Dividends	3,616,000	3,943,000
Real Estate Operating Income	7,493,000	13,091,000
Other Investment Income	5,392,000	1,726,000
Total Investment Activity Income/(Loss)	$ (107,571,000)	$ 137,021,000
Less Expenses from Investing Activities	10,488,000	13,204,000
Net Investing Activity Income/(Loss)	$ (118,059,000)	$ 123,817,000
From Securities Lending Activities		
Securities Lending Income	$ 179,000	$ 1,223,000
Less Expenses from Securities Lending Income		
Management Fee	$ 8,000	$ 6,000
Borrower Rebate	73,000	1,067,000
Net Securities Lending Income	$ 98,000	$ 150,000
Total Net Investment Income/(Loss)	$ (117,961,000)	$ 123,967,000
Other Income	$ 188,000	$ 188,000
Total Additions	**$ (51,501,000)**	**$ 197,294,000**

Numbers may not add to totals due to rounding.

SECTION III – ASSETS

Table III-2
Changes in Market Values (Continued)

	June 30, 2022	June 30, 2023
Deductions:		
Benefits	$ 97,762,000	$ 103,392,000
Refunds of Contributions	4,946,000	6,111,000
Administrative Expenses	2,967,000	2,747,000
Total Deductions	$ 105,675,000	$ 112,250,000
Net Increase/(Decrease)	**$ (157,176,000)**	**$ 85,044,000**
Net Assets Held in Trust for Pension Benefits		
Beginning of Year	$ 1,976,185,000	$ 1,819,009,000
End of Year for Valuation	$ 1,819,009,000	$ 1,904,054,000
Approximate Return*	-6.17%	6.74%

Numbers may not add to totals due to rounding.
**Net of investment and administrative expenses*

SECTION III – ASSETS

Actuarial Value of Assets (AVA)

The table below shows the development of the Actuarial Value of Assets. Based on discussions with TCERA staff, the total actual market returns for each period shown are based on preliminary financial information. Please see Appendix B for a description of the asset smoothing method.

Table III-3
Development of Actuarial Value of Assets for June 30, 2023

Six month Period From	To	Total Actual Market Return (net)	Expected Market Return (net)	Investment Gain (Loss)	Deferred Factor	Deferred Return
1/14	6/14	$ 62,482,815	$ 45,022,478	$ 17,460,337	0.05	$ 873,017
7/14	12/14	(17,886,044)	46,676,782	(64,562,826)	0.10	(6,456,283)
1/15	6/15	26,507,383	44,856,580	(18,349,197)	0.15	(2,752,380)
7/15	12/15	(45,631,715)	45,909,756	(91,541,471)	0.20	(18,308,294)
1/16	6/16	24,729,226	43,045,278	(18,316,052)	0.25	(4,579,013)
7/16	12/16	44,835,718	44,015,787	819,931	0.30	245,979
1/17	6/17	84,564,705	42,691,625	41,873,080	0.35	14,655,578
7/17	12/17	79,943,304	45,809,189	34,134,115	0.40	13,653,646
1/18	6/18	11,201,303	48,460,635	(37,259,332)	0.45	(16,766,699)
7/18	12/18	(54,685,836)	56,898,055	(111,583,891)	0.50	(55,791,945)
1/19	6/19	143,284,434	53,981,060	89,303,374	0.55	49,116,856
7/19	12/19	74,015,847	59,050,363	14,965,484	0.60	8,979,290
1/20	6/20	(69,767,060)	60,619,959	(130,387,018)	0.65	(84,751,562)
7/20	12/20	207,466,372	56,098,158	151,368,214	0.70	105,957,750
1/21	6/21	178,848,571	62,147,805	116,700,766	0.75	87,525,575
7/21	12/21	69,141,260	68,227,159	914,101	0.80	731,281
1/22	6/22	(177,123,495)	69,409,485	(246,532,980)	0.85	(209,553,033)
7/22	12/22	25,305,799	63,344,822	(38,039,023)	0.90	(34,235,120)
1/23	6/23	91,477,159	62,954,117	28,523,042	0.95	27,096,890

1. Total deferred return	(124,358,000)
2. Market Value of Assets (includes SRBR)	1,904,054,000
3. Actuarial Value of Assets for Funding Ratio (2. - 1.)[1]	2,028,412,000
4. Non-valuation reserves and designations:	
a. Supplemental Retiree Benefit Reserve (SRBR)	112,702,000
5. Preliminary Actuarial Value of Assets (3. - 4.)[2]	1,915,710,000
6. Corridor Limit	
a. 70% of Market Value of Assets excluding SRBR	1,253,946,400
b. 130% of Market Value of Assets excluding SRBR	2,328,757,600
7. Actuarial Value of Assets after Corridor	1,915,710,000

[1]Items will not sum due to a rounding adjustment on the MVA

[2]Items will not sum due to a rounding adjustment on the SRBR

Allocation of Reserve Balances

The following table shows the allocation of the assets among the various accounting reserves provided by TCERA staff.

Table III-4
Allocation of Assets by Accounting Reserve Amounts for the Years Ended June 30, 2022 and June 30, 2023

		FYE 2022	FYE 2023
1.	Member Deposit Reserve	$ 359,335,000	$ 376,021,000
2.	Employer Advance Reserve	966,012,000	1,017,688,000
3.	Retiree Reserve	460,586,000	461,073,000
4.	Supplemental Retiree Benefit Reserve	113,702,000	112,702,000
5.	Contingency Reserve	55,609,000	57,602,000
6.	Market Stabilization Reserve	(134,802,000)	(124,358,000)
7.	TCERA Property, Inc. Retained Earnings	988,000	1,144,000
8.	Other Reserves	(2,421,000)	2,182,000
	Total Reserves	$ 1,819,009,000	$ 1,904,054,000

Numbers may not add to totals due to rounding.

Asset Returns vs. Inflation

Table III-5 shows the returns on the Market and Actuarial Values of Assets, with the increase in the CPI for comparison, over the last 10 years.

Table III-5
Net Return on Assets vs. Increase in Consumer Price Index

Year Ended June 30	Net Return at Market Value*	Net Return at Actuarial Value*	Increase in Consumer Price Index**
2014	16.7%	6.8%	2.1%
2015	0.7%	6.1%	0.1%
2016	-1.9%	4.7%	1.0%
2017	11.3%	4.6%	1.6%
2018	7.4%	5.6%	2.9%
2019	5.6%	6.5%	1.6%
2020	0.1%	6.3%	0.6%
2021	24.5%	7.1%	5.4%
2022	-6.2%	6.4%	9.1%
2023	6.7%	5.8%	3.0%
Compound Average	**6.2%**	**6.0%**	**2.7%**

* Net of investment and adminstrative expenses.
** Based on All Urban Consumers - U.S. City Average, June indices.

SECTION IV – LIABILITIES

In this section, we present detailed information on System liabilities including:

- **Disclosure** of System liabilities at June 30, 2022 and June 30, 2023;
- Statement of **changes** in these liabilities during the year;
- Present value of future **SRBR** benefits based on current benefit levels; and,
- Liability and funded status **disclosures** with and without the SRBR.

Disclosure

Several types of liabilities are calculated and presented in this report. Each type is distinguished by the people ultimately using the figures and the purpose for which they are using them. Note that these liabilities are not applicable for settlement purposes, including the purchase of annuities and the payment of lump sums.

- **Present Value of Future Benefits:** Used for measuring all future System obligations, represents the amount of money needed today to fully fund all benefits of the System both earned as of the valuation date and those to be earned in the future by current plan participants, under the current System provisions.

- **Actuarial Liability:** Used for funding calculations, this liability is calculated taking the Present Value of Future Benefits and subtracting the present value of future Member Contributions and future employer normal costs under an acceptable actuarial funding method. The method used for this System is called the **Entry Age Normal** (EAN) funding method.

- **Unfunded Actuarial Liability:** The excess of the Actuarial Liability over the Actuarial Value of Assets.

Table IV-1 on the following page discloses each of these liabilities for the current and prior valuations. With respect to each disclosure, a subtraction of the appropriate value of Plan assets yields, for each respective type, a **net surplus,** or an **Unfunded Actuarial Liability**.

SECTION IV – LIABILITIES

Table IV-1
Present Value of Future Benefits and Actuarial Liability
(in thousands)

Item	General	Safety	June 30, 2023 Total	June 30, 2022 Total
Present Value of Future Benefits (PVFB)				
Actives	$ 942,749	$ 395,819	$ 1,338,568	$ 1,251,035
Terminated Vested	103,299	32,217	135,516	127,539
Retirees	720,797	234,940	955,737	898,148
Disabled	58,121	71,025	129,147	122,629
Beneficiaries	54,787	33,088	87,875	85,143
Total PVFB	$ 1,879,754	$ 767,089	$ 2,646,843	$ 2,484,494
Actuarial Liability				
Total Present Value of Benefits	$ 1,879,754	$ 767,089	$ 2,646,843	$ 2,484,494
Present Value of Future Normal Costs				
Employer Portion	163,516	74,248	237,763	226,554
Employee Portion	154,265	67,541	221,807	210,590
Actuarial Liability	$ 1,561,973	$ 625,300	$ 2,187,273	$ 2,047,350
Actuarial Value of Assets	$ 1,383,334	$ 532,376	$ 1,915,710	$ 1,840,109
Funded Ratio	88.6%	85.1%	87.6%	89.9%
Unfunded Actuarial Liability/(Surplus)	$ 178,639	$ 92,924	$ 271,563	$ 207,241

Numbers may not add to totals due to rounding.

Changes in Liabilities

Each of the liabilities disclosed in the prior tables are expected to change at each valuation. The components of that change, depending upon which liability is analyzed, can include:

- New hires since the last valuation
- Benefits accrued since the last valuation
- Plan amendments increasing benefits
- Passage of time which adds interest to the prior liability
- Benefits paid to retirees since the last valuation
- Participants retiring, terminating, or dying at rates different than expected
- A change in actuarial or investment assumptions
- A change in the actuarial funding method

Unfunded liabilities will change because of all of the above, and also due to changes in System assets resulting from:

- Employer contributions different than the actuarial cost
- Investment earnings different than expected
- A change in the method used to measure plan assets

SECTION IV – LIABILITIES

Table IV-2
Development of 2023 Experience Gain/(Loss)
(in thousands)

	Item	Cost
1.	Unfunded Actuarial Liability at June 30, 2022	$ 207,241
2.	Middle of year actuarial liability payment	(20,438)
3.	Interest to end of year on 1 and 2	13,804
4.	Impact of assumption changes	(28,664)
5.	Expected Unfunded Actuarial Liability at June 30, 2023	$ 171,943
6.	Actual Unfunded Liability at June 30, 2023 (AVA basis)	271,563
7.	Net Gain/(Loss): (5 - 6)	$ (99,621)
8.	Portion of net gain/(loss) due to:	
	a. Investment experience loss	$ (22,555)
	b. Contributions less than actuarial cost	(349)
	c. Inactive mortality loss	(707)
	d. COLAs more than expected	(11,810)
	e. Salaries more than expected	(57,752)
	f. Retirements	(3,207)
	g. Terminations	6,643
	h. Other experience	(9,884)
	i Total gain/(loss)	$ (99,621)

Numbers may not add to totals due to rounding.

SECTION IV – LIABILITIES

Table IV-3 shows the present value of future SRBR benefits at current benefit levels and the calculation of the net reserve based on the SRBR balance. The net reserve as of June 30, 2023 is positive, meaning that the current SRBR balance is expected to cover SRBR benefits at current levels.

Table IV-3
Supplemental Retiree Benefit Reserve as of June 30, 2023

	June 30, 2022	June 30, 2023
Level One		
1. Current Retirees	$ 62,634,020	$ 64,123,136
2. Inactive Members	1,888,632	1,708,321
3. Active members	36,155,243	33,740,443
4. Subtotal	$ 100,677,895	$ 99,571,900
Level Two		
5. Supplemental COLA for those who have lost at least 15% of Purchasing Power	$ 1,089,150	$ 3,162,003
Level Three		
6. Supplemental Spousal Death Benefit	$ 6,310,316	$ 6,304,633
7. Total SRBR Combined Liability: (4) + (5) + (6)	$ 108,077,361	$ 109,038,536
8. Supplemental Retiree Benefit Reserve: (SRBR)	113,702,000	112,702,000
9. Net Reserve: (8) - (7)	$ 5,624,639	$ 3,663,464

Numbers may not add to totals due to rounding.

SECTION IV – LIABILITIES

The top portion of Table IV-4 on the next page shows System assets, liabilities, and funded ratios excluding the SRBR. In the bottom half, the liabilities are adjusted to include the portion associated with the current SRBR balance that has been accrued based on service to date ($106.2 million) as well as the accrued portion of the present value of future transfers to the SRBR ($125.9 million). In addition, the SRBR balance of $112.7 million as of June 30, 2023 is added to the asset values.

The Board has not elected to pre-fund the estimated liability associated with future SRBR transfers. Such transfers will be recognized as asset losses in the valuation as they occur. The estimated liability associated with future transfers has increased slightly since the prior valuation (from $118.7 million to $125.9 million).

These liability disclosures do not imply that the current benefit levels are guaranteed. Our understanding is that the Board has the power to adjust the benefit amounts paid from the SRBR.

SECTION IV – LIABILITIES

Table IV-4
Disclosure of SRBR Liabilities
(in thousands)

Valuation Date	June 30, 2022	June 30, 2023
Without SRBR		
Actuarial Liability (Excluding SRBR)	$ 2,047,350	$ 2,187,273
Actuarial Value of Assets (Excluding SRBR)	1,840,109	1,915,710
Market Value of Assets (Excluding SRBR)	1,705,307	1,791,352
Funded Ratio - Actuarial Value Basis	89.9%	87.6%
Funded Ratio - Market Value Basis	83.3%	81.9%
With SRBR		
Actuarial Liability (Excluding SRBR)	$ 2,047,350	$ 2,187,273
Liability Associated with Current SRBR Balance	106,033	106,175
Liability from Future Transfers	118,668	125,909
Total Liability with SRBR	$ 2,272,050	$ 2,419,357
Actuarial Value of Assets (Including SRBR)	$ 1,953,811	$ 2,028,412
Market Value of Assets (Including SRBR)	1,819,009	1,904,054
Funded Ratio - Actuarial Value Basis	86.0%	83.8%
Funded Ratio - Market Value Basis	80.1%	78.7%

Numbers may not add to totals due to rounding.

SECTION V – CONTRIBUTIONS

In the process of evaluating the financial condition of any pension plan, the actuary analyzes the assets and liabilities to determine what level (if any) of contributions is needed to properly maintain the funding status of the System. Typically, the actuarial process will use a funding technique that will result in a pattern of contributions that are both stable and predictable.

For this System, the actuarial funding method used to determine the normal cost and the Unfunded Actuarial Liability is the **Entry Age Normal (EAN)** cost method. There are two primary components to the total contribution: the **normal cost rate** (employee and employer), and the **Unfunded Actuarial Liability rate** (UAL rate).

The normal cost rate is determined in the following steps. First, an individual normal cost rate is determined by taking the value of each member's projected future benefits as of the member's entry age into the System. This value is then divided by the value of the member's expected future salary, also at entry age, producing a normal cost rate that should remain relatively constant over a member's career. The total normal cost is computed by adding the expected dollar amount of each active member's normal cost for the current year – known as the Individual Entry Age Method. The total normal cost rate is the total normal cost divided by expected salary. Finally, the total normal cost rate is reduced by the member contribution rate to produce the employer normal cost rate.

The Unfunded Actuarial Liability is the difference between the Actuarial Liability and the Actuarial Value of Assets. At its October 28, 2015 meeting, the Board adopted 19-year layered amortization of the UAL. The UAL as of June 30, 2015 is being amortized over a closed 19-year period as a level percentage of payroll (with 11 years remaining), assuming payroll increases of 3.00% per year. Subsequent changes in the UAL due to experience gains and losses, assumption changes, or plan changes will be amortized over new closed 19-year periods.

The tables on the following pages present the calculation of the contribution rates for the System for the current and prior valuations.

SECTION V – CONTRIBUTIONS

The employer contribution rates for FYE 2025 are shown in the table below, split by tier (1-4), membership class (General or Safety), and for the General class, employer (County or non-County). As directed by the TCERA Board at its April 12, 2018 meeting, we have allocated the cost impact of the contribution from POB proceeds to the County only, based on their share of pensionable payroll for the fiscal year ending June 30, 2018 (excluding TCAG). We were notified by Staff that all Safety members are employed by the County, so there is only one set of Safety rates. Based on information provided by Staff, we recommend that the General (Non-County) employer contribution rates be used for the Strathmore Public Utility District (SPUD).

Table V-1(a)
Development of the Net Employer Contribution Rate as of June 30, 2023 for FYE 2025

	Tier 1	Tier 2 & 3	Tier 4	Total
General (County)				
1. Total Normal Cost Rate	12.12%	15.99%	15.03%	15.46%
2. Member Contribution Rate	0.00%	8.40%	7.51%	7.91%
3. Employer Normal Cost Rate (1-2)	12.12%	7.59%	7.51%	7.55%
4. UAL Amortization	6.50%	6.50%	6.50%	6.50%
5. Net Employer Contribution Rate (3+4)	18.62%	14.09%	14.01%	14.05%
General (Non-County)				
1. Total Normal Cost Rate	12.12%	15.99%	15.03%	15.46%
2. Member Contribution Rate	0.00%	8.40%	7.51%	7.91%
3. Employer Normal Cost Rate (1-2)	12.12%	7.59%	7.51%	7.55%
4. UAL Amortization	13.28%	13.28%	13.28%	13.28%
5. Net Employer Contribution Rate (3+4)	25.40%	20.87%	20.79%	20.83%
Safety (County)				
1. Total Normal Cost Rate	N/A	23.85%	25.48%	24.58%
2. Member Contribution Rate	N/A	11.54%	12.74%	12.07%
3. Employer Normal Cost Rate (1-2)	N/A	12.32%	12.74%	12.51%
4. UAL Amortization	N/A	12.23%	12.23%	12.23%
5. Net Employer Contribution Rate (3+4)	N/A	24.55%	24.97%	24.74%

SECTION V – CONTRIBUTIONS

The employer contribution rates for FYE 2024 are shown in the table below, split by tier (1-4) and membership class (General or Safety).

Table V-1(b)
Development of the Net Employer Contribution Rate as of June 30, 2022 for FYE 2024

	Tier 1	Tier 2 & 3	Tier 4	Total
General (County)				
1. Total Normal Cost Rate	18.54%	16.76%	15.72%	16.25%
2. Member Contribution Rate	2.44%	8.54%	7.86%	8.19%
3. Employer Normal Cost Rate (1-2)	16.10%	8.21%	7.86%	8.05%
4. UAL Amortization	5.60%	5.60%	5.60%	5.60%
5. Net Employer Contribution Rate (3+4)	21.70%	13.81%	13.46%	13.65%
General (Non-County)				
1. Total Normal Cost Rate	18.54%	16.76%	15.72%	16.25%
2. Member Contribution Rate	2.44%	8.54%	7.86%	8.19%
3. Employer Normal Cost Rate (1-2)	16.10%	8.21%	7.86%	8.05%
4. UAL Amortization	12.94%	12.94%	12.94%	12.94%
5. Net Employer Contribution Rate (3+4)	29.04%	21.15%	20.80%	20.99%
Safety (County)				
1. Total Normal Cost Rate	N/A	23.42%	25.88%	24.46%
2. Member Contribution Rate	N/A	11.47%	12.94%	12.09%
3. Employer Normal Cost Rate (1-2)	N/A	11.95%	12.94%	12.37%
4. UAL Amortization	N/A	9.68%	9.68%	9.68%
5. Net Employer Contribution Rate (3+4)	N/A	21.63%	22.62%	22.05%

Reflects final year of three year phase-in of assumption changes for employer contribution rate

SECTION V – CONTRIBUTIONS

The combined General and Safety employer contribution rates for FYE 2025 are shown in the table below, split by tier (1-4). Separate rates are shown above and below the first $161.54 of biweekly compensation (Social Security Integration).

Table V-2(a)
Development of the Employer Contribution Rate as of June 30, 2023 for FYE 2025 with Social Security Integration

	Tier 1	Tier 2 & 3	Tier 4	Total
General and Safety				
1. Employer Normal Cost Rate:	12.12%	8.80%	8.49%	8.64%
a. Rate on first $161.54 of biweekly compensation	8.30%	5.98%		
b. Rate on biweekly compensation in excess of $161.54	12.45%	8.96%		
2. UAL Rate:	7.03%	8.36%	8.00%	8.17%
a. Rate on first $161.54 of biweekly compensation	4.81%	5.68%		
b. Rate on biweekly compensation in excess of $161.54	7.22%	8.52%		
3. Total Rate (1 + 2):	19.15%	17.16%	16.50%	16.82%
a. Rate on first $161.54 of biweekly compensation	13.11%	11.65%		
b. Rate on biweekly compensation in excess of $161.54	19.66%	17.48%		

SECTION V – CONTRIBUTIONS

The employer contribution rates for FYE 2025 are shown in the table below, split by tier (1-4), membership class (General or Safety), and for the General class, employer (County or Non-County). Separate rates are shown above and below the first $161.54 of biweekly compensation (Social Security Integration).

Table V-2(b)
Development of the Employer Contribution Rate as of June 30, 2023 for FYE 2025 with Social Security Integration

	Tier 1	Tier 2 & 3	Tier 4	Total
General (County)				
1. Employer Normal Cost Rate:	12.12%	7.59%	7.51%	7.55%
a. Rate on first $161.54 of biweekly compensation	8.30%	5.16%		
b. Rate on biweekly compensation in excess of $161.54	12.45%	7.74%		
2. UAL Rate:	6.50%	6.50%	6.50%	6.50%
a. Rate on first $161.54 of biweekly compensation	4.45%	4.42%		
b. Rate on biweekly compensation in excess of $161.54	6.67%	6.63%		
3. Total Rate (1 + 2):	18.62%	14.09%	14.01%	14.05%
a. Rate on first $161.54 of biweekly compensation	12.75%	9.58%		
b. Rate on biweekly compensation in excess of $161.54	19.12%	14.37%		
General (Non-County)				
1. Employer Normal Cost Rate:	12.12%	7.59%	7.51%	7.55%
a. Rate on first $161.54 of biweekly compensation	8.30%	5.16%		
b. Rate on biweekly compensation in excess of $161.54	12.45%	7.74%		
2. UAL Rate:	13.28%	13.28%	13.28%	13.28%
a. Rate on first $161.54 of biweekly compensation	9.09%	9.03%		
b. Rate on biweekly compensation in excess of $161.54	13.64%	13.55%		
3. Total Rate (1 + 2):	25.40%	20.87%	20.79%	20.83%
a. Rate on first $161.54 of biweekly compensation	17.39%	14.19%		
b. Rate on biweekly compensation in excess of $161.54	26.08%	21.29%		
Safety (County)				
1. Employer Normal Cost Rate:	N/A	12.32%	12.74%	12.51%
a. Rate on first $161.54 of biweekly compensation	N/A	8.34%		
b. Rate on biweekly compensation in excess of $161.54	N/A	12.51%		
2. UAL Rate:	N/A	12.23%	12.23%	12.23%
a. Rate on first $161.54 of biweekly compensation	N/A	8.28%		
b. Rate on biweekly compensation in excess of $161.54	N/A	12.42%		
3. Total Rate (1 + 2):	N/A	24.55%	24.97%	24.74%
a. Rate on first $161.54 of biweekly compensation	N/A	16.61%		
b. Rate on biweekly compensation in excess of $161.54	N/A	24.92%		

SECTION V – CONTRIBUTIONS

Table V-3 below shows information on each layer of the June 30, 2023 UAL. At its October 28, 2015 meeting, the Board adopted 19-year layered amortization of the UAL. The UAL as of June 30, 2015 is being amortized over a closed 19-year period as a level percentage of payroll, assuming payroll increases of 3.00% per year, and subsequent changes in the UAL due to experience gains and losses, assumption changes, or plan changes will be amortized over new closed 19-year periods.

Table V-3
Development of Amortization Payment
For the June 30, 2023 Actuarial Valuation

Type of Base	Date Established	Initial Amount	Initial Amortization Years	June 30, 2023 Outstanding Balance	Remaining Amortization Years	Amortization Amount
1. Initial UAL	6/30/2015	201,848,216	19	171,164,328	11	19,332,934
2. (Gain)/Loss Base	6/30/2016	38,033,040	19	33,481,656	12	3,528,369
3. (Gain)/Loss Base	6/30/2017	25,611,386	19	23,251,554	13	2,301,845
4. Assumption Change Base	6/30/2017	82,259,297	19	74,679,931	13	7,393,122
5. POB Contribution Base	6/30/2017	(233,100,233)	19	(211,622,388)	13	(20,950,073)
6. (Gain)/Loss Base	6/30/2018	23,781,349	19	22,163,425	14	2,073,210
7. (Gain)/Loss Base	6/30/2019	12,251,268	19	11,662,714	15	1,035,996
8. (Gain)/Loss Base	6/30/2020	23,103,302	19	22,368,365	16	1,895,081
9. Assumption Change Base	6/30/2020	42,435,148	19	41,085,244	16	3,480,802
10. (Gain)/Loss Base	6/30/2021	(1,383,632)	19	(1,358,501)	17	(110,189)
11. (Gain)/Loss Base	6/30/2022	13,836,166	19	13,730,337	18	1,069,781
12. (Gain)/Loss Base	6/30/2023	99,620,526	19	99,620,526	19	7,478,092
13. Assumption Change Base	6/30/2023	(28,664,047)	19	(28,664,047)	19	(2,151,689)
Total				$ 271,563,144		$ 26,377,281

Numbers may not add to totals due to rounding.

If the UAL payment above of $26,377,281 is calculated based on a single-equivalent period with the June 30, 2023 UAL of $271,563,144, the number of years to fully pay off the UAL would be approximately 13 years.

SECTION V – CONTRIBUTIONS

Table V-4 below shows the development of the UAL amortization rates. The payroll split between County General and Non-County General is based on pensionable payroll by employer for FYE 2023 provided for the GASB 67/68 report. Following direction from Staff, the pensionable payroll for TCAG is excluded from the County's share.

As shown below (and described earlier in this section), the cost impact of the contribution from POB proceeds has been allocated to the County only.

Table V-4
Development of UAL Amortization Rates for FYE 2025

General (County)	
1. General County Projected Payroll for FYE June 30, 2024	$ 232,674,385
2. Total General Projected Payroll for FYE June 30, 2024	$ 252,348,896
3. County Share (1 divided by 2)	92.2034%
4. UAL Payment, not including POB Contribution	$ 33,522,202
5. UAL Payment for POB Contribution	$ (15,777,962)
6. County Share of 4. (3 multiplied by 4)	$ 30,908,626
7. County Share of 5. (100% of 5)	$ (15,777,962)
8. Total General County UAL Payment (6+7)	$ 15,130,664
9. General County UAL Rate (8 divided by 1)	6.50%
General (Non-County)	
1. General Non-County Projected Payroll for FYE June 30, 2024	$ 19,674,511
2. Total General Projected Payroll for FYE June 30, 2024	$ 252,348,896
3. Non-County Share (1 divided by 2)	7.7966%
4. UAL Payment, not including POB Contribution	$ 33,522,202
5. UAL Payment for POB Contribution	$ (15,777,962)
6. Non-County Share of 4. (3 multiplied by 4)	$ 2,613,576
7. Non-County Share of 5. (0% of 5)	$ 0
8. Total General Non-County UAL Payment (6+7)	$ 2,613,576
9. General Non-County UAL Rate (8 divided by 1)	13.28%
Safety (County)	
1. County Safety Projected Payroll for FYE June 30, 2024	$ 70,565,512
2. Total Safety Projected Payroll for FYE June 30, 2024	$ 70,565,512
3. County Share (1 divided by 2)	100.0000%
4. UAL Payment, not including POB Contribution	$ 13,805,152
5. UAL Payment for POB Contribution	$ (5,172,111)
6. County Share of 4. (3 multiplied by 4)	$ 13,805,152
7. County Share of 5. (100% of 5)	$ (5,172,111)
8. Total County Safety UAL Payment (6+7)	$ 8,633,041
9. County Safety UAL Rate (8 divided by 1)	12.23%

Numbers may not add to totals due to rounding.

SECTION V – CONTRIBUTIONS

The employer contribution rates for FYE 2025 are shown in Table V-5 below, split by membership class, employer (County or non-County for General members), and tier (1-4). Separate rates are displayed for normal cost and UAL Amortization, both of which are further split into Basic and COLA rates. Table V-6 on the following page shows employee contribution rates for FYE 2025 at sample ages.

Table V-5
Detailed Employer Contribution Rate as of June 30, 2023 for FYE 2025

		Normal Cost			UAL Amortization Cost			Total Cost		
Member Type	Tier	Basic Rate	COLA Rate	Total Rate	Basic Rate	COLA Rate	Total Rate	Basic Rate	COLA Rate	Total Rate
General (County)	1	9.81%	2.31%	12.12%	5.26%	1.24%	6.50%	15.08%	3.54%	18.62%
General (County)	2&3	6.31%	1.28%	7.59%	5.41%	1.09%	6.50%	11.72%	2.37%	14.09%
General (County)	4	6.16%	1.35%	7.51%	5.33%	1.17%	6.50%	11.49%	2.52%	14.01%
General (Non-County)	1	9.81%	2.31%	12.12%	10.75%	2.53%	13.28%	20.57%	4.83%	25.40%
General (Non-County)	2&3	6.31%	1.28%	7.59%	11.05%	2.23%	13.28%	17.36%	3.51%	20.87%
General (Non-County)	4	6.16%	1.35%	7.51%	10.89%	2.39%	13.28%	17.05%	3.74%	20.79%
General (Total)	1	9.81%	2.31%	12.12%	5.69%	1.34%	7.03%	15.50%	3.65%	19.15%
General (Total)	2&3	6.31%	1.28%	7.59%	5.85%	1.18%	7.03%	12.16%	2.46%	14.62%
General (Total)	4	6.16%	1.35%	7.51%	5.77%	1.26%	7.03%	11.93%	2.61%	14.54%
Safety (County)	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Safety (County)	2&3	9.98%	2.34%	12.32%	9.90%	2.33%	12.23%	19.88%	4.67%	24.55%
Safety (County)	4	10.23%	2.51%	12.74%	9.82%	2.41%	12.23%	20.05%	4.92%	24.97%

SECTION V – CONTRIBUTIONS

Table V-6

Employee Contribution Rate at Sample Ages as of June 30, 2023 for FYE 2025

Member Type	Tier	Age 25	Age 35	Age 45	Single Rate
General	1	4.79%	5.88%	7.23%	N/A
General	2&3	7.60%	9.32%	11.41%	N/A
General	4	5.56%	7.51%	10.21%	N/A
Safety	1	N/A	N/A	N/A	N/A
Safety	2&3	11.28%	13.11%	15.19%	N/A
Safety	4	11.57%	14.81%	18.69%	N/A

SECTION V – CONTRIBUTIONS

Table V-7 below shows projected annual employer contributions for FYE 2025, split by membership class, employer (County or non-County for General members), and tier (1-4). The contribution amounts are further split into normal cost and UAL Amortization components.

Table V-7
Estimated Annual Employer Contributions for FYE 2025

Member Type	Tier	Normal Cost	UAL Amortization	Contributions Total
General (County)	1	$ 46,623	$ 25,003	$ 71,626
General (County)	2&3	8,245,144	7,063,682	15,308,826
General (County)	4	9,819,876	8,495,062	18,314,938
General (Non-County)	1	3,942	4,320	8,262
General (Non-County)	2&3	697,194	1,220,313	1,917,507
General (Non-County)	4	830,350	1,467,596	2,297,947
General (Total)	1	50,566	29,323	79,888
General (Total)	2&3	8,942,338	8,283,995	17,226,333
General (Total)	4	10,650,226	9,962,659	20,612,885
Safety (County)	1	0	0	0
Safety (County)	2&3	4,959,092	4,923,775	9,882,867
Safety (County)	4	4,133,869	3,968,829	8,102,698

Numbers may not add to totals due to rounding.

SECTION V – CONTRIBUTIONS

Table V-8 below shows a projection of the expected contributions (for the fiscal year beginning one year after the valuation date) to cover the employer normal cost and UAL amortization over the next 20 years.

Table V-8
Retirement Contributions

Valuation Year	Employer Normal Cost Contribution	Employer UAL Amortization Contribution	Total Employer Contributions	Employer Rate (%)	Employee Contribution	Employee Rate (%)
2023	$ 28,736,091	$ 27,168,580	$ 55,904,672	16.8%	$ 29,296,736	8.8%
2024	29,609,483	30,795,325	60,404,808	17.6%	30,132,929	8.8%
2025	30,501,598	33,934,070	64,435,668	18.3%	31,001,221	8.8%
2026	31,421,566	36,213,241	67,634,808	18.6%	31,897,809	8.8%
2027	32,369,456	38,533,235	70,902,691	18.9%	32,824,468	8.8%
2028	33,346,353	41,136,523	74,482,876	19.3%	33,782,297	8.8%
2029	34,353,230	43,130,839	77,484,069	19.5%	34,768,348	8.8%
2030	35,389,890	45,061,629	80,451,519	19.7%	35,786,940	8.8%
2031	36,458,019	48,086,191	84,544,210	20.1%	36,834,578	8.7%
2032	37,557,738	50,706,988	88,264,726	20.3%	37,913,393	8.7%
2033	38,690,153	52,252,523	90,942,676	20.3%	39,026,555	8.7%
2034	39,856,751	26,258,373	66,115,124	14.4%	40,172,540	8.7%
2035	41,057,649	19,725,010	60,782,660	12.8%	41,353,971	8.7%
2036	42,294,374	36,773,182	79,067,556	16.2%	42,568,715	8.7%
2037	43,567,526	35,924,735	79,492,261	15.8%	43,817,996	8.7%
2038	44,878,172	35,188,922	80,067,095	15.5%	45,105,232	8.7%
2039	46,227,837	27,218,660	73,446,497	13.8%	46,431,556	8.7%
2040	47,617,416	27,522,345	75,139,761	13.7%	47,798,931	8.7%
2041	49,048,383	26,432,679	75,481,063	13.3%	49,206,374	8.7%
2042	50,521,399	17,457,193	67,978,592	11.7%	50,656,085	8.7%
2043	52,038,060	12,292,392	64,330,452	10.7%	52,151,599	8.7%

SECTION VI – ANNUAL COMPREHENSIVE FINANCIAL REPORTING INFORMATION

The GASB adopted Statement Nos. 67 and 68, replacing GASB Statement Nos. 25 and 27. GASB 67 was effective for periods beginning after June 15, 2013 (first effective June 30, 2014 for the Plan) and GASB 68 was effective for fiscal years beginning after June 15, 2014 (first effective for the fiscal year July 1, 2014 to June 30, 2015 for the Employers). The disclosures needed to satisfy the GASB requirements will be included in the TCERA GASB 67/68 Report as of June 30, 2023.

In accordance with Government Finance Officers Association (GFOA) and their recommended checklist for Annual Comprehensive Financial Reports (ACFRs), we continue to prepare the Schedule of Funded Liabilities by Type disclosure, as shown in Table VI-1. As requested by TCERA, we have also included the Schedule of Funding Progress (Table VI-2) and the Schedule of Employer Contributions (Table VI-3).

Table VI-1
SCHEDULE OF FUNDED LIABILITIES BY TYPE
(in thousands)

Valuation Date June 30,	(A) Active/Inactive Member Contributions	(B) Retirees And Beneficiaries	(C) Remaining Active Members' Liabilities	Reported Assets	Portion of Actuarial Liabilities Covered by Reported Assets (A)	(B)	(C)
2014	$ 252,883	$ 660,147	$ 358,802	$ 1,101,929	100%	100%	53%
2015	264,870	698,147	395,418	1,156,587	100%	100%	49%
2016	272,740	748,703	409,993	1,192,642	100%	100%	42%
2017	278,900	808,799	485,707	1,461,755	100%	100%	77%
2018	287,078	869,729	499,550	1,523,030	100%	100%	73%
2019	301,935	925,027	514,321	1,598,431	100%	100%	72%
2020	319,562	1,008,432	547,804	1,670,786	100%	100%	63%
2021	339,547	1,050,032	568,406	1,759,025	100%	100%	65%
2022	359,335	1,105,920	582,095	1,840,109	100%	100%	64%
2023	376,021	1,172,759	638,494	1,915,710	100%	100%	57%

Numbers may not add to totals due to rounding.
June 30, 2014 and earlier numbers calculated by prior actuary.
June 30, 2017 assets include receivable for expected contribution from POB.

SECTION VI – ANNUAL COMPREHENSIVE FINANCIAL REPORTING INFORMATION

Table VI-2
SCHEDULE OF FUNDING PROGRESS
(dollars in thousands)

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Liability (AL)	Unfunded AL	Funded Ratio	Covered Payroll	Unfunded AL as a % of Covered Payroll
June 30, 2003	$ 634,249	$ 608,505	$ (25,744)	104.2%	$ 162,397	-15.9%
June 30, 2004	665,244	649,649	(15,595)	102.4%	158,032	-9.9%
June 30, 2005	681,618	714,656	33,038	95.4%	164,777	20.1%
June 30, 2006	729,899	792,844	62,945	92.1%	186,949	33.7%
June 30, 2007	800,967	846,030	45,063	94.7%	204,803	22.0%
June 30, 2008	879,051	946,414	67,363	92.9%	226,836	29.7%
June 30, 2009	919,179	996,747	77,568	92.2%	227,306	34.1%
June 30, 2010	946,640	1,033,211	86,571	91.6%	217,811	39.7%
June 30, 2011	969,681	1,072,144	102,463	90.4%	219,854	46.6%
June 30, 2012	981,946	1,101,456	119,510	89.1%	222,635	53.7%
June 30, 2013	1,048,160	1,186,057	137,897	88.4%	230,955	59.7%
June 30, 2014	1,101,929	1,271,832	169,903	86.6%	234,569	72.4%
June 30, 2015	1,156,587	1,358,435	201,848	85.1%	239,055	84.4%
June 30, 2016	1,192,642	1,431,436	238,794	83.3%	248,514	96.1%
June 30, 2017	1,461,755	1,573,406	111,651	92.9%	254,941	43.8%
June 30, 2018	1,523,030	1,656,357	133,326	92.0%	262,714	50.7%
June 30, 2019	1,598,431	1,741,283	142,851	91.8%	272,416	52.4%
June 30, 2020	1,670,786	1,875,797	205,011	89.1%	284,272	72.1%
June 30, 2021	1,759,025	1,957,985	198,960	89.8%	286,886	69.4%
June 30, 2022	1,840,109	2,047,350	207,241	89.9%	293,445	70.6%
June 30, 2023	1,915,710	2,187,273	271,563	87.6%	323,043	84.1%

Numbers may not add to totals due to rounding.
June 30, 2014 and earlier numbers calculated by prior actuary.
June 30, 2017 assets include receivable for expected contribution from POB.

SECTION VI – ANNUAL COMPREHENSIVE FINANCIAL REPORTING INFORMATION

Table VI-3
SCHEDULE OF EMPLOYER CONTRIBUTIONS
(dollars in thousands)

Year Ended June, 30	Actuarially Determined Contribution	Actual Contribution	Percentage Contributed
2003	$ 5,245	$ 5,245	100%
2004	9,595	9,595	100%
2005	10,502	10,502	100%
2006	12,443	12,443	100%
2007	17,975	17,975	100%
2008	22,692	22,692	100%
2009	22,431	22,431	100%
2010	25,339	25,339	100%
2011	23,434	23,434	100%
2012	25,257	25,257	100%
2013	29,847	29,847	100%
2014	25,953	25,953	100%
2015	30,992	30,992	100%
2016	31,297	31,297	100%
2017	33,616	33,616	100%
2018	36,263	36,263	100%
2019	33,494	33,494	100%
2020	35,310	35,310	100%
2021	36,766	36,766	100%
2022	40,392	40,392	100%
2023	45,174	45,174	100%

June 30, 2014 and earlier numbers calculated by prior actuary.

Note that the actual contributions do not include the contribution from POB proceeds above the actuarially determined amount.

APPENDIX A – MEMBERSHIP INFORMATION

The data for this valuation was provided by the Tulare County staff as of June 30, 2023. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

SUMMARY OF TOTAL ACTIVE MEMBERSHIP

	June 30, 2022	June 30, 2023	Change
Total (General & Safety)			
Count	4,432	4,505	1.6%
Average Age	42.5	42.2	-0.5%
Average Service	10.5	10.3	-1.8%
Annual Projected Payroll	$ 293,444,953	$ 323,042,880	10.1%
Average Annual Pay	$ 66,211	$ 71,708	8.3%

SUMMARY OF INACTIVE MEMBERSHIP*

	June 30, 2022	June 30, 2023	Change
General			
Count	2,083	2,222	6.7%
Average Age	43.9	43.8	-0.1%
Total Contribution Balance	$ 52,984,947	$ 58,738,327	10.9%
Average Contribution Balance	$ 25,437	$ 26,435	3.9%
Safety			
Count	384	411	7.0%
Average Age	39.3	39.4	0.3%
Total Contribution Balance	$ 15,792,000	$ 17,477,746	10.7%
Average Contribution Balance	$ 41,125	$ 42,525	3.4%
Total			
Count	2,467	2,633	6.7%
Average Age	43.2	43.1	-0.1%
Total Contribution Balance	$ 68,776,947	$ 76,216,073	10.8%
Average Contribution Balance	$ 27,879	$ 28,946	3.8%

Includes unclaimed accounts.

APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF RETIRED MEMBERSHIP	June 30, 2022	June 30, 2023	Change
General			
Count	2,947	3,014	2.3%
Average Age	71.8	71.9	0.2%
Total Annual Allowance	$ 69,411,269	$ 72,997,199	5.2%
Average Annual Allowance	$ 23,553	$ 24,219	2.8%
Safety			
Count	638	668	4.7%
Average Age	65.3	65.4	0.2%
Total Annual Allowance	$ 24,727,646	$ 26,445,626	6.9%
Average Annual Allowance	$ 38,758	$ 39,589	2.1%
Total			
Count	3,585	3,682	2.7%
Average Age	70.6	70.8	0.2%
Total Annual Allowance	$ 94,138,915	$ 99,442,825	5.6%
Average Annual Allowance	$ 26,259	$ 27,008	2.9%

APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF ACTIVE GENERAL MEMBERSHIP	June 30, 2022	June 30, 2023	Change
General Tier 1			
Count	7	6	-14.3%
Average Age	69.0	70.4	1.9%
Average Service	37.8	43.9	16.1%
Annual Projected Payroll	$ 490,633	$ 404,879	-17.5%
Average Annual Pay	$ 70,090	$ 67,480	-3.7%
General Tier 2 & 3			
Count	1,619	1,481	-8.5%
Average Age	49.6	50.4	1.5%
Average Service	17.8	18.6	4.8%
Annual Projected Payroll	$ 113,469,216	$ 114,382,779	0.8%
Average Annual Pay	$ 70,086	$ 77,233	10.2%
General Tier 4			
Count	1,985	2,221	11.9%
Average Age	37.8	37.7	-0.1%
Average Service	4.2	4.3	2.2%
Annual Projected Payroll	$ 113,443,582	$ 137,689,710	21.4%
Average Annual Pay	$ 57,150	$ 61,994	8.5%
General Total			
Count	3,611	3,708	2.7%
Average Age	43.2	42.8	-0.8%
Average Service	10.4	10.1	-2.6%
Annual Projected Payroll	$ 227,403,431	$ 252,477,368	11.0%
Average Annual Pay	$ 62,975	$ 68,090	8.1%

APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF ACTIVE SAFETY MEMBERSHIP			
	June 30, 2022	June 30, 2023	Change
Safety Tier 1			
Count	0	0	0.0%
Average Age	0	0	0.0%
Average Service	0	0	0.0%
Annual Projected Payroll	$ 0	$ 0	0.0%
Average Annual Pay	$ 0	$ 0	0.0%
Safety Tier 2 & 3			
Count	428	389	-9.1%
Average Age	45.4	46.4	2.1%
Average Service	17.4	18.4	5.9%
Annual Projected Payroll	$ 38,249,543	$ 39,071,649	2.1%
Average Annual Pay	$ 89,368	$ 100,441	12.4%
Safety Tier 4			
Count	393	408	3.8%
Average Age	32.7	33.0	0.8%
Average Service	4.3	4.6	8.5%
Annual Projected Payroll	$ 27,791,979	$ 31,493,863	13.3%
Average Annual Pay	$ 70,710	$ 77,191	9.2%
Safety Total			
Count	821	797	-2.9%
Average Age	39.4	39.5	0.5%
Average Service	11.1	11.3	2.3%
Annual Projected Payroll	$ 66,041,522	$ 70,565,512	6.9%
Average Annual Pay	$ 80,440	$ 88,539	10.1%

APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF RETIRED GENERAL MEMBERSHIP	June 30, 2022	June 30, 2023	Change
Service Retirement			
Count	2,333	2,405	3.1%
Average Age	71.7	71.9	0.3%
Total Annual Allowance	$ 58,704,307	$ 62,062,923	5.7%
Average Annual Allowance	$ 25,163	$ 25,806	2.6%
Disability			
Count	204	204	0.0%
Average Age	65.7	66.0	0.5%
Total Annual Allowance	$ 4,574,239	$ 4,735,294	3.5%
Average Annual Allowance	$ 22,423	$ 23,212	3.5%
Beneficiaries			
Count	410	405	-1.2%
Average Age	75.6	75.2	-0.4%
Total Annual Allowance	$ 6,132,723	$ 6,198,982	1.1%
Average Annual Allowance	$ 14,958	$ 15,306	2.3%
Total			
Count	2,947	3,014	2.3%
Average Age	71.8	71.9	0.2%
Total Annual Allowance	$ 69,411,269	$ 72,997,199	5.2%
Average Annual Allowance	$ 23,553	$ 24,219	2.8%

APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF RETIRED SAFETY MEMBERSHIP

	June 30, 2022	June 30, 2023	Change
Service Retirement			
Count	378	403	6.6%
Average Age	66.4	66.3	-0.1%
Total Annual Allowance	$ 16,881,299	$ 18,234,026	8.0%
Average Annual Allowance	$ 44,660	$ 45,246	1.3%
Disability			
Count	141	144	2.1%
Average Age	60.2	60.2	0.1%
Total Annual Allowance	$ 4,810,225	$ 5,058,491	5.2%
Average Annual Allowance	$ 34,115	$ 35,128	3.0%
Beneficiaries			
Count	119	121	1.7%
Average Age	67.8	68.7	1.4%
Total Annual Allowance	$ 3,036,122	$ 3,153,109	3.9%
Average Annual Allowance	$ 25,514	$ 26,059	2.1%
Total			
Count	638	668	4.7%
Average Age	65.3	65.4	0.2%
Total Annual Allowance	$ 24,727,646	$ 26,445,626	6.9%
Average Annual Allowance	$ 38,758	$ 39,589	2.1%

APPENDIX A – MEMBERSHIP INFORMATION

AGE AND SERVICE DISTRIBUTION WITH ANNUAL AVERAGE SALARY OF ACTIVE GENERAL MEMBERS AS OF JUNE 30, 2023
TIER 1

Attained Age	YEARS OF CREDITED SERVICE																					
	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 & up		Total	
	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.
Under 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55 to 59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60 to 64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65 to 69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	58,109	2	58,109
70 & up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	87,079	0	0	3	67,194	4	72,165
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	87,079	0	0	5	63,560	6	67,480

AGE AND SERVICE DISTRIBUTION WITH ANNUAL AVERAGE SALARY OF ACTIVE GENERAL MEMBERS AS OF JUNE 30, 2023
TIER 2 & 3

Attained Age	YEARS OF CREDITED SERVICE																					
	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 & up		Total	
	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.
Under 25	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0
25 to 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	2	62,906	16	61,052	4	59,422	0	0	0	0	0	0	0	0	0	0	22	60,924
35 to 39	1	90,540	1	76,942	9	64,942	93	77,969	41	70,107	0	0	0	0	0	0	0	0	0	0	145	75,017
40 to 44	2	62,029	0	0	12	82,277	109	80,508	134	80,690	36	68,927	0	0	0	0	0	0	0	0	293	79,115
45 to 49	2	50,201	3	59,334	11	88,301	70	74,493	99	74,055	87	76,129	24	86,182	0	0	0	0	0	0	296	75,970
50 to 54	1	107,435	2	109,226	4	90,584	35	72,811	81	76,411	87	73,691	46	69,910	5	74,172	0	0	0	0	261	74,421
55 to 59	0	0	3	72,687	6	64,878	37	69,517	61	78,699	61	77,389	43	75,496	17	76,257	2	82,767	0	0	230	75,692
60 to 64	1	81,661	0	0	3	79,589	24	90,359	53	82,715	36	80,242	30	71,029	17	86,345	8	110,739	1	53,661	173	82,659
65 to 69	0	0	0	0	2	80,751	10	76,507	10	94,732	12	67,482	5	66,217	4	114,467	3	87,914	0	0	46	81,225
70 & up	1	65,384	0	0	0	0	5	135,906	3	88,430	4	113,838	2	81,257	0	0	0	0	0	0	15	108,538
Total	8	71,185	9	76,829	49	77,975	399	77,573	486	77,865	323	75,512	150	74,367	43	83,557	13	101,168	1	53,661	1,481	77,233

APPENDIX A – MEMBERSHIP INFORMATION

AGE AND SERVICE DISTRIBUTION WITH ANNUAL AVERAGE SALARY OF ACTIVE GENERAL MEMBERS AS OF JUNE 30, 2023
TIER 4

	YEARS OF CREDITED SERVICE																					
	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 & up		Total	
Attained Age	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.
Under 25	84	$ 44,901	43	$ 46,203	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	127	$ 45,342
25 to 29	133	50,982	177	58,004	64	54,054	0	0	0	0	0	0	0	0	0	0	0	0	0	0	374	54,831
30 to 34	88	51,737	227	62,171	236	64,879	8	68,072	0	0	0	0	0	0	0	0	0	0	0	0	559	61,756
35 to 39	63	57,811	125	63,046	204	70,203	19	75,862	0	0	0	0	0	0	0	0	0	0	0	0	411	66,388
40 to 44	36	56,583	111	67,916	112	68,593	11	74,283	0	0	0	0	0	0	0	0	0	0	0	0	270	66,945
45 to 49	35	57,893	68	63,926	76	70,706	7	53,027	0	0	0	0	0	0	0	0	0	0	0	0	186	65,151
50 to 54	24	63,880	40	65,183	55	66,436	9	82,267	0	0	0	0	0	0	0	0	0	0	0	0	128	66,678
55 to 59	9	54,311	34	67,782	35	64,811	7	56,193	0	0	0	0	0	0	0	0	0	0	0	0	85	64,178
60 to 64	6	53,146	24	69,211	32	72,271	4	55,131	0	0	0	0	0	0	0	0	0	0	0	0	66	68,381
65 to 69	0	0	6	56,896	6	55,143	1	43,704	0	0	0	0	0	0	0	0	0	0	0	0	13	55,072
70 & up	1	62,966	0	0	1	142,041	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	102,504
Total	479	52,639	855	62,043	821	66,816	66	69,276	0	0	0	0	0	0	0	0	0	0	0	0	2,221	61,994

APPENDIX A – MEMBERSHIP INFORMATION

AGE AND SERVICE DISTRIBUTION WITH ANNUAL AVERAGE SALARY OF ACTIVE SAFETY MEMBERS AS OF JUNE 30, 2023
TIER 1

	YEARS OF CREDITED SERVICE																					
	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 & up		Total	
Attained Age	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.
Under 25	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0
25 to 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55 to 59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60 to 64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65 to 69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70 & up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AGE AND SERVICE DISTRIBUTION WITH ANNUAL AVERAGE SALARY OF ACTIVE SAFETY MEMBERS AS OF JUNE 30, 2023
TIER 2 & 3

	YEARS OF CREDITED SERVICE																					
	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 & up		Total	
Attained Age	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.	No.	Average Comp.
Under 25	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0
25 to 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	1	90,023	1	116,466	8	89,548	1	88,640	0	0	0	0	0	0	0	0	0	0	11	91,956
35 to 39	0	0	0	0	1	99,528	29	86,515	31	101,178	0	0	0	0	0	0	0	0	0	0	61	94,180
40 to 44	1	70,138	2	93,879	5	91,345	24	92,047	65	97,647	7	100,462	0	0	0	0	0	0	0	0	104	95,904
45 to 49	0	0	0	0	2	113,364	14	92,007	43	99,952	33	109,325	3	112,432	0	0	0	0	0	0	95	102,713
50 to 54	1	194,824	0	0	0	0	9	85,264	25	101,384	24	116,850	13	117,693	1	116,345	0	0	0	0	73	108,870
55 to 59	1	102,281	0	0	1	97,005	4	96,585	6	89,460	6	98,659	10	100,108	2	110,115	3	170,855	0	0	33	104,491
60 to 64	0	0	0	0	0	0	0	0	7	103,821	1	118,004	2	86,902	1	102,564	0	0	0	0	11	101,920
65 to 69	0	0	0	0	0	0	0	0	0	0	1	66,458	0	0	0	0	0	0	0	0	1	66,458
70 & up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	122,414	3	92,593	10	99,645	88	89,503	178	99,260	72	109,608	28	108,650	4	109,785	3	170,855	0	0	389	100,441

APPENDIX A – MEMBERSHIP INFORMATION

AGE AND SERVICE DISTRIBUTION WITH ANNUAL AVERAGE SALARY OF ACTIVE SAFETY MEMBERS AS OF JUNE 30, 2023
TIER 4

YEARS OF CREDITED SERVICE

Attained Age	Under 1 No.	Under 1 Average Comp.	1 to 4 No.	1 to 4 Average Comp.	5 to 9 No.	5 to 9 Average Comp.	10 to 14 No.	10 to 14 Average Comp.	15 to 19 No.	15 to 19 Average Comp.	20 to 24 No.	20 to 24 Average Comp.	25 to 29 No.	25 to 29 Average Comp.	30 to 34 No.	30 to 34 Average Comp.	35 to 39 No.	35 to 39 Average Comp.	40 & up No.	40 & up Average Comp.	Total No.	Total Average Comp.
Under 25	14	$ 53,188	13	$ 71,261	1	$ 84,141	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	0	$ 0	28	$ 62,684
25 to 29	25	60,368	84	73,852	25	81,539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	134	72,770
30 to 34	13	57,120	43	77,667	65	81,797	5	88,017	0	0	0	0	0	0	0	0	0	0	0	0	126	78,088
35 to 39	4	64,152	20	80,743	38	86,918	4	79,077	0	0	0	0	0	0	0	0	0	0	0	0	66	83,192
40 to 44	2	69,952	8	77,113	14	83,482	3	92,254	0	0	0	0	0	0	0	0	0	0	0	0	27	81,567
45 to 49	1	67,775	2	90,622	6	88,916	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	86,946
50 to 54	2	75,300	1	107,128	3	85,748	3	92,794	0	0	0	0	0	0	0	0	0	0	0	0	9	88,150
55 to 59	1	69,060	3	102,430	1	141,707	1	83,297	0	0	0	0	0	0	0	0	0	0	0	0	6	100,226
60 to 64	0	0	2	90,210	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	90,210
65 to 69	0	0	0	0	1	97,725	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	97,725
70 & up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	62	59,360	176	76,577	154	84,034	16	87,177	0	0	0	0	0	0	0	0	0	0	0	0	408	77,191

Average Increases in Pay (for upcoming year, based on valuation data)	
Longevity and Promotion Component	2.43%
Wage Inflation Component	3.00%
Total	5.43%

APPENDIX A – MEMBERSHIP INFORMATION

AGE DISTRIBUTION OF TOTAL INACTIVE PARTICIPANTS
PENSIONERS AND BENEFICIARIES RECEIVING BENEFITS AS OF JUNE 30, 2023

	Disability Retirements		Normal, Early Deferred Vested Retirements		Surviving Spouses and Beneficiaries Receiving Benefits		Total	
Age	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit
Under 55	80	$ 2,505,255	84	$ 1,641,157	46	$ 678,305	210	$ 4,824,717
55-59	44	1,372,177	213	5,789,285	15	229,211	272	7,390,673
60-64	53	1,367,854	394	11,283,692	41	798,218	488	13,449,764
65-69	62	1,632,804	586	17,232,724	71	1,473,199	719	20,338,727
70-74	50	1,375,961	600	17,954,203	84	1,472,009	734	20,802,173
75-79	39	1,085,178	527	16,487,105	91	1,771,662	657	19,343,945
80 & Over	20	454,556	404	9,908,783	178	2,929,487	602	13,292,826
Total	348	$ 9,793,785	2,808	$ 80,296,949	526	$ 9,352,091	3,682	$ 99,442,825

AGE DISTRIBUTION OF INACTIVE GENERAL PARTICIPANTS
PENSIONERS AND BENEFICIARIES RECEIVING BENEFITS AS OF JUNE 30, 2023

	Disability Retirements		Normal, Early Deferred Vested Retirements		Surviving Spouses and Beneficiaries Receiving Benefits		Total	
Age	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit
Under 55	30	$ 690,741	45	$ 560,821	25	$ 215,936	100	$ 1,467,498
55-59	19	402,835	138	2,109,320	10	105,948	167	2,618,103
60-64	37	886,425	318	8,023,486	30	506,519	385	9,416,430
65-69	44	1,041,100	517	14,120,142	48	778,535	609	15,939,777
70-74	33	726,000	535	14,796,522	63	864,125	631	16,386,647
75-79	30	759,934	473	13,544,828	81	1,524,655	584	15,829,417
80 & Over	11	228,259	379	8,907,804	148	2,203,264	538	11,339,327
Total	204	$ 4,735,294	2,405	$ 62,062,923	405	$ 6,198,982	3,014	$ 72,997,199

APPENDIX A – MEMBERSHIP INFORMATION

AGE DISTRIBUTION OF INACTIVE SAFETY PARTICIPANTS PENSIONERS AND BENEFICIARIES RECEIVING BENEFITS AS OF JUNE 30, 2023								
	Disability Retirements		**Normal, Early Deferred Vested Retirements**		**Surviving Spouses and Beneficiaries Receiving Benefits**		**Total**	
Age	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit
Under 55	50	$ 1,814,514	39	$ 1,080,336	21	$ 462,369	110	$ 3,357,219
55-59	25	969,342	75	3,679,965	5	123,263	105	4,772,570
60-64	16	481,429	76	3,260,206	11	291,699	103	4,033,334
65-69	18	591,704	69	3,112,582	23	694,664	110	4,398,950
70-74	17	649,961	65	3,157,681	21	607,884	103	4,415,526
75-79	9	325,244	54	2,942,277	10	247,007	73	3,514,528
80 & Over	9	226,297	25	1,000,979	30	726,223	64	1,953,499
Total	144	$ 5,058,491	403	$ 18,234,026	121	$ 3,153,109	668	$ 26,445,626

APPENDIX A – MEMBERSHIP INFORMATION

Retirants and Beneficiaries Added to and Removed From Payroll

Plan Year Ended June 30	At Beginning of Year	Added During Year	Annual Allowances Added to the Rolls	Removed During Year	Annual Allowances Removed from the Rolls	At End of Year	Annual Allowance	% Increase in Annual Allowance	Average Annual Allowance
2013	2,424	183	$ 4,745,718	65	$ 483,264	2,542	$ 53,237,266	8.70%	$ 20,943
2014	2,542	224	$ 4,198,797	75	$ 659,212	2,691	$ 56,776,851	6.65%	$ 21,099
2015	2,691	218	$ 4,360,151	88	$ 1,432,880	2,821	$ 59,960,567	5.61%	$ 21,255
2016	2,821	185	$ 4,540,356	66	$ 986,150	2,940	$ 64,292,378	7.22%	$ 21,868
2017	2,940	191	$ 4,483,587	59	$ 896,529	3,072	$ 68,669,924	6.81%	$ 22,353
2018	3,072	178	$ 5,487,994	58	$ 830,938	3,192	$ 73,731,771	7.37%	$ 23,099
2019	3,192	174	$ 4,705,555	54	$ 1,098,384	3,312	$ 78,971,061	7.11%	$ 23,844
2020	3,312	163	$ 4,626,973	67	$ 925,421	3,408	$ 84,412,237	6.89%	$ 24,769
2021	3,408	141	$ 3,908,186	77	$ 1,434,138	3,472	$ 88,623,368	4.99%	$ 25,525
2022	3,472	178	$ 5,109,979	65	$ 1,181,524	3,585	$ 94,138,915	6.22%	$ 26,259
2023	3,585	176	$ 5,106,635	79	$ 1,576,004	3,682	$ 99,442,825	5.63%	$ 27,008

Data prior to 2015 was compiled by the previous actuary.

Starting in 2015, Annual Allowances Added to the Rolls no longer includes cost of living adjustments for existing retirees.

APPENDIX A – MEMBERSHIP INFORMATION

Reconciliation of System Membership Since Prior Valuation
Total Members

	Active	Deferred Vested	Deferred Vested - Transferred	Ordinary Disability	Duty Disability	Retired	Beneficiaries	Non-Vested Terminations Due Refund	QDRO	Deferred QDRO	Totals
June 30, 2022	**4,432**	**530**	**660**	**119**	**226**	**2,711**	**466**	**1,258**	**63**	**19**	**10,484**
New Entrants	605										605
Rehires	27	(4)	(1)			(2)		(20)			-
Duty Disabilities	(6)	(1)			11	(4)					-
Ordinary Disabilities				2		(2)					-
Retirements	(122)	(13)	(30)			165					-
Vested Terminations	(125)	126	(1)								-
Non-Vested Terminations and	(191)	(1)	(1)	(5)	(2)	(31)		186			(45)
Death without beneficiary											-
Death with beneficiary				(1)	(2)	(29)	32				-
Transfers	(25)	(18)	58					(13)			2
Beneficiary Deaths							(39)				(39)
Domestic Relations Orders									3		3
Deferred Domestic Relations Orders										4	4
Withdrawals Paid	(90)	(20)	(2)					(80)		(2)	(194)
Data Corrections							1	(1)			-
June 30, 2023	**4,505**	**599**	**683**	**115**	**233**	**2,808**	**460**	**1,330**	**66**	**21**	**10,820**

APPENDIX A – MEMBERSHIP INFORMATION

Reconciliation of System Membership Since Prior Valuation
General Members

	Active	Deferred Vested	Deferred Vested-Transferred	Ordinary Disability	Duty Disability	Retired	Beneficiaries	Non-Vested Terminations Due Refund	QDRO	Deferred QDRO	Totals
June 30, 2022	**3,611**	**442**	**540**	**101**	**103**	**2,333**	**372**	**1,092**	**38**	**9**	**8,641**
New Entrants	531										531
Rehires	23	(2)	(1)			(1)		(18)			1
Duty Disabilities	(1)	(1)			5	(3)					-
Ordinary Disabilities	-	-		2		(2)					-
Retirements	(98)	(11)	(24)			133					-
Vested Terminations	(99)	99									-
Non-Vested Terminations and	(164)	(1)	(1)	(5)	-	(30)		159		-	(42)
Death without beneficiary											-
Death with beneficiary	-			(1)	(1)	(25)	27				-
Transfers	(22)	(14)	46					(12)			(2)
Beneficiary Deaths							(36)				(36)
Domestic Relations Orders									3		3
Deferred Domestic Relations Orders									-	4	4
Withdrawals Paid	(73)	(16)	(1)					(66)		-	(156)
Data Corrections	-	-	-	-	-	-	1	(1)	-		-
June 30, 2023	**3,708**	**496**	**559**	**97**	**107**	**2,405**	**364**	**1,154**	**41**	**13**	**8,944**

APPENDIX A – MEMBERSHIP INFORMATION

Reconciliation of System Membership Since Prior Valuation
Safety Members

	Active	Deferred Vested	Deferred Vested - Transferred	Ordinary Disability	Duty Disability	Retired	Beneficiaries	Non-Vested Terminations Due Refund	QDRO	Deferred QDRO	Totals
June 30, 2022	**821**	**88**	**120**	**18**	**123**	**378**	**94**	**166**	**25**	**10**	**1,843**
New Entrants	74										74
Rehires	4	(2)	-			(1)		(2)			(1)
Duty Disabilities	(5)				6	(1)					-
Ordinary Disabilities											-
Retirements	(24)	(2)	(6)			32			-	-	-
Vested Terminations	(26)	27	(1)								-
Non-Vested Terminations and	(27)		-		(2)	(1)		27			(3)
Death without beneficiary											-
Death with beneficiary	-				(1)	(4)	5				-
Transfers	(3)	(4)	12					(1)			4
Beneficiary Deaths							(3)				(3)
Domestic Relations Orders									-	-	-
Deferred Domestic Relations Orders										-	-
Withdrawals Paid	(17)	(4)	(1)					(14)		(2)	(38)
Data Corrections		-		-	-	-	-	-			-
June 30, 2023	**797**	**103**	**124**	**18**	**126**	**403**	**96**	**176**	**25**	**8**	**1,876**

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

The methods and assumptions used in the actuarial valuation as of June 30, 2023 are outlined on the following pages.

A. Actuarial Methods

1. Actuarial Cost Method

The actuarial valuation is prepared using the Entry Age Actuarial Cost Method (CERL 31453.5). 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 (until maximum retirement age). For members who transferred between plans, entry age is based on original entry into the system. The normal cost for the Plan is based on the sum of the individual normal costs for each member (Individual Entry Age Method).

The UAL (or Surplus) is amortized as a percentage of the projected salaries of present and future members of TCERA. At its October 28, 2015 meeting, the Board adopted 19-year layered amortization of the UAL. The UAL as of June 30, 2015 is being amortized over a closed 19-year period as a level percentage of payroll, assuming payroll increases of 3.00% per year, and subsequent changes in the UAL due to experience gains and losses, assumption changes, or plan changes will be amortized over new closed 19-year periods.

2. Valuation of Assets

Beginning in fiscal year 2009, the assets are valued using a 10-year smoothed method based on the difference between the expected market value and the actual market value of the assets, net of expenses, as of June 30 and December 31 of each year. The expected market value at the end of each period is the beginning market value increased with the net increase in the cash flow of funds, all increased with interest at the expected investment return rate assumption.

A 30% asset corridor limit is applied.

The contribution of $250 million expected to be made on or before June 30, 2018 from the proceeds of a POB was included in the 2017 valuation as a receivable in both the Market and Actuarial Values of Assets as of June 30, 2017. Accordingly, it was not recorded as a contribution during the fiscal year 2017-2018.

3. Changes in Actuarial Methods

None.

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Assumptions

The TCERA Board has the authority to select economic and demographic assumptions for the Plan. The assumptions used in this report reflect the results of an Experience Study performed by Cheiron covering the period July 1, 2020 through June 30, 2023, and adopted by the Board at their October 11, 2023 meeting; more details on the assumptions can be found in the Experience Study Report dated October 20, 2023.

1. Rate of Return

Assets are assumed to earn 7.00% net of investment and administrative expenses. For purposes of determining the Low-Default-Risk Obligation Measure (LDROM), a discount rate of 5.00% was used, based on the FTSE Pension Liability Index as of the valuation date, rounded to the nearest 0.25%.

2. Inflation

The Consumer Price Index (CPI) is assumed to increase at the rate of 2.75% per year. This assumption is also used to project the compensation limit for PEPRA members.

3. Post Retirement COLA

Benefits are assumed to increase after retirement at the rate of 2.6% per year for Tier 1 participants and 2% per year for all participants in Tiers 2-4. An additional COLA of 0.4% per year (for a total COLA growth rate of 3.0%) is included for Tier 1 participants in pay status to reflect their accumulated COLA banks.

4. Internal Revenue Code Limits and PEPRA Pensionable Compensation Limits

The maximum benefit and maximum compensation limitations under Internal Revenue Code Sections 415 and 401(a)(17), respectively, are not reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit after retirement. The PEPRA compensation limit, which was $146,042 for calendar year 2023 for members participating in Social Security, was applied.

5. Interest on Member Contributions

The annual credited interest rate on member contributions is assumed to be 7.00%.

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

6. Family Composition

Percentage married for deferred vested terminations and all active members who retire, become disabled, or die during active service is shown below. Spouses of male members are assumed to be female and two years younger. Spouses of female members are assumed to be male and two years older. Actual spouse demographic data is reflected following benefit commencement.

Division	Gender	Percentage
General	Male	80%
General	Female	55%
Safety	Male	80%
Safety	Female	55%

87.5% of future retirees with eligible beneficiaries who do not have a service-related disability are assumed to elect the 60% Joint and Survivor allowance, with the remainder receiving an actuarially reduced form of benefit.

7. Increases in Pay

Wage inflation component: 3.00%

Additional longevity and promotion component:

Longevity and Promotion Increases		
Service	General	Safety
0	8.00%	9.00%
1	6.50%	6.00%
2	5.50%	5.00%
3	4.00%	3.50%
4	3.00%	2.50%
5	2.00%	2.00%
6	1.75%	1.25%
7	1.50%	1.25%
8	1.00%	1.25%
9	1.00%	1.25%
10	1.00%	1.25%
11	1.00%	1.25%
12	1.00%	1.25%
13	1.00%	1.25%
14	1.00%	1.25%
15+	0.50%	1.25%

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

8. Sick Leave Service Credit Upon Service Retirement

Active members' service retirement benefits are adjusted by a percentage, 1% for General and 2% for Safety, for anticipated conversions of sick leave to retirement service credit.

9. Termination

Years of Service	Rates of Termination	
	General	Safety
0	18.00%	13.00%
1	13.00%	12.00%
2	12.00%	8.00%
3	10.00%	8.00%
4	9.00%	8.00%
5	8.00%	6.00%
6	7.00%	6.00%
7	6.00%	6.00%
8	6.00%	6.00%
9	5.00%	6.00%
10	4.00%	4.00%
11	4.00%	4.00%
12	4.00%	4.00%
13	3.50%	4.00%
14	3.50%	4.00%
15	2.50%	2.50%
16	2.50%	2.50%
17	2.50%	2.50%
18	2.50%	2.50%
19	2.50%	2.50%
20 and over	2.50%	2.50%

Rates of termination apply to active Members who terminate their employment. Rates are assumed not to apply after eligibility for retirement.

Former members with contributions on deposit are assumed to receive a retirement benefit commencing at the following ages:

General Members: Age 60
Safety Members: Age 55

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

10. Rates of Deferred Vested Termination

Rates of deferred vested termination are a percentage of the termination rates shown on the previous page.

Service	General Males	General Females	Safety
5-10	75%	55%	60%
10-15	80%	65%	60%
15-20	80%	75%	80%
20+	80%	75%	100%

11. Reciprocal Transfers

60% of General and 65% of Safety deferred vested terminated members that leave their member contributions on deposit with the Plan are assumed to be reciprocal.

Reciprocal members are assumed to remain with the reciprocal agency until retirement, and receive annual salary increases of 3.50% for General members and 4.25% for Safety members.

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

12. Rates of Disability

Disability rates of active participants are shown below.

Rates of Disability						
	General - Males		General - Females		Safety	
Age	Ordinary	Duty	Ordinary	Duty	Ordinary	Duty
20	0.000%	0.010%	0.000%	0.010%	0.000%	0.110%
21	0.000%	0.010%	0.000%	0.010%	0.000%	0.120%
22	0.000%	0.010%	0.000%	0.010%	0.000%	0.130%
23	0.000%	0.010%	0.000%	0.010%	0.000%	0.140%
24	0.000%	0.010%	0.000%	0.010%	0.000%	0.150%
25	0.010%	0.010%	0.010%	0.010%	0.050%	0.170%
26	0.010%	0.010%	0.010%	0.010%	0.050%	0.200%
27	0.010%	0.010%	0.010%	0.010%	0.050%	0.250%
28	0.010%	0.010%	0.010%	0.010%	0.050%	0.300%
29	0.010%	0.010%	0.010%	0.010%	0.050%	0.350%
30	0.010%	0.010%	0.010%	0.010%	0.050%	0.400%
31	0.010%	0.010%	0.010%	0.010%	0.050%	0.450%
32	0.010%	0.010%	0.010%	0.010%	0.050%	0.500%
33	0.010%	0.010%	0.010%	0.010%	0.050%	0.520%
34	0.010%	0.010%	0.010%	0.010%	0.050%	0.540%
35	0.020%	0.020%	0.080%	0.020%	0.050%	0.560%
36	0.020%	0.020%	0.080%	0.020%	0.050%	0.580%
37	0.020%	0.020%	0.080%	0.020%	0.050%	0.600%
38	0.030%	0.030%	0.120%	0.030%	0.050%	0.620%
39	0.030%	0.030%	0.130%	0.030%	0.050%	0.640%
40	0.030%	0.030%	0.140%	0.030%	0.075%	0.660%
41	0.040%	0.045%	0.160%	0.045%	0.075%	0.670%
42	0.040%	0.045%	0.170%	0.045%	0.080%	0.680%
43	0.040%	0.045%	0.180%	0.045%	0.085%	0.690%
44	0.050%	0.050%	0.190%	0.050%	0.090%	0.700%
45	0.050%	0.055%	0.200%	0.055%	0.095%	0.750%
46	0.050%	0.060%	0.220%	0.060%	0.100%	0.800%
47	0.060%	0.070%	0.240%	0.070%	0.150%	0.850%
48	0.070%	0.080%	0.260%	0.080%	0.200%	0.900%
49	0.080%	0.090%	0.280%	0.090%	0.250%	0.950%
50	0.090%	0.100%	0.300%	0.100%	0.300%	1.000%
51	0.100%	0.150%	0.320%	0.150%	0.350%	1.250%
52	0.120%	0.200%	0.340%	0.200%	0.400%	1.500%
53	0.140%	0.250%	0.360%	0.250%	0.450%	1.750%
54	0.160%	0.300%	0.380%	0.300%	0.500%	2.000%
55	0.180%	0.350%	0.400%	0.350%	0.550%	2.250%
56	0.200%	0.400%	0.420%	0.400%	0.600%	2.300%
57	0.220%	0.450%	0.440%	0.450%	0.650%	2.350%
58	0.240%	0.500%	0.480%	0.500%	0.700%	2.400%
59	0.260%	0.550%	0.520%	0.550%	0.750%	2.450%
60	0.280%	0.600%	0.540%	0.600%	0.000%	0.000%
61	0.300%	0.650%	0.560%	0.650%	0.000%	0.000%
62	0.320%	0.700%	0.600%	0.700%	0.000%	0.000%
63	0.340%	0.750%	0.620%	0.750%	0.000%	0.000%
64	0.360%	0.800%	0.640%	0.800%	0.000%	0.000%
65 and over	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

13. Rates of Mortality for Healthy Lives

Mortality rates for General actives, retirees, beneficiaries (both General and Safety), terminated vested, and reciprocals are based on the sex distinct Retired Pensioner (RP) 2014 Combined Healthy Tables, published by the Society of Actuaries, with Generational improvement using Projection Scale MP-2021 from 2014, with no additional changes for males and an adjustment of 10% for females to reflect Plan experience.

Mortality rates for Safety actives, retirees, terminated vested, and reciprocals are based on the sex distinct Retired Pensioner (RP) 2014 Combined Healthy Tables with blue-collar adjustment, published by the Society of Actuaries, with Generational improvement using Projection Scale MP-2021 from 2014, and increased by 5% for both males and females to reflect Plan experience.

14. Rates of Mortality for Retired Disabled Lives

Mortality rates for disabled retirees are based on the sex distinct Retired Pensioner (RP) 2014 Disabled Retiree Mortality Table, published by the Society of Actuaries, with Generational improvement using Projection Scale MP-2021 from 2014.

15. Duty-Related Deaths (Safety Employees Only)

Percentage of deaths assumed to be duty related	
Age	
20-24	37%
25-30	42%
31-34	45%
35-43	50%
44-45	52%
46-47	54%
48-49	56%
50-54	58%
55-56	60%
57-58	62%
59	63%

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

16. Rates of Retirement

Rates of retirement are based on age and service according to the following below.

	General Years of Service		Safety Years of Service	
Age	Less than 30	30 or more	Less than 20	20 or more
45	0.00%	0.00%	7.00%	7.00%
46	0.00%	0.00%	7.00%	7.00%
47	0.00%	0.00%	7.00%	7.00%
48	0.00%	0.00%	7.00%	7.00%
49	0.00%	0.00%	7.00%	7.00%
50	5.00%	10.00%	7.00%	7.00%
51	5.00%	10.00%	7.00%	7.00%
52	5.00%	10.00%	7.00%	7.00%
53	5.00%	10.00%	7.00%	7.00%
54	5.00%	10.00%	7.00%	7.00%
55	6.00%	10.00%	10.00%	18.00%
56	6.00%	10.00%	10.00%	18.00%
57	6.00%	10.00%	10.00%	18.00%
58	6.00%	10.00%	10.00%	18.00%
59	6.00%	10.00%	10.00%	18.00%
60	15.00%	20.00%	20.00%	40.00%
61	15.00%	20.00%	20.00%	40.00%
62	15.00%	20.00%	20.00%	40.00%
63	15.00%	20.00%	20.00%	40.00%
64	15.00%	20.00%	20.00%	40.00%
65	35.00%	35.00%	40.00%	75.00%
66	35.00%	35.00%	40.00%	75.00%
67	35.00%	35.00%	40.00%	75.00%
68	35.00%	35.00%	40.00%	75.00%
69	35.00%	35.00%	40.00%	75.00%
70	35.00%	35.00%	100.00%	100.00%
71	35.00%	35.00%	100.00%	100.00%
72	35.00%	35.00%	100.00%	100.00%
73	35.00%	35.00%	100.00%	100.00%
74	35.00%	35.00%	100.00%	100.00%
75 and over	100.00%	100.00%	100.00%	100.00%

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

17. Disclosures Regarding Models Used

In accordance with Actuarial Standard of Practice (ASOP) No. 56 *Modeling*, the following disclosures are made:

a. Valuation Software

Cheiron utilizes ProVal, an actuarial valuation software program leased from Winklevoss Technologies (WinTech), to calculate liabilities and projected benefit payments. We have reviewed the underlying workings of this model to the degree feasible and consistent with ASOP No. 56 and believe them to be appropriate for the purposes of the valuation.

b. Projections

This valuation report includes projections of future contributions and funded status for the purpose of assisting the Retirement Board and the sponsors of the System with the management of the Fund.

Deterministic projections in this valuation report were developed using P-scan, a proprietary tool used to illustrate the impact of changes in assumptions, methods, plan provisions, or actual experience (particularly investment experience) on the future financial status of the System. P-scan uses standard roll-forward techniques that implicitly assume a stable active population. Because P-scan does not automatically capture how changes in one variable affect all other variables, some scenarios may not be consistent.

Stochastic projections and related calculations (including the estimation of future SRBR transfers) in this valuation report were developed using R-scan, our proprietary tool for assessing the probability of different outcomes based on a range of potential investment returns. We relied on Cheiron colleagues for the development of the model. The stochastic projections of investment returns assume that each future year's investment return is independent from all other years and is identically distributed according to a lognormal distribution. The standard deviation used in the stochastic projection of investment returns is based on information provided by the System's investment consultant.

The projections are based on the same census data and financial information as of June 30, 2023 as disclosed in this actuarial valuation. The projections assume continuation of the plan provisions and actuarial assumptions in effect as of June 30, 2023 and do not reflect the impact of any changes in benefits or actuarial assumptions that may be adopted after June 30, 2023.

The projections assume that all future assumptions are met except where specifically indicated. The future outcomes become increasingly uncertain over time, and therefore the

APPENDIX B – STATEMENT OF CURRENT ACTUARIAL ASSUMPTIONS AND METHODS

general trends and not the absolute values should be considered in the review of these projections. Further, for the purpose of these projections, we have only reflected the impact of new entrants entering the plan in aggregate and have not developed individual liabilities or detailed profiles related to these potential new entrants. We feel this is appropriate for the purpose of these projections, but if they were to be used for other purposes, this may not be appropriate and alternative projections may need to be developed.

18. Changes in Assumptions

There were changes in assumptions related to mortality rates, termination rates and related assumptions, family composition and benefit elections, and the longevity/promotion components of pay increases as the result of an Experience Study.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

All actuarial calculations are based on our understanding of the statutes governing the TCERA as contained in the County Employees Retirement Law (CERL) of 1937, with provisions adopted by the County Board of Supervisors, a district Board of Directors, or the TCERA Board, effective through June 30, 2023. The benefit and contribution provisions of this law are summarized briefly below, (*along with corresponding references to the State Code*). This summary does not attempt to cover all the detailed provisions of the law.

There have been no changes to the Plan provisions since the prior valuation.

A. Membership in Retirement Plans

The County has established several defined benefit tiers based primarily on a member's date of entry into TCERA and in some cases, bargaining unit. There are two types of TCERA members:

Safety members: Employees whose principal duty is active law enforcement or active fire suppression are eligible to be Safety members. Membership in a particular tier depends upon date of entry to the system.

General members: All non-Safety employees are eligible to be General members. Membership in a particular tier depends primarily upon date of entry to the system.

Tier 1: General and Safety employees hired on or before December 31, 1979.

Tier 2: General and Safety employees hired on or after January 1, 1980 through December 31, 1989.

Tier 3: General and Safety employees hired on or after January 1, 1990 through December 31, 2012.

Tier 4 (PEPRA): All new members hired on or after January 1, 2013. Employees who transfer from and are eligible for reciprocity with another public employer will not be PEPRA members if their service in the reciprocal system was under a pre-PEPRA tier.

B. Member Contributions

Basic: Contributions are based on the entry age and class of each member and are required of all members. See Appendix F for details on this calculation. Current member rates are shown in the Appendix. (*31621.5, 31621.2, 31639.5, 31639.25*)

Contributions cease for all non-PEPRA members credited with 30 years of service. (*31625, 31625.2*)

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Tier 4: PEPRA members must contribute half of the normal cost of the Plan. Contributions for these members will be based on the Normal Cost associated with their benefits; General and Safety members will pay different rates.

Interest is credited to contributions semiannually on June 30 and December 31 at an interest rate set by the Board of Retirement on amounts that have been on deposit for at least six months. (*31591, 31700*)

Cost-of-Living: The following loads are applied to Tier 2 and 3 Basic rates to pay for the employee portion of Cost-of-Living Adjustments. For PEPRA members, the cost of COLAs is included in the normal cost, of which they contribute half. There are no more Tier 1 members currently contributing to the Plan.

	Tier 2-3
2022 Actual	25.29% (General) 31.01% (Safety)
2023 Actual	23.27% (General) 29.21% (Safety)

C. Employer Contributions:

The employer (County or District) contributes to the retirement fund a percentage of the total compensation provided for all members based on an actuarial investigation, valuation, and recommendation of the actuary. (*31453*, *31453.5*, *31453.6*, *31454*, *31454.1*, *31581*)

D. Service Retirement Allowance:

Eligibility:

General Plan members:

Tiers 1-3: Age 50 with 10 years of service;
Any age with 30 years of service; or
Age 70 regardless of service. (*31672, 31672.1)*

Tier 4 (PEPRA): Age 52 with 5 years of service.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Safety Plan members:

Tiers 1-3: Age 50 with 10 years of service;
Any age with 20 years of service. (*31663.25*)

Tier 4 (PEPRA): Age 50 with 5 years of service.

Final Compensation:

Tier 1: Monthly average of a member's highest 12 consecutive months of compensation. (*31462.1*)

Tiers 2-3: Monthly average of a member's highest 36 consecutive months of compensation. (*31462*)

Tier 4 (PEPRA): Monthly average of a member's highest 36 consecutive months of compensation, limited to the Social Security Wage Base on January 1, 2013, adjusted based on the annual change in the CPI-U each January 1 thereafter.

Compensation Limit: The amount of compensation that is taken into account in computing benefits payable to any person who first becomes a member on or after July 1, 1996, shall not exceed the dollar limitations in Section 401(a)(17) of Title 26 of the US Code. (*31671*)

Integration with Social Security: General and Safety Tier 1-3 members' benefits are integrated with Social Security. Benefits payable from the first $161.54 of bi-weekly compensation are reduced by 1/3.

Monthly Allowance:

General Plan members:

Tier 1: Sum of (a) + (b):
(a) 1/60 x Final Compensation x Plan Age Factor x Years of Service prior to 7/1/2005 (*31676.11*); plus
(b) 1/50 x Final Compensation x Plan Age Factor x Years of Service after 7/1/2005 *(31676.12)*

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Tiers 2-3: Sum of (a) + (b):
(a) 1/60 x Final Compensation x Plan Age Factor x Years of Service prior to 7/1/2005 (*31676.1*); plus
(b) 1/50 x Final Compensation x Plan Age Factor x Years of Service after 7/1/2005 *(31676.12)*

Tier 4 (PEPRA): 2% x Final Compensation x PEPRA Age Factor x Years of Service

Safety Plan members:

Tiers 1-3: 2% x Final Compensation x Plan Age Factor x Years of Service *(31664)*

Tier 4 (PEPRA): 2% x Final Compensation x PEPRA Age Factor x Years of Service

Age Factors By Plan						
	General				Safety	
Code Section:	31676.11	31676.1	31676.12	PEPRA	31664	PEPRA
Label:	1.67% @ 55	1.67% @ 57.5	2% @ 57	2% @ 62	2% @ 50	2% @ 50
Base:	1.67%	1.67%	2.00%	2.00%	2.00%	2.00%
Age						
41					0.6258	
42					0.6625	
43					0.7004	
44					0.7397	
45					0.7805	
46					0.8226	
47					0.8678	
48					0.9085	
49					0.9522	
50	0.7454	0.7091	0.6681		1.0000	1.0000
51	0.7882	0.7457	0.7056		1.0516	1.0500
52	0.8346	0.7816	0.7454	0.5000	1.1078	1.1000
53	0.8850	0.8181	0.7882	0.5500	1.1692	1.1500
54	0.9399	0.8556	0.8346	0.6000	1.2366	1.2000
55	1.0000	0.8954	0.885	0.6500	1.3099	1.2500
56	1.0447	0.9382	0.9399	0.7000	1.3099	1.3000
57	1.1048	0.9846	1.0000	0.7500	1.3099	1.3500
58	1.1686	1.0350	1.0447	0.8000	1.3099	1.3500
59	1.2365	1.0899	1.1048	0.8500	1.3099	1.3500
60	1.3093	1.1500	1.1686	0.9000	1.3099	1.3500
61	1.3608	1.1947	1.2365	0.9500	1.3099	1.3500
62	1.4123	1.2548	1.3093	1.0000	1.3099	1.3500
63	1.4638	1.3186	1.3093	1.0500	1.3099	1.3500
64	1.5153	1.3865	1.3093	1.1000	1.3099	1.3500
65	1.5668	1.4593	1.3093	1.1500	1.3099	1.3500
66	1.5668	1.4593	1.3093	1.2000	1.3099	1.3500
67	1.5668	1.4593	1.3093	1.2500	1.3099	1.3500

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Maximum Allowance:

Allowance may not exceed 100% of Final Compensation.

Unmodified Retirement Allowance (Normal Form):

All Plans: Life Annuity payable to retired member with 60% continuance to an eligible spouse. (*31760.1*)

Eligible survivor includes certain domestic partners and dependent children. (*31780.2*) If there is no eligible survivor, any unpaid remainder of the member's accumulated contributions will be paid to the member's designated beneficiary.

Death after Retirement:

All Plans: Upon a member's death after retirement, a special lump sum of $5,000 is payable to an eligible survivor, or the member's estate. (*31789.3*)

All Allowances: All allowances are made on a pro-rata basis (based on the number of days in that month) if not in effect for the entire month of retirement. (*31600*)

Supplemental Retiree Benefit Reserve:

The County has adopted the financial provisions of Article 5.5 of the 1937 Act for Tiers 1-3. The Article requires that in certain cases, a portion of investment earnings be allocated to a Supplemental Retiree Benefit Reserve (SRBR). Earnings allocated to the SRBR are to be used for the benefit of members in Tiers 1-3. Members of Tier 4 are not eligible for supplemental benefits. *(31618)*

Level 1: Members with at least 20 years of service are eligible for a supplemental benefit up to $250 a month. The multiplier in effect is as follows:

Period	Multiplier
Prior to July 1, 2013	$18.00
After July 1, 2013	$17.00
After July 1, 2014	$16.00
After July 1, 2015	$15.00
After July 1, 2016	$14.00
After July 1, 2017	$12.50

Members with less than 20 years of service are eligible for benefits in accordance with the schedule below:

Years of Service	Percentage of Full Benefit
Less than 10	0.00%
10	50.0%
11	55.0%
12	60.0%
13	65.0%
14	70.0%
15	75.0%
16	80.0%
17	85.0%
18	90.0%
19	95.0%

Only years of service with Tulare County are included for this benefit. 50% of member's reduced allowance is payable to an eligible spouse, or minor children if no eligible spouse exists.

Level 2: In addition to the Level 1 benefit, a supplemental COLA is available to retirees and beneficiaries who have lost more than 15% of their purchasing power, measured by their COLA Banks. The design of this COLA is to allow retirees to retain at least 85% of their purchasing power.

Level 3: 60% of a service retirement or 100% of a service-connected disability is payable to a spouse not married to the member at retirement. The spouse must be at least age 55 at the member's date of retirement, must have been married for at least two years, and the member must have elected the Unmodified Allowance retirement option to be eligible for this benefit.

E. Service-Connected Disability Retirement Allowance

Eligibility:

All Plans: Any age and length of service; disability must result from occupational injury or disease, and member must be permanently incapacitated for the performance of duty. (*31720, 31720.5, 31720.6, 31720.7, 31720.9*)

Monthly Allowance:

All Plans: Greater of (1) 50% of final compensation, and (2) the service retirement allowance, if eligible to retire. (*31727.4*)

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Normal Form of Payment:

All Plans: Life Annuity payable to retired member with 100% continuance to an eligible spouse.

Death after Retirement:

All Plans: Upon a member's death after retirement, a special lump sum of $5,000 is payable to an eligible survivor, or the member's estate. (*31789.3*)

F. Non-Service-Connected Disability Retirement Allowance

Eligibility:

All Plans: Any age with five (5) years of service and permanently incapacitated for the performance of duty. (*31720*)

Monthly Allowance:

All Plans: The monthly allowance is equal to a service retirement allowance if the member is eligible to retire and the service retirement allowance exceeds the benefits described below. Otherwise, allowance equals 20% of Final Compensation, plus 2% for each year of service over five, with a maximum allowance of 40% of Final Compensation at 15 years of service. (*31727.7*)

Normal Form of Payment:

All Plans: Life Annuity with 60% continuance to a surviving spouse (or eligible children). (*31760.1*)

Death after Retirement:

All Plans: Upon a member's death after retirement, a special lump sum of $5,000 is payable to an eligible survivor, or the member's estate. (*31789.3*)

G. Service-Connected Death Benefits

Eligibility:

All Plans: Active members who die in service as a result of injury or disease arising out of and in the course of employment. (*31486.7, 31787*)

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Monthly Allowance:

All Plans: A monthly allowance is payable to an eligible survivor equal to the greater of the Member's Service Retirement Allowance or Non-Service-Connected Disability Allowance (if he is eligible for service retirement or non-service disability at his date of death), and (b) 50% x Final Compensation. (*31787*)

A lump sum is payable to an eligible survivor equal to 1/12 x final 12 months' Salary x years of service (up to max of 6 years). (*31781*)

H. Non-Service-Connected Death Benefits

Eligibility:

All Plans: Active members who die while in service but not as a result of injury or disease arising out of and in the course of employment.

Monthly Allowance:

All Plans: If an active member is eligible for Non-Service-Connected Disability at his date of death, then a monthly allowance is payable to an eligible survivor equal to 60% x the member's non-service connected disability allowance. Otherwise, the benefit is a refund of contributions. (*31781.1*)

I. Deferred Vested Benefits

Eligibility:

All other Plans: Member contributions must be left on deposit and the member must have terminated with five (5) years of service or entered a reciprocal agency. Members are eligible for service retirement when they reach service retirement eligibility (based on years of service at termination plus reciprocal service, if any). (*31700, 31701, 31702*)

Monthly Allowance:

All other Plans: Same as service retirement allowance; payable any time after the member would have been eligible for service retirement. (*31703, 31704, 31705*)

J. Cost-of-Living Increases

Cost-of-living increases (or decreases) are applied to all retirement allowances (service and disability), optional death allowances, and annual death allowances effective April 1, based on changes in the average annual Consumer Price Index (CPI), rounded to the nearest ½ of 1%. (*31870, 31870.1*)

APPENDIX C – SUMMARY OF PLAN PROVISIONS

All Plans (excluding Tier 1):

Members (and their beneficiaries) are limited to a maximum 2% cost-of-living increase. (*31870*)

Tier 1:

Members (and their beneficiaries) are limited to a maximum 3% cost-of-living increase. (*31870.1*)

COLA Bank:

All Plans:

When the CPI exceeds the applicable percentage, the difference between the actual CPI and the maximum cost-of-living increase given in any year is credited to the COLA Accumulation (COLA Bank). It may be used in future years to provide cost-of-living increases when the CPI falls below the applicable percentage. (*31874, 31874.1, 31874.2, 31874.3*)

K. Optional Forms

In addition to the Unmodified Allowance, retirees may choose one of the following options:

Option 1: A slightly reduced monthly retirement allowance will be paid throughout the member's life, with the provision that accumulated contributions less the sum of the annuity portion of the payments received by the member will be paid upon death to the beneficiary.

Option 2: A reduced monthly retirement allowance will be paid to the member for life, with 100% of the allowance continued after death to the beneficiary.

Option 3: A reduced monthly retirement allowance will be paid to the member for life, with 50% of the allowance continued after death to the beneficiary.

Option 4: This option allows the member to name multiple beneficiaries and provides for a reduced monthly retirement allowance paid to the member for the member's lifetime with an actuarially calculated benefit continued throughout the life of the beneficiaries named at retirement.

APPENDIX D – GLOSSARY

1. **Actuarial Assumptions**

   Assumptions as to the occurrence of future events affecting pension costs such as mortality, withdrawal, disability, retirement, changes in compensation, and rates of investment return.

2. **Actuarial Cost Method**

   A procedure for determining the actuarial present value of pension plan benefits and expenses and for developing an allocation of such value to each year of service, usually in the form of a normal cost and an Actuarial Liability.

3. **Actuarial Gain (Loss)**

   The difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

4. **Actuarial Liability**

   The portion of the actuarial present value of projected benefits which will not be paid by future normal costs. It represents the value of the past normal costs with interest to the valuation date.

5. **Actuarial Present Value (Present Value)**

   The value as of a given date of a future amount or series of payments. The actuarial present value discounts the payments to the given date at the assumed investment return and includes the probability of the payment being made.

6. **Actuarial Valuation**

   The determination, as of a specified date, of the normal cost, Actuarial Liability, Actuarial Value of Assets, and related actuarial present values for a pension plan.

7. **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. The purpose of an Actuarial Value of Assets is to smooth out fluctuations in market values.

8. **Actuarially Equivalent**

   Of equal actuarial present value, determined as of a given date, with each value based on the same set of actuarial assumptions.

APPENDIX D – GLOSSARY

9. Amortization Payment

The portion of the pension plan contribution which is designed to pay interest and principal on the Unfunded Actuarial Liability in order to pay for that liability in a given number of years.

10. Entry Age Normal 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.

11. Funded Ratio

The ratio of the Actuarial Value of Assets to the Actuarial Liability.

12. 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.

13. Projected Benefits

Those pension plan benefit amounts which are expected to be paid in the future under a particular set of actuarial assumptions, taking into account such items as increases in future compensation and service credits.

14. Unfunded Actuarial Liability

The excess of the Actuarial Liability over the Actuarial Value of Assets.

APPENDIX E – MEMBER CONTRIBUTION RATES

Assumptions used to develop member contribution rates match valuation assumptions detailed in Appendix B, other than mortality which is static for member contribution rates (projected to the year 2047 using MP-2021). Additionally, only service retirement benefits are included in Tiers 2-3 member basic rate development.

There are no longer any Tier 1 members making contributions to the Plan. The table below shows the applicable Code Section for Tier 2-3 member contribution rates as well as the corresponding annuity funded by the member.

Plan/Tier	Code Section	Member Contribution Provides Average Annuity	FAS Period
General Tier 2	31621.2	1/100 of Final Average Salary (FAS) at age 60	3 years
General Tier 3	31621.2	1/100 of Final Average Salary (FAS) at age 60	3 years
Safety Tier 2	31639.25	1/100 of Final Average Salary (FAS) at age 50	3 years
Safety Tier 3	31639.25	1/100 of Final Average Salary (FAS) at age 50	3 years

For Tiers 2 and 3, the COLA loads were applied to the Basic rates as described in the Summary of Plan Provisions. For PEPRA members, the cost of COLAs is included in the normal cost, of which they contribute half.

APPENDIX E – MEMBER CONTRIBUTION RATES

2023 Member Contribution Rates (for fiscal year ending 2025)

	General Tiers 2 and 3		Safety Tiers 2 and 3		Tier 4 Members	
Entry Age	First $161.54	Over $161.54	First $161.54	Over $161.54	General	Safety
16	4.29%	6.44%	7.09%	10.64%	4.68%	9.98%
17	4.39%	6.58%	7.09%	10.64%	4.68%	9.98%
18	4.47%	6.71%	7.09%	10.64%	4.68%	9.98%
19	4.57%	6.85%	7.09%	10.64%	4.68%	9.98%
20	4.67%	7.00%	7.09%	10.64%	4.68%	9.98%
21	4.76%	7.14%	7.20%	10.80%	4.82%	10.30%
22	4.86%	7.29%	7.31%	10.96%	4.98%	10.61%
23	4.96%	7.44%	7.41%	11.12%	5.17%	10.93%
24	5.07%	7.60%	7.53%	11.29%	5.37%	11.25%
25	5.17%	7.76%	7.64%	11.46%	5.56%	11.57%
26	5.28%	7.92%	7.75%	11.63%	5.75%	11.89%
27	5.39%	8.08%	7.87%	11.81%	5.94%	12.21%
28	5.50%	8.25%	7.99%	11.98%	6.14%	12.53%
29	5.61%	8.42%	8.11%	12.16%	6.33%	12.83%
30	5.73%	8.59%	8.23%	12.35%	6.52%	13.13%
31	5.85%	8.77%	8.35%	12.53%	6.71%	13.48%
32	5.97%	8.95%	8.48%	12.72%	6.91%	13.81%
33	6.09%	9.13%	8.61%	12.92%	7.10%	14.14%
34	6.21%	9.32%	8.75%	13.12%	7.31%	14.47%
35	6.34%	9.51%	8.88%	13.32%	7.51%	14.81%
36	6.47%	9.71%	9.02%	13.53%	7.73%	15.15%
37	6.61%	9.91%	9.17%	13.75%	7.95%	15.47%
38	6.75%	10.12%	9.32%	13.98%	8.20%	15.81%
39	6.89%	10.33%	9.47%	14.21%	8.44%	16.15%
40	7.03%	10.55%	9.64%	14.46%	8.70%	16.52%
41	7.19%	10.78%	9.82%	14.73%	8.97%	16.91%
42	7.34%	11.01%	9.99%	14.98%	9.23%	17.32%
43	7.49%	11.23%	10.14%	15.21%	9.53%	17.75%
44	7.63%	11.45%	10.25%	15.37%	9.87%	18.22%
45	7.77%	11.65%	10.29%	15.43%	10.21%	18.69%
46	7.91%	11.86%	10.25%	15.38%	10.57%	19.06%
47	8.05%	12.08%	10.10%	15.15%	10.96%	19.43%
48	8.21%	12.31%	10.43%	15.64%	11.26%	19.82%
49	8.37%	12.55%	10.77%	16.16%	11.56%	20.21%
50	8.53%	12.79%	10.77%	16.16%	11.86%	20.21%
51	8.68%	13.02%	10.77%	16.16%	12.18%	20.21%
52	8.82%	13.23%	10.77%	16.16%	12.47%	20.21%
53	8.94%	13.41%	10.77%	16.16%	12.75%	20.21%
54	9.01%	13.52%	10.77%	16.16%	12.99%	20.21%
55	9.03%	13.54%	10.77%	16.16%	13.19%	20.21%
56	8.97%	13.45%	10.77%	16.16%	13.41%	20.21%
57	8.84%	13.26%	10.77%	16.16%	13.58%	20.21%
58	9.13%	13.70%	10.77%	16.16%	13.69%	20.21%
59	9.43%	14.15%	10.77%	16.16%	13.71%	20.21%
Assumptions:						
Interest:	7.00%		7.00%		7.00%	
Salary:	3.00% plus promotion		3.00% plus promotion		3.00% plus promotion	
COLA:	2.00%		2.00%		2.00%	
Mortality:	For General: Retired Pensioner (RP) 2014 Combined Healthy Table, projected to 2047 using MP-2021, unadjusted for males and increased by 10.0% for females to reflect Plan experience, and blended 30% male and 70% female For Safety: Retired Pensioner (RP) 2014 Combined Healthy Table with blue-collar adjustment, projected to 2047 using MP-2021, increased by 5.0% for both males and females to reflect Plan experience, and blended 75% male and 25% female					

APPENDIX E – MEMBER CONTRIBUTION RATES

The tables on the next four pages show the 2023 member contribution rates split into the Basic and COLA components, by tier.

APPENDIX E – MEMBER CONTRIBUTION RATES

	General Tiers 2 and 3					
	Basic Rate		COLA Rate		Total Rate	
Entry Age	First $161.54	Over $161.54	First $161.54	Over $161.54	First $161.54	Over $161.54
16	3.48%	5.22%	0.81%	1.22%	4.29%	6.44%
17	3.56%	5.34%	0.83%	1.24%	4.39%	6.58%
18	3.63%	5.44%	0.84%	1.27%	4.47%	6.71%
19	3.70%	5.56%	0.86%	1.29%	4.57%	6.85%
20	3.79%	5.68%	0.88%	1.32%	4.67%	7.00%
21	3.86%	5.79%	0.90%	1.35%	4.76%	7.14%
22	3.94%	5.91%	0.92%	1.38%	4.86%	7.29%
23	4.02%	6.04%	0.94%	1.40%	4.96%	7.44%
24	4.11%	6.17%	0.96%	1.43%	5.07%	7.60%
25	4.20%	6.29%	0.98%	1.47%	5.17%	7.76%
26	4.28%	6.42%	1.00%	1.50%	5.28%	7.92%
27	4.37%	6.55%	1.02%	1.53%	5.39%	8.08%
28	4.46%	6.69%	1.04%	1.56%	5.50%	8.25%
29	4.55%	6.83%	1.06%	1.59%	5.61%	8.42%
30	4.65%	6.97%	1.08%	1.62%	5.73%	8.59%
31	4.74%	7.11%	1.10%	1.66%	5.85%	8.77%
32	4.84%	7.26%	1.13%	1.69%	5.97%	8.95%
33	4.94%	7.41%	1.15%	1.72%	6.09%	9.13%
34	5.04%	7.56%	1.17%	1.76%	6.21%	9.32%
35	5.14%	7.71%	1.20%	1.80%	6.34%	9.51%
36	5.25%	7.88%	1.22%	1.83%	6.47%	9.71%
37	5.36%	8.04%	1.25%	1.87%	6.61%	9.91%
38	5.47%	8.21%	1.27%	1.91%	6.75%	10.12%
39	5.59%	8.38%	1.30%	1.95%	6.89%	10.33%
40	5.71%	8.56%	1.33%	1.99%	7.03%	10.55%
41	5.83%	8.74%	1.36%	2.04%	7.19%	10.78%
42	5.95%	8.93%	1.39%	2.08%	7.34%	11.01%
43	6.07%	9.11%	1.41%	2.12%	7.49%	11.23%
44	6.19%	9.29%	1.44%	2.16%	7.63%	11.45%
45	6.30%	9.45%	1.47%	2.20%	7.77%	11.65%
46	6.41%	9.62%	1.49%	2.24%	7.91%	11.86%
47	6.53%	9.80%	1.52%	2.28%	8.05%	12.08%
48	6.66%	9.99%	1.55%	2.32%	8.21%	12.31%
49	6.79%	10.18%	1.58%	2.37%	8.37%	12.55%
50	6.92%	10.38%	1.61%	2.41%	8.53%	12.79%
51	7.04%	10.56%	1.64%	2.46%	8.68%	13.02%
52	7.15%	10.73%	1.67%	2.50%	8.82%	13.23%
53	7.25%	10.88%	1.69%	2.53%	8.94%	13.41%
54	7.31%	10.97%	1.70%	2.55%	9.01%	13.52%
55	7.32%	10.98%	1.70%	2.56%	9.03%	13.54%
56	7.27%	10.91%	1.69%	2.54%	8.97%	13.45%
57	7.17%	10.76%	1.67%	2.50%	8.84%	13.26%
58	7.41%	11.11%	1.72%	2.59%	9.13%	13.70%
59	7.65%	11.48%	1.78%	2.67%	9.43%	14.15%

Assumptions:	
Interest:	7.00%
Salary:	3.00% plus promotion
COLA:	2.00%
Mortality:	Retired Pensioner (RP) 2014 Combined Healthy Table, projected to 2047 using MP-2021, unadjusted for males and increased by 10.0% for females to reflect Plan experience, and blended 30% male and 70% female

APPENDIX E – MEMBER CONTRIBUTION RATES

	General Tier 4		
Entry Age	Basic Rate	COLA Rate	Total Rate
16	3.82%	0.86%	4.68%
17	3.82%	0.86%	4.68%
18	3.82%	0.86%	4.68%
19	3.82%	0.86%	4.68%
20	3.82%	0.86%	4.68%
21	3.94%	0.88%	4.82%
22	4.07%	0.91%	4.98%
23	4.23%	0.94%	5.17%
24	4.39%	0.98%	5.37%
25	4.56%	1.00%	5.56%
26	4.72%	1.03%	5.75%
27	4.88%	1.06%	5.94%
28	5.04%	1.10%	6.14%
29	5.20%	1.13%	6.33%
30	5.37%	1.15%	6.52%
31	5.53%	1.18%	6.71%
32	5.69%	1.22%	6.91%
33	5.86%	1.24%	7.10%
34	6.03%	1.28%	7.31%
35	6.21%	1.30%	7.51%
36	6.40%	1.33%	7.73%
37	6.58%	1.37%	7.95%
38	6.79%	1.41%	8.20%
39	7.00%	1.44%	8.44%
40	7.22%	1.48%	8.70%
41	7.44%	1.53%	8.97%
42	7.66%	1.57%	9.23%
43	7.92%	1.61%	9.53%
44	8.20%	1.67%	9.87%
45	8.48%	1.73%	10.21%
46	8.78%	1.79%	10.57%
47	9.11%	1.85%	10.96%
48	9.38%	1.88%	11.26%
49	9.64%	1.92%	11.56%
50	9.91%	1.95%	11.86%
51	10.19%	1.99%	12.18%
52	10.46%	2.01%	12.47%
53	10.71%	2.04%	12.75%
54	10.94%	2.05%	12.99%
55	11.13%	2.06%	13.19%
56	11.34%	2.07%	13.41%
57	11.52%	2.06%	13.58%
58	11.63%	2.06%	13.69%
59	11.69%	2.02%	13.71%

Assumptions:	
Interest:	7.00%
Salary:	3.00% plus promotion
COLA:	2.00%
Mortality:	Retired Pensioner (RP) 2014 Combined Healthy Table, projected to 2047 using MP-2021, unadjusted for males and increased by 10.0% for females to reflect Plan experience, and blended 30% male and 70% female

APPENDIX E – MEMBER CONTRIBUTION RATES

	Safety Tiers 2 and 3					
	Basic Rate		COLA Rate		Total Rate	
Entry Age	First $161.54	Over $161.54	First $161.54	Over $161.54	First $161.54	Over $161.54
16	5.49%	8.23%	1.60%	2.41%	7.09%	10.64%
17	5.49%	8.23%	1.60%	2.41%	7.09%	10.64%
18	5.49%	8.23%	1.60%	2.41%	7.09%	10.64%
19	5.49%	8.23%	1.60%	2.41%	7.09%	10.64%
20	5.49%	8.23%	1.60%	2.41%	7.09%	10.64%
21	5.57%	8.36%	1.63%	2.44%	7.20%	10.80%
22	5.66%	8.48%	1.65%	2.48%	7.31%	10.96%
23	5.74%	8.61%	1.68%	2.51%	7.41%	11.12%
24	5.83%	8.74%	1.70%	2.55%	7.53%	11.29%
25	5.91%	8.87%	1.73%	2.59%	7.64%	11.46%
26	6.00%	9.00%	1.75%	2.63%	7.75%	11.63%
27	6.09%	9.14%	1.78%	2.67%	7.87%	11.81%
28	6.18%	9.27%	1.81%	2.71%	7.99%	11.98%
29	6.27%	9.41%	1.83%	2.75%	8.11%	12.16%
30	6.37%	9.56%	1.86%	2.79%	8.23%	12.35%
31	6.47%	9.70%	1.89%	2.83%	8.35%	12.53%
32	6.56%	9.84%	1.92%	2.88%	8.48%	12.72%
33	6.67%	10.00%	1.95%	2.92%	8.61%	12.92%
34	6.77%	10.15%	1.98%	2.97%	8.75%	13.12%
35	6.87%	10.31%	2.01%	3.01%	8.88%	13.32%
36	6.98%	10.47%	2.04%	3.06%	9.02%	13.53%
37	7.09%	10.64%	2.07%	3.11%	9.17%	13.75%
38	7.21%	10.82%	2.11%	3.16%	9.32%	13.98%
39	7.33%	11.00%	2.14%	3.21%	9.47%	14.21%
40	7.46%	11.19%	2.18%	3.27%	9.64%	14.46%
41	7.60%	11.40%	2.22%	3.33%	9.82%	14.73%
42	7.73%	11.59%	2.26%	3.39%	9.99%	14.98%
43	7.85%	11.77%	2.29%	3.44%	10.14%	15.21%
44	7.93%	11.90%	2.32%	3.47%	10.25%	15.37%
45	7.96%	11.94%	2.33%	3.49%	10.29%	15.43%
46	7.94%	11.90%	2.32%	3.48%	10.25%	15.38%
47	7.82%	11.73%	2.28%	3.42%	10.10%	15.15%
48	8.07%	12.10%	2.36%	3.54%	10.43%	15.64%
49	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
50	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
51	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
52	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
53	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
54	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
55	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
56	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
57	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
58	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%
59	8.34%	12.51%	2.44%	3.65%	10.77%	16.16%

sumptions:	
Interest:	7.00%
Salary:	3.00% plus promotion
COLA:	2.00%
Mortality:	Retired Pensioner (RP) 2014 Combined Healthy Table with blue-collar adjustment, projected to 2047 using MP-2021, increased by 5.0% for both males and females to reflect Plan experience, and blended 75% male and 25% female

APPENDIX E – MEMBER CONTRIBUTION RATES

	Safety Tier 4		
Entry Age	Basic Rate	COLA Rate	Total Rate
16	7.98%	2.00%	9.98%
17	7.98%	2.00%	9.98%
18	7.98%	2.00%	9.98%
19	7.98%	2.00%	9.98%
20	7.98%	2.00%	9.98%
21	8.24%	2.06%	10.30%
22	8.49%	2.12%	10.61%
23	8.75%	2.18%	10.93%
24	9.01%	2.24%	11.25%
25	9.28%	2.29%	11.57%
26	9.54%	2.35%	11.89%
27	9.80%	2.41%	12.21%
28	10.06%	2.47%	12.53%
29	10.31%	2.52%	12.83%
30	10.56%	2.57%	13.13%
31	10.85%	2.63%	13.48%
32	11.12%	2.69%	13.81%
33	11.40%	2.74%	14.14%
34	11.67%	2.80%	14.47%
35	11.96%	2.85%	14.81%
36	12.24%	2.91%	15.15%
37	12.51%	2.96%	15.47%
38	12.79%	3.02%	15.81%
39	13.08%	3.07%	16.15%
40	13.39%	3.13%	16.52%
41	13.71%	3.20%	16.91%
42	14.05%	3.27%	17.32%
43	14.41%	3.34%	17.75%
44	14.79%	3.43%	18.22%
45	15.19%	3.50%	18.69%
46	15.52%	3.54%	19.06%
47	15.85%	3.58%	19.43%
48	16.20%	3.62%	19.82%
49	16.56%	3.65%	20.21%
50	16.56%	3.65%	20.21%
51	16.56%	3.65%	20.21%
52	16.56%	3.65%	20.21%
53	16.56%	3.65%	20.21%
54	16.56%	3.65%	20.21%
55	16.56%	3.65%	20.21%
56	16.56%	3.65%	20.21%
57	16.56%	3.65%	20.21%
58	16.56%	3.65%	20.21%
59	16.56%	3.65%	20.21%

Assumptions:	
Interest:	7.00%
Salary:	3.00% plus promotion
COLA:	2.00%
Mortality:	Retired Pensioner (RP) 2014 Combined Healthy Table with blue-collar adjustment, projected to 2047 using MP-2021, increased by 5.0% for both males and females to reflect Plan experience, and blended 75% male and 25% female

APPENDIX E – MEMBER CONTRIBUTION RATES

2022 Member Contribution Rates (for fiscal year ending 2024)

	General Tier 1		General Tiers 2 and 3		Safety Tier 1		Safety Tiers 2 and 3		Tier 4 Members	
Entry Age	First $161.54	Over $161.54	First $161.54	Over $161.54	First $161.54	Over $161.54	First $161.54	Over $161.54	General	Safety
16	2.69%	4.03%	4.34%	6.51%	4.65%	6.97%	6.95%	10.43%	4.42%	9.63%
17	2.75%	4.12%	4.43%	6.64%	4.65%	6.97%	6.95%	10.43%	4.42%	9.63%
18	2.81%	4.21%	4.52%	6.78%	4.65%	6.97%	6.95%	10.43%	4.42%	9.63%
19	2.86%	4.29%	4.62%	6.93%	4.65%	6.97%	6.95%	10.43%	4.42%	9.63%
20	2.92%	4.38%	4.71%	7.07%	4.65%	6.97%	6.95%	10.43%	4.42%	9.63%
21	2.99%	4.48%	4.81%	7.22%	4.73%	7.09%	7.07%	10.60%	4.67%	10.01%
22	3.05%	4.57%	4.91%	7.37%	4.81%	7.21%	7.19%	10.78%	4.92%	10.39%
23	3.11%	4.66%	5.01%	7.52%	4.89%	7.33%	7.31%	10.96%	5.17%	10.77%
24	3.17%	4.76%	5.12%	7.68%	4.97%	7.45%	7.43%	11.14%	5.43%	11.16%
25	3.24%	4.86%	5.23%	7.84%	5.05%	7.57%	7.55%	11.33%	5.69%	11.55%
26	3.31%	4.96%	5.33%	8.00%	5.13%	7.70%	7.68%	11.52%	5.91%	11.92%
27	3.37%	5.06%	5.44%	8.16%	5.22%	7.83%	7.81%	11.72%	6.13%	12.29%
28	3.45%	5.17%	5.55%	8.33%	5.31%	7.96%	7.94%	11.91%	6.35%	12.66%
29	3.51%	5.27%	5.67%	8.50%	5.40%	8.10%	8.07%	12.11%	6.58%	13.01%
30	3.59%	5.38%	5.79%	8.68%	5.49%	8.24%	8.21%	12.32%	6.80%	13.36%
31	3.66%	5.49%	5.91%	8.86%	5.59%	8.38%	8.35%	12.53%	7.01%	13.74%
32	3.74%	5.61%	6.03%	9.04%	5.68%	8.52%	8.50%	12.75%	7.22%	14.12%
33	3.81%	5.72%	6.15%	9.23%	5.78%	8.67%	8.65%	12.97%	7.44%	14.49%
34	3.89%	5.84%	6.28%	9.42%	5.88%	8.82%	8.79%	13.19%	7.66%	14.87%
35	3.97%	5.96%	6.41%	9.61%	5.99%	8.98%	8.95%	13.43%	7.89%	15.25%
36	4.05%	6.08%	6.54%	9.81%	6.09%	9.14%	9.11%	13.67%	8.12%	15.61%
37	4.14%	6.21%	6.68%	10.02%	6.21%	9.31%	9.29%	13.93%	8.36%	15.96%
38	4.23%	6.34%	6.81%	10.22%	6.33%	9.49%	9.46%	14.19%	8.62%	16.32%
39	4.31%	6.47%	6.96%	10.44%	6.45%	9.67%	9.65%	14.47%	8.88%	16.69%
40	4.41%	6.61%	7.11%	10.66%	6.58%	9.87%	9.81%	14.72%	9.13%	17.09%
41	4.50%	6.75%	7.26%	10.89%	6.73%	10.09%	9.97%	14.95%	9.40%	17.48%
42	4.60%	6.90%	7.41%	11.12%	6.82%	10.23%	10.11%	15.16%	9.66%	17.89%
43	4.70%	7.05%	7.57%	11.35%	6.92%	10.38%	10.22%	15.33%	9.99%	18.36%
44	4.81%	7.21%	7.71%	11.57%	7.04%	10.56%	10.33%	15.49%	10.33%	18.83%
45	4.89%	7.33%	7.85%	11.77%	7.11%	10.66%	10.37%	15.56%	10.67%	19.31%
46	4.98%	7.47%	7.99%	11.99%	7.20%	10.80%	10.35%	15.52%	11.09%	19.70%
47	5.07%	7.60%	8.14%	12.21%	7.19%	10.79%	10.19%	15.28%	11.51%	20.11%
48	5.17%	7.75%	8.29%	12.44%	7.15%	10.73%	10.52%	15.78%	11.85%	20.53%
49	5.27%	7.90%	8.45%	12.68%	6.99%	10.48%	10.87%	16.31%	12.19%	20.95%
50	5.38%	8.07%	8.62%	12.93%	6.99%	10.48%	10.87%	16.31%	12.52%	20.95%
51	5.49%	8.24%	8.77%	13.16%	6.99%	10.48%	10.87%	16.31%	12.86%	20.95%
52	5.60%	8.40%	8.91%	13.37%	6.99%	10.48%	10.87%	16.31%	13.18%	20.95%
53	5.70%	8.55%	9.03%	13.55%	6.99%	10.48%	10.87%	16.31%	13.50%	20.95%
54	5.80%	8.70%	9.11%	13.66%	6.99%	10.48%	10.87%	16.31%	13.79%	20.95%
55	5.87%	8.80%	9.12%	13.68%	6.99%	10.48%	10.87%	16.31%	14.03%	20.95%
56	5.91%	8.86%	9.06%	13.59%	6.99%	10.48%	10.87%	16.31%	14.29%	20.95%
57	5.88%	8.82%	8.93%	13.40%	6.99%	10.48%	10.87%	16.31%	14.49%	20.95%
58	5.82%	8.73%	9.23%	13.84%	6.99%	10.48%	10.87%	16.31%	14.64%	20.95%
59	5.71%	8.57%	9.53%	14.30%	6.99%	10.48%	10.87%	16.31%	14.71%	20.95%
Assumptions:										
Interest:	7.00%		7.00%		7.00%		7.00%		7.00%	
Salary:	3.00% plus promotion		3.00% plus promotion		3.00% plus promotion		3.00% plus promotion		3.00% plus promotion	
COLA:	2.60%		2.00%		2.60%		2.00%		2.00%	
Mortality:	For General: Retired Pensioner (RP) 2014 Combined Healthy Table, with 20-year Generational improvement using Projection Scale MP-2019, increased by 2.2% for males and 8.0% for females to reflect Plan experience, and blended 30% male and 70% female For Safety: Retired Pensioner (RP) 2014 Combined Healthy Table with blue-collar adjustment, with 20-year Generational improvement using Projection Scale MP-2019, increased by 4.5% for males to reflect Plan experience, and blended 75% male and 25% female									

APPENDIX F – SUPPLEMENTAL TABLES FOR REPORTING PURPOSES

The tables on this page and the next three pages show selected demographic assumption rates based on age or service as reflected in the June 30, 2023 actuarial valuation. Termination rates are assumed not to apply after eligibility for retirement.

General - Male

Demographic Assumption Rates - Age				
		Mortality of Active Members Rate		Withdrawal (Termination)
Age	Service Retirement Rate*	Ordinary	Service	Rate**
25	0.000	0.000558	0.000000	0.0900
30	0.000	0.000585	0.000000	0.0900
35	0.000	0.000730	0.000000	0.0900
40	0.000	0.000840	0.000000	0.0900
45	0.000	0.001111	0.000000	0.0900
50	0.050	0.001663	0.000000	0.0900
55	0.060	0.002664	0.000000	0.0900
60	0.150	0.004704	0.000000	0.0900
65	0.350	0.008413	0.000000	0.0900
70	0.350	0.013366	0.000000	0.0900

**The Service Retirement Rates above assume less than 30 years of service.*

***The Withdrawal Rates above assume 4 years of service.*

General - Female

Demographic Assumption Rates - Age				
		Mortality of Active Members Rate		Withdrawal (Termination)
Age	Service Retirement Rate*	Ordinary	Service	Rate**
25	0.000	0.000223	0.000000	0.0900
30	0.000	0.000305	0.000000	0.0900
35	0.000	0.000410	0.000000	0.0900
40	0.000	0.000513	0.000000	0.0900
45	0.000	0.000728	0.000000	0.0900
50	0.050	0.001117	0.000000	0.0900
55	0.060	0.001754	0.000000	0.0900
60	0.150	0.002741	0.000000	0.0900
65	0.350	0.004013	0.000000	0.0900
70	0.350	0.006377	0.000000	0.0900

**The Service Retirement Rates above assume less than 30 years of service.*

***The Withdrawal Rates above assume 4 years of service.*

APPENDIX F – SUPPLEMENTAL TABLES FOR REPORTING PURPOSES

Safety - Male

Demographic Assumption Rates - Age				
		Mortality of Active Members Rate		
Age	Service Retirement Rate*	Ordinary	Service	Withdrawal (Termination) Rate**
25	0.000	0.000440	0.000318	0.0800
30	0.000	0.000461	0.000334	0.0800
35	0.000	0.000496	0.000496	0.0800
40	0.000	0.000571	0.000571	0.0800
45	0.070	0.000725	0.000785	0.0800
50	0.070	0.000949	0.001311	0.0800
55	0.100	0.001448	0.002172	0.0800
60	0.200	0.002365	0.004028	0.0800
65	0.400	0.004229	0.007202	0.0800
70	1.000	0.006477	0.011029	0.0800

**The Service Retirement Rates above assume less than 20 years of service.*

***The Withdrawal Rates above assume 4 years of service.*

Safety - Female

Demographic Assumption Rates - Age				
		Mortality of Active Members Rate		
Age	Service Retirement Rate*	Ordinary	Service	Withdrawal (Termination) Rate**
25	0.000	0.000138	0.000100	0.0800
30	0.000	0.000189	0.000137	0.0800
35	0.000	0.000220	0.000220	0.0800
40	0.000	0.000275	0.000275	0.0800
45	0.070	0.000374	0.000406	0.0800
50	0.070	0.000502	0.000694	0.0800
55	0.100	0.000751	0.001126	0.0800
60	0.200	0.001086	0.001849	0.0800
65	0.400	0.001590	0.002706	0.0800
70	1.000	0.002490	0.004241	0.0800

**The Service Retirement Rates above assume less than 20 years of service.*

***The Withdrawal Rates above assume 4 years of service.*

APPENDIX F – SUPPLEMENTAL TABLES FOR REPORTING PURPOSES

General - Male

Demographic Assumption Rates - Years of Service		
Service	Service Retirement Rate*	Withdrawal (Termination) Rate
5	0.150	0.080
10	0.150	0.040
15	0.150	0.025
20	0.150	0.025
25	0.150	0.025
30	0.200	0.025
35	0.200	0.025
40	0.200	0.025
45	0.200	0.025
50	0.200	0.025

**The Service Retirement Rates above apply to a member at age 60.*

General - Female

Demographic Assumption Rates - Years of Service		
Service	Service Retirement Rate*	Withdrawal (Termination) Rate
5	0.150	0.080
10	0.150	0.040
15	0.150	0.025
20	0.150	0.025
25	0.150	0.025
30	0.200	0.025
35	0.200	0.025
40	0.200	0.025
45	0.200	0.025
50	0.200	0.025

**The Service Retirement Rates above apply to a member at age 60.*

APPENDIX F – SUPPLEMENTAL TABLES FOR REPORTING PURPOSES

Safety - Male

Demographic Assumption Rates - Years of Service		
Service	Service Retirement Rate*	Withdrawal (Termination) Rate
5	0.200	0.060
10	0.200	0.040
15	0.200	0.025
20	0.400	0.025
25	0.400	0.025
30	0.400	0.025
35	0.400	0.025
40	0.400	0.025
45	0.400	0.025
50	0.400	0.025

**The Service Retirement Rates above apply to a member at age 60.*

Safety - Female

Demographic Assumption Rates - Years of Service		
Service	Service Retirement Rate*	Withdrawal (Termination) Rate
5	0.200	0.060
10	0.200	0.040
15	0.200	0.025
20	0.400	0.025
25	0.400	0.025
30	0.400	0.025
35	0.400	0.025
40	0.400	0.025
45	0.400	0.025
50	0.400	0.025

**The Service Retirement Rates above apply to a member at age 60.*

CHEIRON

Classic Values, Innovative Advice

Classic Values, Innovative Advice

Tulare County Employees' Retirement Association

GASB 67/68 Report as of June 30, 2023

Produced by Cheiron

October 2023

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Classic Values, Innovative Advice

October 23, 2023

Board of Retirement
Tulare County Employees' Retirement Association
136 N. Akers St.
Visalia, CA 93291

Dear Members of the Board:

The purpose of this report is to provide accounting and financial reporting information under GASB 67 for the Tulare County Employees' Retirement Association (TCERA) and under GASB 68 for participating employers. This information includes:

- Determination of the discount rate as of June 30, 2023,
- Disclosure of the TCERA's Total Pension Liability and Net Pension Liability as of the measurement date,
- Note disclosures and required supplementary information under GASB 67 for TCERA,
- Determination of collective amounts under GASB 68, and
- Schedules for the financial reporting of participating employers under GASB 68.

If you have any questions about the report or would like additional information, please let us know.

Sincerely,
Cheiron

Graham A. Schmidt, ASA, EA, FCA, MAAA
Consulting Actuary

Steven M. Hastings, FSA, EA, FCA, MAAA
Consulting Actuary

SECTION I – BOARD SUMMARY

The measurement date for the Tulare County Employees' Retirement Association (TCERA) is June 30, 2023. Measurements are based on the fair value of assets as of June 30, 2023 and the Total Pension Liability as of the valuation date, June 30, 2023. The table below provides a summary of the key collective results during this measurement period.

Table I-1
Summary of Collective Results

	Measurement Date 6/30/2023	Measurement Date 6/30/2022
Net Pension Liability	$ 488,006	$ 427,018
Deferred Outflows	(175,015)	(168,633)
Deferred Inflows	98,967	118,364
Net Impact on Statement of Net Position	$ 411,958	$ 376,749
Pension Expense/(Income)	$ 80,383	$ 70,499
Pension Expense/(Income) (% of Payroll)	26.23%	24.43%

Numbers may not add to totals due to rounding. *Amounts in Thousands*

The Net Pension Liability (NPL) increased by approximately $61.0 million since the prior measurement date, primarily due to a large loss on liabilities during the year. These losses were partially offset by assumptions changes which reduced the NPL. Investment gains or losses are recognized over five years, and Actuarial Liability gains or losses and assumption changes are recognized over the average remaining service life, which is five years. Unrecognized amounts are reported as deferred inflows and deferred outflows.

As of the end of the reporting year, the participating employers in TCERA would report a Net Pension Liability of $488,006,000, collective Deferred Inflows of $98,967,000, and collective Deferred Outflows of $175,015,000. Consequently, the net impact on the aggregate of participating employers' Statements of Net Position due to TCERA would be $411,958,000 at the end of the measurement year. In addition, any contributions between the measurement date and each individual employer's reporting date would be reported as deferred outflows to offset the cash outflow reported.

For the measurement year ending June 30, 2023, the collective annual pension expense is $80,383,000 or 26.23% of covered payroll. This amount is not equal to the participating employers' contributions to TCERA ($45,174,000), but instead represents the change in the net impact on participating employer's Statements of Net Position plus employer contributions ($411,958,000 – $376,749,000 + $45,174,000). The collective pension expense as a percentage of payroll is higher than the collective expense for the prior year. A breakdown of the components of the net pension expense is shown in Section VI of the report.

SECTION II – CERTIFICATION

The purpose of this report is to provide accounting and financial reporting information under GASB 67 for the Tulare County Employees' Retirement Association (TCERA) and under GASB 68 for the employers that participate in TCERA. This report is for the use of TCERA, the participating employers, and their auditors in preparing financial reports in accordance with applicable law and accounting requirements. This report is not appropriate for other purposes, including the measurement of funding requirements for TCERA. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

In preparing our report, we relied on information (some oral and some written) supplied by TCERA. This information includes, but is not limited to, the plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

Future actuarial measurements may differ significantly from the current measurements 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; and, changes in plan provisions or applicable law.

Cheiron utilizes ProVal, an actuarial valuation software leased from Winklevoss Technologies (WinTech) to calculate liabilities and project benefit payments. We have relied on WinTech as the developer of ProVal. We have reviewed ProVal and have a basic understanding of it and have used ProVal in accordance with its original intended purpose. We have not identified any material inconsistencies in assumptions or output of ProVal that would affect this report.

This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

Graham A. Schmidt, ASA, EA, FCA, MAAA
Consulting Actuary

Steven M. Hastings, FSA, EA, FCA, MAAA
Consulting Actuary

SECTION III – DETERMINATION OF DISCOUNT RATE

The discount rate used to measure the Total Pension Liability was 7.09%.

The projection of cash flows used to determine the discount rate assumed that plan member contributions will continue to be made at the required rates. Employer contributions were assumed to be made in accordance with the contribution policy in effect for the June 30, 2023 actuarial valuation. That policy includes contributions equal to the actuarially determined contribution, reflecting a payment equal to annual normal cost and an amount necessary to amortize the total June 30, 2015 Unfunded Actuarial Liability (UAL) as a level percentage of payroll over a closed 19-year period with payments as a level percentage of payroll, assuming payroll increases of 3.00% per year. Subsequent gains and losses are being amortized over new 19-year closed periods, also as a level percentage of payroll.

The UAL and contribution rates do not directly reflect any liability associated with past or future transfers to the Supplemental Retiree Benefit Reserve (SRBR), which the Board has elected not to pre-fund. However, the projection of benefit payments does include the value of the expected benefit payments to the members from the SRBR, based on both the current SRBR assets and the expected future transfers to the SRBR, as estimated using a stochastic model. Those benefit payments result in actuarial losses, which are funded through the plan's amortization policy.

The stochastic model was developed using R-scan, a proprietary tool used to illustrate the impact of changes in assumptions, methods, plan provisions, or actual experience (particularly investment experience) on the future financial status of the Plan. R-scan uses standard roll-forward techniques that implicitly assume a stable active population. Because R-scan does not automatically capture how changes in one variable affect all other variables, some scenarios may not be consistent. The stochastic model reflects a standard deviation of 12.75% for the annual investment returns, as indicated by an analysis of investment consultants' capital market expectations as described in our 2023 Experience Study report.

Based on these assumptions, TCERA's fiduciary net position was projected to be available to make projected future benefit payments for current members until FYE 2088, when only a portion of the projected benefit payments can be made from the projected fiduciary net position. Projected benefit payments are discounted at the long-term expected return on assets of 7.15% to the extent the fiduciary net position is available to make the payments and at the municipal bond rate of 3.65% to the extent they are not available. The 7.15% expected return on assets is equal to the 7.00% investment return assumption used in the June 30, 2023 actuarial valuation, plus 0.15% for administrative expenses. The administrative expense adjustment results from the fact that the 7.00% valuation assumption is assumed to be net of both administrative and investment expenses, whereas GASB 67 and 68 require an expected return on assets that is net of investment expenses only. The 3.65% municipal bond rate is based on the Bond Buyer 20-year Bond GO Index as of June 30, 2023.

The single rate that is equivalent to a 7.15% discount rate until the projected fiduciary net position is no longer available to make benefit payments (in FYE 2088), and 3.65% thereafter, is 7.09%. The discount rate used to determine the Total Pension Liability as of June 30, 2023 is therefore 7.09%. Appendix D shows the details of this calculation.

SECTION IV – DETERMINATION OF TOTAL PENSION LIABILITY

The Total Pension Liability (TPL) at the end of the measurement year, June 30, 2023 is measured as of a valuation date of June 30, 2023.

Between the June 30, 2022 and June 30, 2023 measurement dates, the discount rate remained at 7.09% due to the results of the crossover test. The details of this calculation are shown in Appendix D. Additionally, the following assumptions were changed as a result of the recent Experience Study: termination rates (including rates of refunds), percent married, merit and longevity salary increases for Safety members, spouse age difference, form of payment elections, reciprocal transfer salary increase rates, adjustments to base mortality tables for healthy members, and mortality improvement scale for all members. Please see Appendix B of the June 30, 2023 actuarial valuation report for a more detailed description of the assumptions.

The TPL measurement includes the accrued portion of expected benefit payments associated with the current SRBR assets, as well as the accrued portion of expected benefit payments associated with future anticipated SRBR transfers (as determined using a stochastic model).

The impact of the assumption changes decreased the TPL measurement by approximately $28 million as of the end of the measurement year.

SECTION V – GASB 67 REPORTING INFORMATION

Note Disclosures

The table below shows the changes in the Total Pension Liability, the Plan Fiduciary Net Position (i.e., fair value of System assets), and the Net Pension Liability during the measurement year.

Table V-1
Change in Collective Net Pension Liability

	Increase (Decrease)		
	Total Pension Liability (a)	**Plan Fiduciary Net Position (b)**	**Net Pension Liability (a) - (b)**
Balances at 6/30/2022	$ 2,246,027	$ 1,819,009	$ 427,018
Changes for the year:			
Service cost	54,448		54,448
Interest	157,325		157,325
Changes of benefits	0		0
Differences between expected and actual experience	71,644		71,644
Changes of assumptions	(27,881)		(27,881)
Contributions - employer		45,174	(45,174)
Contributions - member		27,965	(27,965)
Net investment income		124,156	(124,156)
Benefit payments	(109,503)	(109,503)	0
Administrative expense		(2,747)	2,747
Net changes	146,033	85,045	60,988
Balances at 6/30/2023	$ 2,392,060	$ 1,904,054	$ 488,006

Numbers may not add to totals due to rounding. *Amounts in Thousands*

During the measurement year, the collective NPL increased by approximately $61.0 million. The service cost, interest cost, actuarial experience losses, and recognition of administrative expense increased the collective NPL by approximately $286 million while contributions and investment income decreased the collective NPL by approximately $197 million. The actuarial losses were due primarily to larger than expected salary and retiree cost-of-living increases.

As discussed in Section IV, assumption changes decreased the TPL by approximately $28 million. There were no changes in benefits during the year.

SECTION V – GASB 67 REPORTING INFORMATION

Changes in the discount rate affect the measurement of the TPL. Lower discount rates produce a higher TPL and higher discount rates produce a lower TPL. Because the discount rate does not affect the measurement of assets, the percentage change in the NPL can be very significant for a relatively small change in the discount rate. Table V-2 shows the sensitivity of the collective NPL to the discount rate.

Table V-2
Sensitivity of Collective Net Pension Liability to Changes in Discount Rate

	1% Decrease 6.09%	Discount Rate 7.09%	1% Increase 8.09%
Total Pension Liability	$ 2,725,436	$ 2,392,060	$ 2,119,259
Plan Fiduciary Net Position	1,904,054	1,904,054	1,904,054
Collective Net Pension Liability	$ 821,382	$ 488,006	$ 215,205
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	69.9%	79.6%	89.8%

Numbers may not add to totals due to rounding. *Amounts in Thousands*

A 1% decrease in the discount rate increases the TPL by approximately 14% and increases the collective NPL by approximately 68%. A 1% increase in the discount rate decreases the TPL by approximately 11% and decreases the collective NPL by approximately 56%.

Required Supplementary Information

The schedule on the following page shows the changes in collective NPL and related ratios required by GASB for the last 10 years.

SECTION V – GASB 67 REPORTING INFORMATION

Table V-3

Schedule of Changes in Collective Net Pension Liability and Related Ratios

	FYE 2023	FYE 2022	FYE 2021	FYE 2020	FYE 2019	FYE 2018	FYE 2017	FYE 2016	FYE 2015	FYE 2014
Total Pension Liability										
Service cost (MOY)	$ 54,448	$ 56,123	$ 54,859	$ 49,424	$ 49,484	$ 46,838	$ 38,203	$ 38,307	$ 35,168	$ 39,672
Interest (includes interest on service cost)	157,325	154,625	141,880	140,390	133,895	126,586	118,664	115,716	97,473	94,277
Changes of benefit terms	0	0	0	0	0	0	0	0	0	0
Differences between expected and actual experience	71,644	(69,048)	85,474	(54,091)	(6,667)	10,342	11,936	(40,602)	7,591	0
Changes of assumptions	(27,881)	(40,693)	2,930	70,788	(37,996)	41,149	69,608	23,923	180,187	13,588
Benefit payments, including refunds of member contributions	(109,503)	(102,708)	(96,276)	(91,427)	(85,097)	(80,716)	(76,961)	(72,332)	(68,560)	(65,954)
Net change in total pension liability	**$ 146,033**	**$ (1,701)**	**$ 188,867**	**$ 115,084**	**$ 53,619**	**$ 144,199**	**$ 161,449**	**$ 65,011**	**$ 251,858**	**$ 81,583**
Total pension liability - beginning	**2,246,027**	**2,247,728**	**2,058,861**	**1,943,777**	**1,890,158**	**1,745,959**	**1,584,510**	**1,519,499**	**1,267,640**	**1,186,057**
Total pension liability - ending	**$ 2,392,060**	**$ 2,246,027**	**$ 2,247,728**	**$ 2,058,861**	**$ 1,943,777**	**$ 1,890,158**	**$ 1,745,959**	**$ 1,584,510**	**$ 1,519,499**	**$ 1,267,640**
Plan fiduciary net position										
Contributions - employer	$ 45,174	$ 40,392	$ 36,766	$ 35,310	$ 33,494	$ 286,263	$ 33,616	$ 31,297	$ 30,992	$ 25,953
Contributions - member	27,965	25,880	23,536	23,104	22,325	18,512	18,190	16,815	18,887	18,969
Net investment income	124,156	(117,773)	395,079	9,515	90,779	95,857	132,865	(20,309)	122,400	179,878
Benefit payments, including refunds of member contributions	(109,503)	(102,708)	(96,276)	(91,427)	(85,097)	(80,716)	(76,961)	(72,332)	(68,560)	(65,954)
Administrative expense	(2,747)	(2,967)	(2,740)	(2,853)	(2,806)	(2,666)	(2,612)	(2,616)	(2,408)	(1,639)
Net change in plan fiduciary net position	**$ 85,045**	**$ (157,176)**	**$ 356,365**	**$ (26,351)**	**$ 58,695**	**$ 317,250**	**$ 105,098**	**$ (47,145)**	**$ 101,312**	**$ 157,207**
Plan fiduciary net position - beginning	**1,819,009**	**1,976,185**	**1,619,820**	**1,646,171**	**1,587,476**	**1,270,226**	**1,165,127**	**1,212,272**	**1,110,961**	**953,754**
Plan fiduciary net position - ending	**$ 1,904,054**	**$ 1,819,009**	**$ 1,976,185**	**$ 1,619,820**	**$ 1,646,171**	**$ 1,587,476**	**$ 1,270,226**	**$ 1,165,127**	**$ 1,212,272**	**$ 1,110,961**
Net pension liability - ending	**$ 488,006**	**$ 427,018**	**$ 271,543**	**$ 439,041**	**$ 297,606**	**$ 302,682**	**$ 475,734**	**$ 419,383**	**$ 307,226**	**$ 156,680**
Plan fiduciary net position as a percentage of the total pension liability	79.60%	80.99%	87.92%	78.68%	84.69%	83.99%	72.75%	73.53%	79.78%	87.64%
Covered payroll	$ 306,492	$ 288,629	$ 276,127	$ 283,640	$ 264,218	$ 256,049	$ 243,366	$ 238,559	$ 229,431	$ 234,438
Net pension liability as a percentage of covered payroll	159.22%	147.95%	98.34%	154.79%	112.64%	118.21%	195.48%	175.80%	133.91%	66.83%

Numbers may not add to totals due to rounding.

Amounts in Thousands

SECTION V – GASB 67 REPORTING INFORMATION

Because an Actuarially Determined Contribution (ADC) has been calculated, the following schedule is required. An ADC is a contribution amount determined in accordance with Actuarial Standards of Practice. Information prior to FYE 2015 was determined by the prior actuary.

Table V-4
Schedule of Collective Employer Contributions

	FYE 2023	FYE 2022	FYE 2021	FYE 2020	FYE 2019	FYE 2018*	FYE 2017	FYE 2016	FYE 2015	FYE 2014
Actuarially Determined Contribution	$ 45,174	$ 40,392	$ 36,766	$ 35,310	$ 33,494	$ 36,263	$ 33,616	$ 31,297	$ 30,992	$ 25,953
Contributions in Relation to the Actuarially Determined Contribution	45,174	40,392	36,766	35,310	33,494	36,263	33,616	31,297	30,992	25,953
Contribution Deficiency/(Excess)	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Covered Payroll	$ 306,492	$ 288,629	$ 276,127	$ 283,640	$ 264,218	$ 256,049	$ 243,366	$ 238,559	$ 229,431	$ 234,438
Contributions as a Percentage of Covered Payroll	14.74%	13.99%	13.31%	12.45%	12.68%	14.16%	13.81%	13.12%	13.51%	11.07%

Numbers may not add to totals due to rounding. *Amounts in Thousands*

** For the FYE 2018, the contribution shown in this schedule does not include the additional $250 million contribution made by the County at the end of the Fiscal Year.*

The notes below summarize the key methods and assumptions used to determine the ADC for FYE 2023.

Notes to Schedule

Valuation Date	6/30/2021
Timing	Actuarially determined contribution rates are calculated based on the actuarial valuation one year prior to the beginning of the plan year

Key Methods and Assumptions Used to Determine Contribution Rates:

Actuarial cost method	Entry Age
Asset valuation method	10-year smoothed market, with a 30% corridor around the market value
Amortization method	Level percentage of payroll with separate periods for the UAL as of June 30, 2015 (13 years remaining as of 6/30/21), and additional 19-year layers for unexpected changes in UAL after 6/30/15
Discount rate	7.00%
Amortization growth rate	3.00%
Price inflation	2.75%
Salary increases	3.00% plus merit component based on employee classification and years of service
Mortality	For General: RP-2014 Combined Healthy Sex Distinct Table, with Generational improvement using Projection Scale MP-2019, increased by 2.2% for males and 8.0% for females to reflect Plan experience For Safety: RP-2014 Combined Healthy Male Table with blue-collar adjustment, with Generational improvement using Projection Scale MP-2019, increased by 4.5% for males to reflect Plan experience

A complete description of the methods and assumptions used to determine contribution rates for the year ending June 30, 2023 can be found in the June 30, 2021 actuarial valuation report

SECTION VI – GASB 68 COLLECTIVE AMOUNTS

Employers that participate in TCERA were required to implement GASB 68 for their first fiscal year that commenced after June 15, 2014. The amounts reported as of their fiscal year end (their reporting date) must be based on a measurement date up to 12 months prior to their reporting date. For employers with a reporting date of June 30, their 2023 disclosures can be based on either the June 30, 2022 or 2023 measurement dates. If an employer elects to base its 2023 disclosures on the June 30, 2022 measurement date, the GASB 68 schedules in this report with a measurement date of June 30, 2023 will be used for its 2024 reporting date.

Because TCERA is a cost-sharing multiple-employer pension plan, each employer participating in TCERA must reflect a portion of the collective Net Pension Liability, Pension Expense, and Deferred Outflows and Inflows in its financial statements. This section develops the collective amounts that are allocated to participating employers.

The impact of experience gains or losses and assumption changes on the TPL are recognized in expense over the average expected remaining service life of all active and inactive members of TCERA. As of the beginning of the measurement period, this recognition period was five years. The impact of investment gains or losses is recognized over a period of five years.

The table on the following page summarizes the current balances of collective deferred outflows and deferred inflows of resources along with the net recognition over the next five years and the total amount recognized thereafter.

SECTION VI – GASB 68 COLLECTIVE AMOUNTS

Table VI-1
Schedule of Collective Deferred Inflows and Outflows of Resources

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$ 91,504	$ 52,247
Changes in assumptions	15,328	46,720
Net difference between projected and actual earnings on pension plan investments	68,183	0
Total	**$ 175,015**	**$ 98,967**

Amounts reported as deferred outflows and deferred inflows of resources will be recognized in pension expense as follows:

Measurement year ended June 30:	
2024	26,339
2025	801
2026	39,252
2027	9,656
2028	0
Thereafter	$ 0

Numbers may not add to totals due to rounding. *Amounts in Thousands*

SECTION VI – GASB 68 COLLECTIVE AMOUNTS

The tables below provide details on the current balances of collective deferred inflows and outflows of resources along with the recognition of each base for each of the current and following five years, as well as the total for any years thereafter.

Table VI-2(a)
Recognition of Experience (Gains) and Losses

Experience Year	Recognition Period	Total Amount	Beginning Remaining Amount	Ending Remaining Amount	Recognition Year 2023	2024	2025	2026	2027	Thereafter
2023	5.0	$ 71,644	$ 71,644	$ 57,315	$ 14,329	$ 14,329	$ 14,329	$ 14,329	$ 14,328	$ 0
2022	5.0	(69,048)	(55,238)	(41,428)	(13,810)	(13,810)	(13,810)	(13,808)	0	0
2021	5.0	85,474	51,284	34,189	17,095	17,095	17,094	0	0	0
2020	5.0	(54,091)	(21,637)	(10,819)	(10,818)	(10,819)	0	0	0	0
2019	5.0	(6,667)	(1,335)	0	(1,335)	0	0	0	0	0
Deferred Outflows			122,928	91,504	31,424	31,424	31,423	14,329	14,328	0
Deferred (Inflows)			(78,210)	(52,247)	(25,963)	(24,629)	(13,810)	(13,808)	0	0
Net Change in Pension Expense			$ 44,718	$ 39,257	$ 5,461	$ 6,795	$ 17,613	$ 521	$ 14,328	$ 0

Numbers may not add to totals due to rounding. *Amounts in Thousands*

Table VI-2(b)
Recognition of Assumption Changes

Change Year	Recognition Period	Total Amount	Beginning Remaining Amount	Ending Remaining Amount	Recognition Year 2023	2024	2025	2026	2027	Thereafter
2023	5.0	$ (27,881)	$ (27,881)	$ (22,305)	$ (5,576)	$ (5,576)	$ (5,576)	$ (5,576)	$ (5,577)	$ 0
2022	5.0	(40,693)	(32,554)	(24,415)	(8,139)	(8,139)	(8,139)	(8,137)	0	0
2021	5.0	2,930	1,758	1,172	586	586	586	0	0	0
2020	5.0	70,788	28,314	14,156	14,158	14,156	0	0	0	0
2019	5.0	(37,996)	(7,600)	0	(7,600)	0	0	0	0	0
Deferred Outflows			30,072	15,328	14,744	14,742	586	0	0	0
Deferred (Inflows)			(68,035)	(46,720)	(21,315)	(13,715)	(13,715)	(13,713)	(5,577)	0
Net Change in Pension Expense			$ (37,963)	$ (31,392)	$ (6,571)	$ 1,027	$ (13,129)	$ (13,713)	$ (5,577)	$ 0

Numbers may not add to totals due to rounding. *Amounts in Thousands*

SECTION VI – GASB 68 COLLECTIVE AMOUNTS

Table VI-2(c)
Recognition of Investment (Gains) and Losses

Experience Year	Recognition Period	Total Amount	Beginning Remaining Amount	Ending Remaining Amount	Recognition Year 2023	2024	2025	2026	2027	Thereafter
2023	5.0	$ 4,529	$ 4,529	$ 3,623	$ 906	$ 906	$ 906	$ 906	$ 905	$ 0
2022	5.0	257,686	206,149	154,612	51,537	51,537	51,537	51,538	0	0
2021	5.0	(280,622)	(168,374)	(112,250)	(56,124)	(56,124)	(56,126)	0	0	0
2020	5.0	110,998	44,398	22,198	22,200	22,198	0	0	0	0
2019	5.0	25,528	5,104	0	5,104	0	0	0	0	0
Net Change in Pension Expense			$ 91,806	$ 68,183	$ 23,623	$ 18,517	$ (3,683)	$ 52,444	$ 905	$ 0

Numbers may not add to totals due to rounding. *Amounts in Thousands*

The collective annual pension expense recognized by the participating employers can be calculated two different ways. First, it is the change in the amounts reported on the participating employers' Statements of Net Position that relate to TCERA and are not attributable to employer contributions. That is, it is the change in collective NPL plus the changes in collective deferred outflows and inflows plus participating employer contributions.

Alternatively, annual pension expense can be calculated by its individual components. While GASB does not require or suggest the organization of the individual components shown in the table on the following page, we believe it helps to understand the level and volatility of the collective pension expense.

SECTION VI – GASB 68 COLLECTIVE AMOUNTS

Table VI-3
Calculation of Collective Pension Expense

	Measurement Year Ending 2023	Measurement Year Ending 2022
Change in Net Pension Liability	$ 60,988	$ 155,475
Change in Deferred Outflows	(6,382)	(45,140)
Change in Deferred Inflows	(19,397)	(80,228)
Employer Contributions	45,174	40,392
Pension Expense	**$ 80,383**	**$ 70,499**
Pension Expense as % of Payroll	**26.23%**	**24.43%**
Operating Expenses		
Service cost	$ 54,448	$ 56,123
Employee contributions	(27,965)	(25,880)
Administrative expenses	2,747	2,967
Total	$ 29,230	$ 33,210
Financing Expenses		
Interest cost	$ 157,325	$ 154,625
Expected return on assets	(128,685)	(139,913)
Total	$ 28,640	$ 14,712
Changes		
Benefit changes	$ 0	$ 0
Recognition of assumption changes	(6,571)	7,236
Recognition of liability gains and losses	5,461	(6,798)
Recognition of investment gains and losses	23,623	22,139
Total	$ 22,513	$ 22,577
Pension Expense	**$ 80,383**	**$ 70,499**

Numbers may not add to totals due to rounding. *Amounts in Thousands*

Operating expenses are items directly attributable to the operation of the plan during the measurement year. Service cost less employee contributions represents the increase in employer-provided benefits attributable to the year, and administrative expenses are the cost of operating TCERA for the year.

Financing expenses equal the interest on the Total Pension Liability less the expected return on assets.

The recognition of changes will drive most of the volatility in pension expense from year to year. It includes any changes in benefits made during the year and the recognized amounts due to

SECTION VI – GASB 68 COLLECTIVE AMOUNTS

assumption changes, gains or losses on the TPL, and investment gains or losses. The total collective pension expense increased by about $9.9 million. In the current year pension expense, the financing expenses increased by approximately $13.9 million and was offset by decreases in operating expenses of approximately $4.0 million and recognition of changes of less than $0.1 million, compared to the prior year.

SECTION VII – GASB 68 REPORTING INFORMATION FOR PARTICIPATING EMPLOYERS

Proportionate Shares

GASB 68 requires that the proportionate share for each employer be determined based on the "employer's projected long-term contribution effort to the pension … as compared to the total projected long-term contribution effort of all employers …" Although not required as part of TCERA's GASB 67 reporting requirements, TCERA is following the advice of the AICPA and making a determination of each employer's proportionate share, which will be reviewed by TCERA's auditor.

GASB 82, which is effective for reporting periods beginning after June 15, 2016, requires that employer-paid member contributions be classified as employee contributions for purposes of determining each employer's proportionate share. TCERA has indicated that their auditor has determined the amount of such contributions to be immaterial for the purposes of GASB 82.

Proportionate shares for each participating employer are generally determined based on the ratio of each participating employer's actual contributions to TCERA during the measurement year to the sum of the employer contributions. In Table VII-1, each employer's proportionate share as of June 30, 2023 has been determined using this method.

Table VII-1
Determination of Employers' Proportionate Share

	June 30, 2023		June 30, 2022	
Employer	**Employer Contribution**	**Proportionate Share**	**Employer Contribution**	**Proportionate Share**
County	$ 41,258	91.3313%	$ 37,014	91.6370%
Courts	3,657	8.0954%	3,129	7.7466%
SPUD	39	0.0863%	36	0.0891%
TCAG	220	0.4870%	213	0.5273%
Total	**$ 45,174**	**100.0000%**	**$ 40,392**	**100.0000%**

Numbers may not add to totals due to rounding. *Amounts in Thousands*

SECTION VII – GASB 68 REPORTING INFORMATION FOR PARTICIPATING EMPLOYERS

Table VII-2
Schedule of Employers' Proportionate Share of Collective Amounts at June 30, 2023

Employer	Proportionate Share	Share of NPL @ 6.09%	Share of NPL @ 7.09%	Share of NPL @ 8.09%	Share of Deferred Outflows	Share of Deferred Inflows	Pension Expense
County	91.3313%	$ 750,179	$ 445,702	$ 196,550	$ 159,843	$ 90,388	$ 73,415
Courts	8.0954%	66,494	39,506	17,422	14,168	8,012	6,507
SPUD	0.0863%	709	421	186	151	85	69
TCAG	0.4870%	4,000	2,377	1,048	852	482	391
Total	**100.0000%**	**$ 821,382**	**$ 488,006**	**$ 215,205**	**$ 175,015**	**$ 98,967**	**$ 80,383**

Numbers may not add to totals due to rounding. *Amounts in Thousands*

The proportionate share allocated to each individual employer will change on each measurement date. The net effect of the change in proportion on the share of the collective NPL, collective deferred outflows, and collective deferred inflows allocated to each employer becomes a deferred outflow or inflow for that employer and is recognized over the average future working life of TCERA's active and inactive members (five years).

Similarly, the difference between each employer's actual contributions and the employer's proportionate share of collective employer contributions becomes a deferred outflow or inflow for that employer and is recognized over the average future working life of TCERA's active and inactive members (five years).

SECTION VII – GASB 68 REPORTING INFORMATION FOR PARTICIPATING EMPLOYERS

The table below shows the change in proportion and the impact of that change in proportion on the proportionate share of the collective NPL, collective deferred outflows, and collective deferred inflows. It also shows any contribution differences.

Table VII-3
Schedule of Employers' Changes in Proportion and Contribution Differences

	Proportionate Shares		Impact of Change in Proportion				Contributions		
Employer	6/30/2022	6/30/2023	Net Pension Liability	Deferred Outflows	Deferred Inflows	Net Effect	Actual	Proportionate Share	Difference
County	91.6370%	91.3313%	$ (1,305)	$ (515)	$ 362	$ (1,152)	$ 41,258	$ 41,258	$ 0
Courts	7.7466%	8.0954%	1,489	588	(413)	1,314	3,657	3,657	0
SPUD	0.0891%	0.0863%	(12)	(5)	3	(11)	39	39	0
TCAG	0.5273%	0.4870%	(172)	(68)	48	(152)	220	220	0
Total	**100.0000%**	**100.0000%**	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 45,174**	**$ 45,174**	**$ 0**

Numbers may not add to totals due to rounding. *Amounts in Thousands*

The table below shows the reconciliation of deferred outflows and inflows due to proportion changes for each participating employer from the prior measurement date to the current measurement date.

Table VII-4
Reconciliation of Deferred Outflows and Inflows Due to Proportion Change

	Deferred Outflows				Deferred Inflows			
Employer	6/30/2022	Current Year Net Effect	Recognition	6/30/2023	6/30/2022	Current Year Net Effect	Recognition	6/30/2023
County	$ 1,945	$ 0	$ 949	$ 997	$ (255)	$ (1,152)	$ (358)	$ (1,049)
Courts	246	1,314	386	1,174	(1,921)	0	(831)	(1,090)
SPUD	44	0	15	29	(19)	(11)	(14)	(15)
TCAG	103	0	27	76	(145)	(152)	(175)	(122)
Total	**$ 2,339**	**$ 1,314**	**$ 1,377**	**$ 2,276**	**$ (2,339)**	**$ (1,314)**	**$ (1,377)**	**$ (2,276)**

Numbers may not add to totals due to rounding. *Amounts in Thousands*

SECTION VII – GASB 68 REPORTING INFORMATION FOR PARTICIPATING EMPLOYERS

The table below shows the reconciliation of deferred outflows and inflows due to differences between the proportionate share of contributions and actual contributions made by each employer. Because the proportionate shares are determined based on each employer's share of the contributions, there should be no differences between the actual and proportionate contributions.

Table VII-5
Reconciliation of Deferred Outflows and Inflows Due to Contribution Differences

	Deferred Outflows				Deferred Inflows			
Employer	**6/30/2022**	**Current Year Difference**	**Recognition**	**6/30/2023**	**6/30/2022**	**Current Year Difference**	**Recognition**	**6/30/2023**
County	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Courts	0	0	0	0	0	0	0	0
SPUD	0	0	0	0	0	0	0	0
TCAG	0	0	0	0	0	0	0	0
Total	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 0**

Numbers may not add to totals due to rounding. *Amounts in Thousands*

SECTION VII – GASB 68 REPORTING INFORMATION FOR PARTICIPATING EMPLOYERS

The table below summarizes the deferred outflows allocated to each employer for experience, assumption changes, investment returns, proportion changes, and contribution differences.

Table VII-6
Schedule of Employers' Deferred Outflows at June 30, 2023

Employer	Proportionate Shares	Experience	Assumption Changes	Investment Return	Proportion Change	Contribution Difference
County	91.3313%	$ 83,572	$ 13,999	$ 62,272	$ 997	$ 0
Courts	8.0954%	7,408	1,241	5,520	1,174	0
SPUD	0.0863%	79	13	59	29	0
TCAG	0.4870%	446	75	332	76	0
Total	**100.0000%**	**$ 91,504**	**$ 15,328**	**$ 68,183**	**$ 2,276**	**$ 0**

Numbers may not add to totals due to rounding. *Amounts in Thousands*

The table below summarizes the deferred inflows allocated to each employer for experience, assumption changes, investment returns, proportion changes, and contribution differences.

Table VII-7
Schedule of Employers' Deferred Inflows at June 30, 2023

Employer	Proportionate Shares	Experience	Assumption Changes	Investment Return	Proportion Change	Contribution Difference
County	91.3313%	$ 47,718	$ 42,670	$ 0	$ 1,049	$ 0
Courts	8.0954%	4,230	3,782	0	1,090	0
SPUD	0.0863%	45	40	0	15	0
TCAG	0.4870%	254	228	0	122	0
Total	**100.0000%**	**$ 52,247**	**$ 46,720**	**$ 0**	**$ 2,276**	**$ 0**

Numbers may not add to totals due to rounding. *Amounts in Thousands*

SECTION VII – GASB 68 REPORTING INFORMATION FOR PARTICIPATING EMPLOYERS

The table below shows the net amount of deferred outflows and inflows to be recognized by each participating employer in each of the next five years and the total thereafter.

Table VII-8
Schedule of Employers' Recognition of Deferred Outflows and Inflows at June 30, 2023

	Recognition for Measurement Year Ending					
Employer	**2024**	**2025**	**2026**	**2027**	**2028**	**Thereafter**
County	$ 24,097	$ 900	$ 35,818	$ 8,589	$ 0	$ 0
Courts	2,084	(107)	3,220	1,044	0	0
SPUD	33	10	29	6	0	0
TCAG	125	(3)	185	17	0	0
Total	**$ 26,339**	**$ 801**	**$ 39,252**	**$ 9,656**	**$ 0**	**$ 0**

Numbers may not add to totals due to rounding. *Amounts in Thousands*

SECTION VII – GASB 68 REPORTING INFORMATION FOR PARTICIPATING EMPLOYERS

The table below shows the calculation of the pension expense for each participating employer. The calculation is shown first as the sum of the proportionate share of the collective pension expense and the amounts recognized for proportion changes and contribution differences. The right side of the table shows the calculation as the sum of the changes in NPL and deferred amounts not attributable to contributions.

Table VII-9
Schedule of Employers' Pension Expense for the Measurement Year Ending June 30, 2023

Employer	Collective Pension Expense	Change in Proportion	Contribution Difference	Employer Pension Expense	Change in Employer Net Pension Liability	Change in Employer Deferred Outflows	Change in Employer Deferred Inflows	Employer Contributions	Employer Pension Expense
County	$ 73,415	$ 591	$ 0	$ 74,006	$ 54,396	$ (4,365)	$ (17,283)	$ 41,258	$ 74,006
Courts	6,507	(445)	0	6,062	6,427	(2,033)	(1,988)	3,657	6,062
SPUD	69	1	0	71	41	14	(23)	39	71
TCAG	391	(147)	0	244	125	64	(165)	220	244
Total	**$ 80,383**	**$ 0**	**$ 0**	**$ 80,383**	**$ 60,988**	**$ (6,319)**	**$ (19,460)**	**$ 45,174**	**$ 80,383**

Numbers may not add to totals due to rounding. *Amounts in Thousands*

The table below summarizes the information needed for each employer's schedules of required supplementary information.

Table VII-10
Schedule of Employers' RSI Information at June 30, 2023

Employer	Proportionate Shares	Proportionate Share of NPL	Covered Payroll	Share of NPL as a % of Payroll	Plan Fiduciary Net Position as % of TPL	Contractually Required Contribution	Actual Contributions	Contribution Deficiency	Contributions as a % of Payroll
County	91.3313%	$ 445,702	$ 287,818	154.9%	79.6%	$ 41,258	$ 41,258	$ 0	14.3%
Courts	8.0954%	39,506	16,740	236.0%	79.6%	3,657	3,657	0	21.8%
SPUD	0.0863%	421	191	220.4%	79.6%	39	39	0	20.4%
TCAG	0.4870%	2,377	1,742	136.4%	79.6%	220	220	0	12.6%
Total	**100.0000%**	**$ 488,006**	**$ 306,492**	**159.2%**	**79.6%**	**$ 45,174**	**$ 45,174**	**$ 0**	**14.7%**

Numbers may not add to totals due to rounding. *Amounts in Thousands*

APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF ACTIVE GENERAL MEMBERSHIP					
		June 30, 2022		June 30, 2023	Change
General Tier 1					
Count		7		6	-14.3%
Average Age		69.0		70.4	1.9%
Average Service		37.8		43.9	16.1%
Annual Projected Payroll	$	490,633	$	404,879	-17.5%
Average Annual Pay	$	70,090	$	67,480	-3.7%
General Tier 2 & 3					
Count		1,619		1,481	-8.5%
Average Age		49.6		50.4	1.5%
Average Service		17.8		18.6	4.8%
Annual Projected Payroll	$	113,469,216	$	114,382,779	0.8%
Average Annual Pay	$	70,086	$	77,233	10.2%
General Tier 4					
Count		1,985		2,221	11.9%
Average Age		37.8		37.7	-0.1%
Average Service		4.2		4.3	2.2%
Annual Projected Payroll	$	113,443,582	$	137,689,710	21.4%
Average Annual Pay	$	57,150	$	61,994	8.5%
General Total					
Count		3,611		3,708	2.7%
Average Age		43.2		42.8	-0.8%
Average Service		10.4		10.1	-2.6%
Annual Projected Payroll	$	227,403,431	$	252,477,368	11.0%
Average Annual Pay	$	62,975	$	68,090	8.1%

APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF ACTIVE SAFETY MEMBERSHIP			
	June 30, 2022	June 30, 2023	Change
Safety Tier 1			
Count	0	0	0.0%
Average Age	0	0	0.0%
Average Service	0	0	0.0%
Annual Projected Payroll	$ 0	$ 0	0.0%
Average Annual Pay	$ 0	$ 0	0.0%
Safety Tier 2 & 3			
Count	428	389	-9.1%
Average Age	45.4	46.4	2.1%
Average Service	17.4	18.4	5.9%
Annual Projected Payroll	$ 38,249,543	$ 39,071,649	2.1%
Average Annual Pay	$ 89,368	$ 100,441	12.4%
Safety Tier 4			
Count	393	408	3.8%
Average Age	32.7	33.0	0.8%
Average Service	4.3	4.6	8.5%
Annual Projected Payroll	$ 27,791,979	$ 31,493,863	13.3%
Average Annual Pay	$ 70,710	$ 77,191	9.2%
Safety Total			
Count	821	797	-2.9%
Average Age	39.4	39.5	0.5%
Average Service	11.1	11.3	2.3%
Annual Projected Payroll	$ 66,041,522	$ 70,565,512	6.9%
Average Annual Pay	$ 80,440	$ 88,539	10.1%

APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF INACTIVE MEMBERSHIP*	June 30, 2022	June 30, 2023	Change
General			
Count	2,083	2,222	6.7%
Average Age	43.9	43.8	-0.1%
Total Contribution Balance	$ 52,984,947	$ 58,738,327	10.9%
Average Contribution Balance	$ 25,437	$ 26,435	3.9%
Safety			
Count	384	411	7.0%
Average Age	39.3	39.4	0.3%
Total Contribution Balance	$ 15,792,000	$ 17,477,746	10.7%
Average Contribution Balance	$ 41,125	$ 42,525	3.4%
Total			
Count	2,467	2,633	6.7%
Average Age	43.2	43.1	-0.1%
Total Contribution Balance	$ 68,776,947	$ 76,216,073	10.8%
Average Contribution Balance	$ 27,879	$ 28,946	3.8%

**Includes unclaimed accounts.*

APPENDIX A – MEMBERSHIP INFORMATION

SUMMARY OF RETIRED MEMBERSHIP					
		June 30, 2022		June 30, 2023	Change
General					
Count		2,947		3,014	2.3%
Average Age		71.8		71.9	0.2%
Total Annual Allowance	$	69,411,269	$	72,997,199	5.2%
Average Annual Allowance	$	23,553	$	24,219	2.8%
Safety					
Count		638		668	4.7%
Average Age		65.3		65.4	0.2%
Total Annual Allowance	$	24,727,646	$	26,445,626	6.9%
Average Annual Allowance	$	38,758	$	39,589	2.1%
Total					
Count		3,585		3,682	2.7%
Average Age		70.6		70.8	0.2%
Total Annual Allowance	$	94,138,915	$	99,442,825	5.6%
Average Annual Allowance	$	26,259	$	27,008	2.9%

Please refer to the June 30, 2023 actuarial valuation report for a more complete summary of the data.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

A summary of the actuarial assumptions and methods used to calculate the Total Pension Liability as of June 30, 2023 is provided below. Please refer to the June 30, 2023 actuarial valuation report for a complete description of all other assumptions. The economic and demographic assumptions were selected by the Board. With the exception of the discount rate, the expected return on assets, and the administrative expense assumption, the assumptions used in this report and the June 30, 2023 actuarial valuation report reflect the results of the Experience Study performed by Cheiron covering the period July 1, 2020 through June 30, 2023.

Key Actuarial Assumptions

Expected Return on Assets	7.15% net of investment expenses as of June 30, 2023.
Municipal Bond Yield	3.65% net of investment expenses as of June 30, 2023 (Bond Buyer 20-year Bond GO Index, June 29, 2023)
Discount Rate	7.09%
Inflation	The cost of living as measured by the Consumer Price Index (CPI) will increase at the rate of 2.75% per year.
Post Retirement COLA	Benefits are assumed to increase after retirement at the rate of 2.6% per year for Tier 1 participants and 2% per year for all participants in Tiers 2-4. An additional COLA of 0.4% per year (for a total COLA growth rate of 3.0%) is included for Tier 1 participants in pay status to reflect their accumulated COLA banks.
Administrative Expenses	Administrative Expenses used in the cashflow projection are assumed to average 0.15% of assets annually.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Contribution Allocation Procedure

The contribution allocation procedure primarily consists of an actuarial cost method, an asset smoothing method, and an amortization method as described below.

1. **Actuarial Cost Method**

   The actuarial valuation is prepared using the Entry Age Actuarial Cost Method (CERL 31453.5). 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 (until maximum retirement age). For members who transferred between plans, entry age is based on original entry into the system. The normal cost for the Plan is based on the sum of the individual normal costs for each member (Individual Entry Age Method).

2. **Asset Valuation Method**

   Beginning in fiscal year 2009, the assets are valued using a 10-year smoothed method based on the difference between the expected market value and the actual market value of the assets, net of expenses, as of June 30 and December 31 of each year. The expected market value at the end of each period is the beginning market value increased with the net increase in the cash flow of funds, all increased with interest at the expected investment return rate assumption.

   A 30% asset corridor limit is applied.

3. **Amortization Method**

   The Unfunded Actuarial Liability is the difference between the Actuarial Liability and the Actuarial Value of Assets. The UAL (or Surplus) is amortized as a percentage of the projected salaries of present and future members of TCERA. At its October 28, 2015 meeting, the Board adopted 19-year layered amortization of the UAL. Starting as of June 30, 2015, the UAL is amortized over a closed 19-year period as a level percentage of payroll, assuming payroll increases of 3.00% per year. Subsequent changes in the UAL due to experience gains and losses, assumption changes, or plan changes will be amortized over new closed 19-year periods.

4. **Contributions**

   The employer (County or District) contributes to the retirement fund a percentage of the total compensation provided for all members based on an actuarial investigation, valuation, and recommendation of the actuary.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

The plan provisions are the same as those summarized in the June 30, 2023 actuarial valuation report.

Plan provisions include liabilities associated with the Supplemental Retiree Benefit Reserve (SRBR).

The county has adopted the financial provisions of Article 5.5 of the 1937 Act for Tiers 1-3. The Article requires that in certain cases, a portion of investment earnings be allocated to a Supplemental Retiree Benefit Reserve (SRBR). Earnings allocated to the SRBR are to be used for the benefit of members in Tiers 1-3. Members of Tier 4 are not eligible for supplemental benefits *(31618)*.

APPENDIX D – DETERMINATION OF DISCOUNT RATE

FYE	Projected Beginning Fiduciary Net Position*	Normal Cost Contribution - Employer and Employee	UAL Contribution	Projected Admin Expenses	Projected Benefit Payments	Projected Investment Earnings	Projected Ending Fiduciary Net Position	"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments
2024	$ 1,904,054	$ 52,479	$ 26,377	$ 2,856	$ 133,432	$ 134,122	$ 1,980,744	$ 133,432	$ 0
2025	1,980,744	51,440	30,669	2,971	130,808	139,808	2,068,882	130,808	0
2026	2,068,882	49,233	34,378	3,103	137,298	145,930	2,158,022	137,298	0
2027	2,158,022	47,098	37,281	3,237	143,607	152,104	2,247,660	143,607	0
2028	2,247,660	45,035	40,328	3,371	149,512	158,336	2,338,475	149,512	0
2029	2,338,475	43,016	43,696	3,508	155,839	164,649	2,430,490	155,839	0
2030	2,430,490	41,080	46,457	3,646	162,924	171,003	2,522,460	162,924	0
2031	2,522,460	39,250	49,239	3,784	169,762	177,368	2,614,771	169,762	0
2032	2,614,771	37,478	53,170	3,922	176,671	183,796	2,708,622	176,671	0
2033	2,708,622	35,759	56,641	4,063	183,283	190,331	2,804,006	183,283	0
2034	2,804,006	34,081	59,045	4,206	189,990	196,936	2,899,872	189,990	0
2035	2,899,872	32,445	34,877	4,350	196,890	202,636	2,968,591	196,890	0
2036	2,968,591	30,868	31,715	4,453	203,277	207,155	3,030,598	203,277	0
2037	3,030,598	29,311	50,014	4,546	209,908	211,940	3,107,410	209,908	0
2038	3,107,410	27,756	49,194	4,661	216,617	217,109	3,180,191	216,617	0
2039	3,180,191	26,197	49,866	4,770	223,240	222,045	3,250,289	223,240	0
2040	3,250,289	24,652	43,538	4,875	230,171	226,534	3,309,967	230,171	0
2041	3,309,967	23,123	45,821	4,965	236,765	230,592	3,367,773	236,765	0
2042	3,367,773	21,602	46,159	5,052	243,345	234,450	3,421,587	243,345	0
2043	3,421,587	20,076	38,975	5,132	249,796	237,762	3,463,471	249,796	0
2044	3,463,471	18,547	34,762	5,195	256,273	240,325	3,495,637	256,273	0
2045	3,495,637	17,034	31,655	5,243	262,223	242,252	3,519,112	262,223	0
2046	3,519,112	15,531	30,046	5,279	268,096	243,613	3,534,928	268,096	0
2047	3,534,928	14,059	28,268	5,302	273,820	244,428	3,542,559	273,820	0
2048	3,542,559	12,624	26,014	5,314	279,412	244,647	3,541,118	279,412	0

** Fiduciary Net Position based on financial statements provided by TCERA dated September 29, 2023.*

Amounts in Thousands

APPENDIX D – DETERMINATION OF DISCOUNT RATE

FYE	Projected Beginning Fiduciary Net Position*	Normal Cost Contribution - Employer and Employee	UAL Contribution	Projected Admin Expenses	Projected Benefit Payments	Projected Investment Earnings	Projected Ending Fiduciary Net Position	"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments
2049	3,541,118	11,223	24,911	5,312	284,825	244,266	3,531,381	284,825	0
2050	3,531,381	9,867	23,861	5,297	290,131	243,299	3,512,980	290,131	0
2051	3,512,980	8,566	20,888	5,269	295,104	241,660	3,483,721	295,104	0
2052	3,483,721	7,347	18,815	5,226	299,505	239,299	3,444,451	299,505	0
2053	3,444,451	6,205	18,706	5,167	303,462	236,310	3,397,044	303,462	0
2054	3,397,044	5,142	18,366	5,096	306,671	232,761	3,341,547	306,671	0
2055	3,341,547	4,186	17,992	5,012	309,324	228,656	3,278,045	309,324	0
2056	3,278,045	3,349	17,586	4,917	310,965	224,018	3,207,117	310,965	0
2057	3,207,117	2,638	17,152	4,811	311,738	218,883	3,129,241	311,738	0
2058	3,129,241	2,045	16,690	4,694	311,665	213,284	3,044,901	311,665	0
2059	3,044,901	1,561	16,203	4,567	310,540	207,264	2,954,822	310,540	0
2060	2,954,822	1,172	15,694	4,432	308,697	200,861	2,859,419	308,697	0
2061	2,859,419	862	15,166	4,289	305,944	194,112	2,759,327	305,944	0
2062	2,759,327	626	14,624	4,139	302,394	187,058	2,655,102	302,394	0
2063	2,655,102	448	14,070	3,983	298,149	179,735	2,547,224	298,149	0
2064	2,547,224	316	13,506	3,821	293,177	172,178	2,436,225	293,177	0
2065	2,436,225	219	12,938	3,654	287,530	164,422	2,322,620	287,530	0
2066	2,322,620	149	12,367	3,484	281,268	156,503	2,206,888	281,268	0
2067	2,206,888	100	11,797	3,310	274,441	148,452	2,089,486	274,441	0
2068	2,089,486	66	11,229	3,134	267,077	140,302	1,970,872	267,077	0
2069	1,970,872	43	10,667	2,956	259,209	132,083	1,851,499	259,209	0
2070	1,851,499	27	10,111	2,777	250,861	123,827	1,731,826	250,861	0
2071	1,731,826	17	9,565	2,598	242,055	115,567	1,612,322	242,055	0
2072	1,612,322	10	9,029	2,418	232,828	107,334	1,493,447	232,828	0
2073	1,493,447	6	8,503	2,240	223,212	99,160	1,375,664	223,212	0

** Fiduciary Net Position based on financial statements provided by TCERA dated September 29, 2023.*

Amounts in Thousands

APPENDIX D – DETERMINATION OF DISCOUNT RATE

FYE	Projected Beginning Fiduciary Net Position*	Normal Cost Contribution - Employer and Employee	UAL Contribution	Projected Admin Expenses	Projected Benefit Payments	Projected Investment Earnings	Projected Ending Fiduciary Net Position	"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments
2074	1,375,664	3	7,990	2,063	213,245	91,076	1,259,425	213,245	0
2075	1,259,425	0	7,489	1,889	202,976	83,114	1,145,163	202,976	0
2076	1,145,163	0	7,002	1,718	192,451	75,303	1,033,299	192,451	0
2077	1,033,299	0	6,528	1,550	181,727	67,671	924,222	181,727	0
2078	924,222	0	6,068	1,386	170,859	60,244	818,288	170,859	0
2079	818,288	0	5,623	1,227	159,908	53,044	715,820	159,908	0
2080	715,820	0	5,194	1,074	148,934	46,093	617,100	148,934	0
2081	617,100	0	4,781	926	137,997	39,410	522,368	137,997	0
2082	522,368	0	4,384	784	127,160	33,008	431,817	127,160	0
2083	431,817	0	4,004	648	116,481	26,900	345,593	116,481	0
2084	345,593	0	3,642	518	106,021	21,095	263,790	106,021	0
2085	263,790	0	3,298	396	95,841	15,596	186,447	95,841	0
2086	186,447	0	2,973	280	85,999	10,404	113,546	85,999	0
2087	113,546	0	2,668	170	76,556	5,517	45,004	76,556	0
2088	45,004	0	2,381	68	67,566	925	(19,323)	45,004	22,562
2089	(19,323)	0	2,114	0	59,085	0	(56,971)	0	59,085
2090	(56,971)	0	1,867	0	51,160	0	(49,294)	0	51,160
2091	(49,294)	0	1,639	0	43,833	0	(42,194)	0	43,833
2092	(42,194)	0	1,430	0	37,137	0	(35,706)	0	37,137
2093	(35,706)	0	1,241	0	31,090	0	(29,849)	0	31,090
2094	(29,849)	0	1,070	0	25,701	0	(24,631)	0	25,701
2095	(24,631)	0	917	0	20,966	0	(20,048)	0	20,966
2096	(20,048)	0	782	0	16,864	0	(16,083)	0	16,864
2097	(16,083)	0	662	0	13,367	0	(12,705)	0	13,367
2098	(12,705)	0	557	0	10,432	0	(9,875)	0	10,432

** Fiduciary Net Position based on financial statements provided by TCERA dated September 29, 2023.* *Amounts in Thousands*

APPENDIX D – DETERMINATION OF DISCOUNT RATE

FYE	Projected Beginning Fiduciary Net Position*	Normal Cost Contribution - Employer and Employee	UAL Contribution	Projected Admin Expenses	Projected Benefit Payments	Projected Investment Earnings	Projected Ending Fiduciary Net Position	"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments
2099	(9,875)	0	467	0	8,011	0	(7,544)	0	8,011
2100	(7,544)	0	389	0	6,049	0	(5,660)	0	6,049
2101	(5,660)	0	323	0	4,487	0	(4,164)	0	4,487
2102	(4,164)	0	267	0	3,267	0	(3,001)	0	3,267
2103	(3,001)	0	220	0	2,334	0	(2,114)	0	2,334
2104	(2,114)	0	181	0	1,634	0	(1,453)	0	1,634
2105	(1,453)	0	148	0	1,120	0	(972)	0	1,120
2106	(972)	0	122	0	752	0	(630)	0	752
2107	(630)	0	100	0	493	0	(393)	0	493
2108	(393)	0	82	0	316	0	(234)	0	316
2109	(234)	0	68	0	198	0	(130)	0	198
2110	(130)	0	56	0	121	0	(65)	0	121
2111	(65)	0	48	0	72	0	(24)	0	72
2112	(24)	0	41	0	42	0	(1)	0	42
2113	(1)	0	34	0	24	0	11	0	24
2114	11	0	28	0	13	1	28	0	13
2115	28	0	24	0	7	3	47	0	7
2116	47	0	19	0	4	4	66	0	4
2117	66	0	16	0	2	5	85	0	2
2118	85	0	13	0	1	7	104	0	1
2119	104	0	10	0	0	8	121	0	0
2120	121	0	8	0	0	9	138	0	0
2121	138	0	6	0	0	10	154	0	0
2122	154	0	5	0	0	11	170	0	0
2123	170	0	4	0	0	12	186	0	0
							Discount Rate:	7.15%	3.65%
							Present Value:	$ 2,823,303	$ 30,643
							Total Present Value:		$ 2,853,946
							GASB Discount Rate:		7.09%

** Fiduciary Net Position based on financial statements provided by TCERA dated September 29, 2023.*

Amounts in Thousands

APPENDIX E – GLOSSARY OF TERMS

1. Actuarially Determined Contribution

A target or recommended contribution for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.

2. Actuarial Valuation Date

The date as of which an actuarial valuation is performed. This date may be up to 24 months prior to the measurement date and up to 30 months prior to the employer's reporting date.

3. Deferred Inflow of Resources

An acquisition of net assets by a government employer that is applicable to a future reporting period. In the context of GASB 68, these are experience gains on the Total Pension Liability, assumption changes reducing the Total Pension Liability, or investment gains that are recognized in future reporting periods.

4. Deferred Outflow of Resources

A consumption of net assets by a government employer that is applicable to a future reporting period. In the context of GASB 68, these are experience losses on the Total Pension Liability, assumption changes increasing the Total Pension Liability, or investment losses that are recognized in future reporting periods.

5. Entry Age Actuarial Cost Method

The actuarial cost method required for GASB 67 and 68 calculations. Under this method, 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 service cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future service costs is called the Total Pension Liability.

6. Measurement Date

The date as of which the Total Pension Liability and Plan Fiduciary Net Position are measured. The Total Pension Liability may be projected from the actuarial valuation date to the measurement date. The measurement date must be the same as the reporting date for the plan.

APPENDIX E – GLOSSARY OF TERMS

7. Net Pension Liability

The liability of employers and nonemployer contributing entities to employees for benefits provided through a defined benefit pension plan. It is calculated as the Total Pension Liability less the Plan Fiduciary Net Position. The Net Pension Liability is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling TCERA's benefit obligations in the event of a plan termination or other similar action.

8. Plan Fiduciary Net Position

The fair or Market Value of Assets.

9. Reporting Date

The last day of the plan or employer's fiscal year.

10. Service Cost

The portion of the actuarial present value of projected benefit payments that is attributed to the current period of employee service in conformity with the requirements of GASB 67 and 68. The service cost is the normal cost calculated under the Entry Age Actuarial Cost Method.

11. Total Pension Liability

The portion of the actuarial present value of projected benefit payments that is attributed to past periods of employee service in conformity with the requirements of GASB 67 and 68. The Total Pension Liability is the Actuarial Liability calculated under the Entry Age Actuarial Cost Method.

CHEIRON

Classic Values, Innovative Advice

Tulare County Employees' Retirement Association

Actuarial Experience Study for July 1, 2020 through June 30, 2023

Produced by Cheiron

October 2023

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October 20, 2023

Board of Retirement
Tulare County Employees' Retirement Association
136 N. Akers St.
Visalia, CA 93291

Dear Members of the Board:

The purpose of this report is to provide the results of an Actuarial Experience Study of the Tulare County Employees' Retirement Association (TCERA) covering actuarial experience from July 1, 2020 through June 30, 2023.

In preparing our report, we relied on information (some oral and some written) supplied by TCERA. This information includes, but is not limited to, the plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

Cheiron utilizes ProVal, an actuarial valuation software program leased from Winklevoss Technologies (WinTech), to calculate liabilities and projected benefit payments. We have reviewed the underlying workings of this model to the degree feasible and consistent with Actuarial Standard of Practice No. 56 and believe them to be appropriate for the purposes of this experience study report.

This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

This report was prepared for the Retirement Board of TCERA for the purposes described herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

If you have any questions about the report or would like additional information, please let us know.

Sincerely,
Cheiron

Graham A. Schmidt, ASA, EA, FCA, MAAA	Steven M. Hastings, FSA, EA, FCA, MAAA
Consulting Actuary	Consulting Actuary

SECTION I – EXECUTIVE SUMMARY

Actuarial assumptions (economic and demographic) are intended to be long term in nature and should be both individually reasonable and consistent in the aggregate and should have no significant bias except when provisions for adverse deviation are included. The purpose of this experience study is to evaluate whether or not the current assumptions adequately reflect the long-term expectations for TCERA, and if not, to recommend adjustments. It is important to note that frequent and significant changes in the actuarial assumptions are not typically recommended, unless there are known fundamental changes in expectations of the economy, or with respect to TCERA's membership or assets that would warrant such frequent or significant changes.

SUMMARY OF ECONOMIC ASSUMPTION ANALYSIS

The specific economic assumptions analyzed in this report are price inflation, wage/payroll inflation, COLA growth, and the discount rate. These assumptions have a significant impact on the contribution rates in the short term and the risk of negative outcomes in the long term.

The economic assumptions previously adopted by the Retirement Board include a 7.00% long-term rate of return on Plan assets (net of investment and administrative expenses), an annual increase in prices measured by the Consumer Price Index (CPI) of 2.75%, annual base wage and payroll increases of 3.00%, and a post-retirement COLA average growth rate of 2.60% for Tier 1 members and 2.00% for all other members.

The nominal discount rate assumption of 7.00% is less than the geometric average return for the current target portfolio based on the capital market assumptions provided by Verus, the Plan's investment consultant, and under both a 10-year (7.6%) and 30-year (7.4%) time horizon. In addition, the current return assumption is consistent with the average of the 2022 and 2023 capital market assumptions from Verus and the Horizon Actuarial Services survey of investment consulting firms over varying time horizons. Other data presented in this report support the finding that the discount rate and other economic assumptions adopted by the Retirement Board are reasonable.

We recommend that the assumed COLA growth rate for the Tier 1 members currently in pay status be increased from 2.6% to 3.0%. However, we do not consider this to be an assumption change, but rather an explicit measurement of the existing COLA banks that have emerged during the past two years and thus should be considered an element of the existing actuarial liability losses.

SUMMARY OF DEMOGRAPHIC ASSUMPTION ANALYSIS

This experience study specifically analyzes and makes the following recommendations for the demographic assumptions.

- **Retirement rates** – No changes to current assumptions for General or Safety members as recent experience has continued to be close to that which is assumed.
- **Termination rates** – Adjust rates to reflect recent experience. Update both General and Safety to use service-only based rates for expected terminations with minor adjustments to grade the rates downward as service increases to an ultimate rate at 15 years of service.

- **Disability rates** – No changes to duty or non-duty related disability rates for either General or Safety.
- **Mortality rates** – Reduce base rates slightly for male General members and increase base rates slightly for female General members. Also, slight increase in base mortality rates for male Safety members and an increase in base mortality rates for female Safety members. No change to base mortality rates for disabled members. Update the mortality improvement assumption to the MP-2021 scale for all members.
- **Merit salary increases** – No change to General salary assumption; small increase to Safety salary increases at higher service levels. Update reciprocal transfer salary increases to reflect wage inflation plus ultimate merit salary increases.
- **Leave conversion** – No change to the loads on benefit service for General or Safety members for expected conversions of unused leave upon a service retirement.
- **Marriage and Joint & Survivor payments** – Reduce the percentage of female General and Safety members, and male Safety members, who are assumed to be married. No change to percent married for male General members. Reduce the number of years that male employees are older than their spouses. Additionally, reduce the percentage of members assumed to elect a subsidized Joint & Survivor benefit option.
- **Other assumptions** – Reduce assumption for General terminated vested members who are expected to receive a deferred retirement benefit rather than take a refund of contributions and increase this assumption for Safety members. No changes to reciprocal rates or deferral ages for terminated vested members.

The body of this report provides additional detail and support for our conclusions and recommendations.

COST OF ECONOMIC AND DEMOGRAPHIC ASSUMPTION CHANGES

There were no economic assumptions adopted by the Board which resulted in a change in the contribution rate; as noted earlier, the modification to the post-retirement COLA growth rate for Tier 1 members in pay status is considered to be a change resulting from an actuarial liability loss, not an assumption change. The demographic assumptions resulted in a lower overall contribution requirement (reducing the average employer rate by 1.1% of pay), with the changes to family composition – in particular, the percentage of married members assumed to elect the unmodified subsidized form of benefit – having the largest absolute impact.

SECTION I – EXECUTIVE SUMMARY

The table below summarizes the estimated cost impact – for the General, Safety, and combined membership – of the recommended changes to demographic assumptions contained in this report. The net impact on the 2023 valuation will be found in the June 30, 2023 valuation report.

Table I-1

Estimated Impact on Contribution Rates from Assumption Changes (based on June 30, 2023 valuation results)

	Change in Contribution Rate (EE + ER)								
	Normal Cost Rate			UAL Rate			Total Contribution Rate		
Description	General	Safety	Total	General	Safety	Total	General	Safety	Total
Recommended Demographic Assumptions									
Mortality Rates	0.0%	-0.1%	0.0%	-0.2%	-0.3%	-0.2%	-0.3%	-0.4%	**-0.3%**
Termination Rates	-0.2%	-0.1%	-0.2%	0.1%	0.2%	0.1%	-0.1%	0.1%	**-0.1%**
Merit Salary Scale	0.0%	0.4%	0.1%	0.0%	0.4%	0.1%	0.0%	0.7%	**0.2%**
Family Composition	-0.4%	-0.4%	-0.4%	-0.7%	-0.5%	-0.6%	-1.1%	-0.9%	**-1.1%**
Changes to Terminated/Deferred Members	0.0%	-0.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%	**0.0%**
Total (Proposed Demographic Assumptions)	-0.7%	-0.3%	-0.6%	-0.8%	-0.3%	-0.7%	-1.5%	-0.5%	**-1.3%**
Final Impact of Assumption Changes (EE + ER)	**-0.7%**	**-0.3%**	**-0.6%**	**-0.8%**	**-0.3%**	**-0.7%**	**-1.5%**	**-0.5%**	**-1.3%**
Change to ER Rate due to Employee Contribution Rates Update	0.2%	0.0%	0.2%	0.0%	0.0%	0.0%	0.2%	0.0%	**0.2%**
Total Change to ER Rate	**-0.5%**	**-0.2%**	**-0.4%**	**-0.8%**	**-0.3%**	**-0.7%**	**-1.2%**	**-0.5%**	**-1.1%**

SECTION II – ECONOMIC ASSUMPTIONS
PRICE INFLATION

The economic assumptions used in actuarial valuations are intended to be long term in nature and should be both individually reasonable and consistent with each other. The specific assumptions analyzed in this report are:

- **Price inflation** – used indirectly as an underlying component of other economic assumptions.
- **Wage/payroll inflation** – across the board wage growth used to project benefits and to amortize the unfunded liability as a level percentage of expected payroll.
- **COLA growth** – rate at which inflation-linked post-retirement COLAs are expected to change.
- **Discount rate** – used both to project long-term asset growth and to discount future cash flows in calculating the liabilities and costs of the Plan.

In order to develop recommendations for each of these assumptions, we considered historical data, both nationally and for the Plan, and expectations for the future, as expressed by the Plan's and other external investment consultants and the Board.

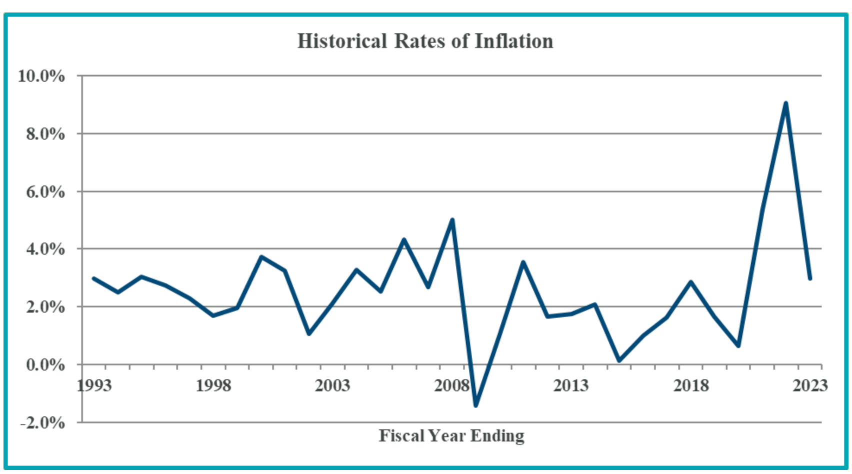
PRICE INFLATION

Long-term price inflation rates are the foundation of other economic assumptions. In a growing economy, wages and investments are expected to grow at the underlying inflation rate plus some additional real growth rate, whether it reflects productivity in terms of wages or risk premiums in terms of investments.

Historical Data

Chart II-1 below shows inflation for the U.S. by Plan year (ending June 30) since 1993 as measured by the CPI-U.

Chart II-1



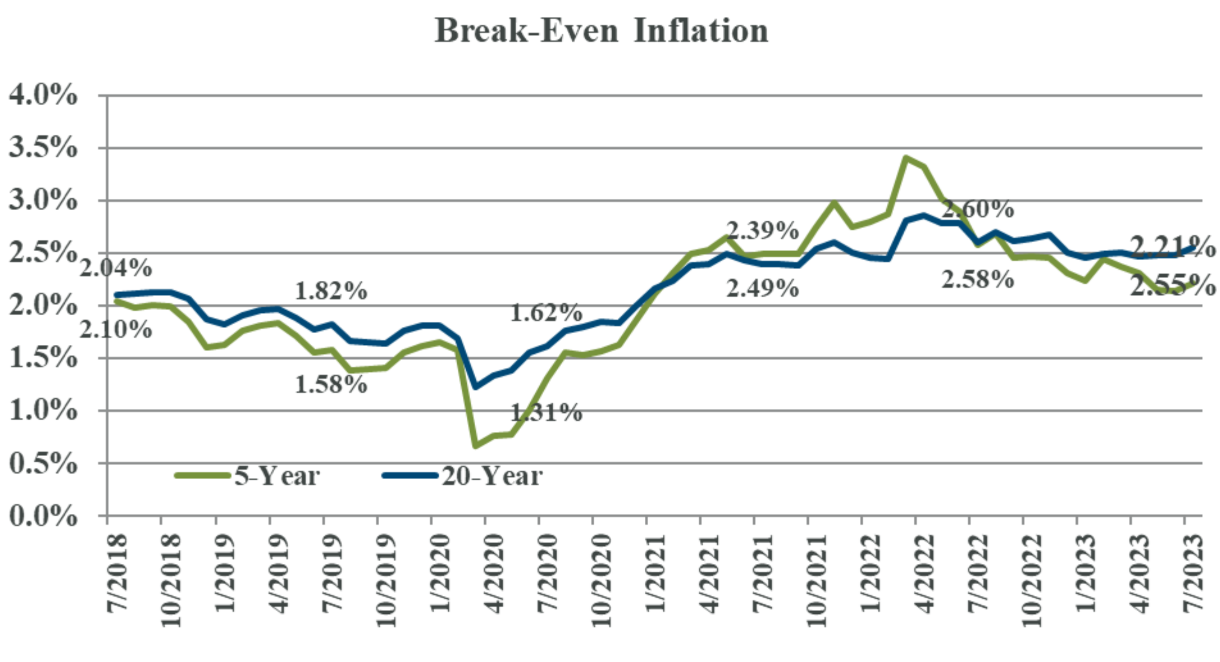
SECTION II – ECONOMIC ASSUMPTIONS
PRICE INFLATION

Over the 50 years ending June 2023, the geometric average inflation rate for the U.S. has been about 3.9%, but this average is heavily influenced by the high inflation rates in the 1970s and early 1980s. Over the last 30 years, the geometric average inflation rate has been 2.6%, and about 2.7% over the past 10 years (driven by the spike in 2022; prior to 2022 inflation had averaged less than 2.0% over the prior decade).

Future Expectations

A measure of the market consensus of expected future inflation rates is the difference in yields between conventional treasury bonds and Treasury Inflation-Protected Securities (TIPS) at the same maturity. Chart II-2 shows the yields on both types of bonds and the break-even inflation from July 2018 through July 2023 for 5-year and 20-year durations. Break-even inflation is the level of inflation needed for an investment in TIPS to "break even" with an investment in conventional treasury bonds of the same maturity.

Chart II-2



Data Source Federal Reserve, Constant Maturity Yields, Monthly Series

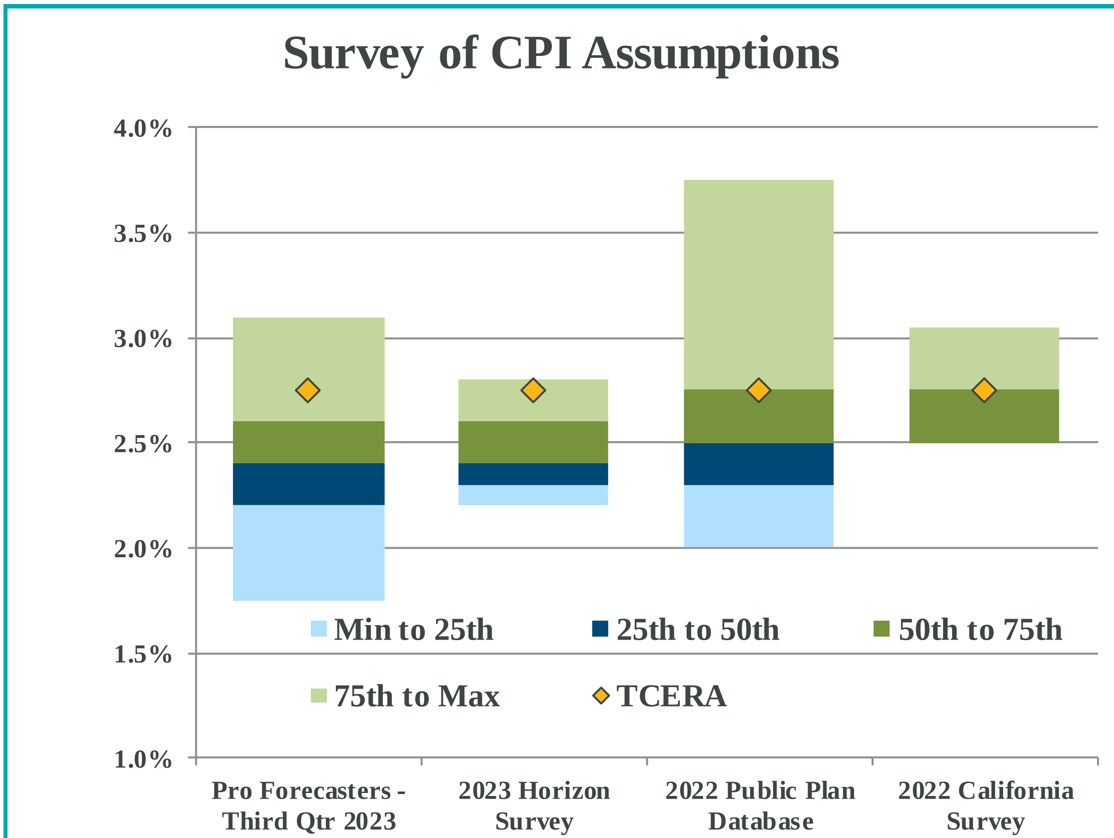
The Federal Reserve Bank of Philadelphia publishes a quarterly survey of professional economic forecasters that includes their forecasts of inflation over the next 10 years. The survey for the third quarter of 2023 shows a median inflation forecast of 2.40%, a minimum forecast of about 1.75% and a maximum forecast of 3.1%.

SECTION II – ECONOMIC ASSUMPTIONS

PRICE INFLATION

Chart III-3 shows the distribution of the current 10-year forecasts for CPI-U from the professional survey published by the Federal Reserve Bank of Philadelphia compared to a survey of investment consultants performed by Horizon Actuarial Services, as well as a database of assumptions used by U.S. public pension plans and a Cheiron survey of assumptions used by California public pension plans. The median price inflation assumption is 2.50% for California public pension plans, and most plans use either 2.50% or 2.75%.

Chart II-3



	Pro Forecasters - Third Qtr 2023	2023 Horizon Survey	2022 Public Plan Database	2022 California Survey
Minimum	1.75%	2.20%	2.00%	2.50%
25th	2.20%	2.30%	2.30%	2.50%
50th	2.40%	2.40%	2.50%	2.50%
75th	2.60%	2.60%	2.75%	2.75%
Maximum	3.10%	2.80%	3.75%	3.05%

Finally, Verus, the Board's investment consultant, uses a 10-year inflation assumption of 2.50%, which is similar to that of many other investment consultants.

SECTION II – ECONOMIC ASSUMPTIONS
PRICE INFLATION

Based on all of these considerations, we believe a reasonable range for long-term price inflation for use in the Plan's actuarial valuations is between 2.25% and 2.75%. Therefore, we believe the Board's current inflation assumption of 2.75% is reasonable.

WAGE/PAYROLL INFLATION

Wage inflation can be thought of as the annual across-the-board increase in wages. Individuals often receive salary increases in excess of the wage inflation rate, and we study these increases as a part of the merit salary scale assumption. Wage inflation generally exceeds price inflation by some margin reflecting the history of increased purchasing power.

Wage inflation is used in the actuarial valuation as the minimum expected salary increase for an individual and, for purposes of amortizing the Unfunded Actuarial Liability, the rate at which payroll is expected to grow over the long term, assuming a stable active member population.

It is acceptable to assume some additional level of base payroll increase beyond general inflation. Potential reasons contributing to the increase may include the presence of strong union representation in the collective bargaining process, competition in hiring among other similar employers, and regional factors – such as the local inflation index exceeding the national average, as has sometimes proven the case in parts of California. Also, the Social Security Administration projects real wage growth of 0.5% – 1.8% going forward in their Social Security solvency projections.

However, our recent experience with public sector employers in California has shown that real wage growth has remained stagnant, in some cases lagging behind inflation. In particular, the average rate of pay for TCERA's members has increased by only 5.1% annually over the past three years vs. Riverside area inflation (as measured by the CPI-U), which has increased at 6.4% per year over the same period.

We believe that the small non-inflationary base payroll growth assumption of 0.25% annually currently used by TCERA remains reasonable. If the 2.75% inflation rate is also maintained, the annual expected increase in base payroll will remain at 3.00%. This rate is applied to all continuing active members, and to starting pay for new entrants when projections of future populations are required. This increase will also be used in the calculation of the unfunded liability amortization payment as a level percentage of payroll.

COLA GROWTH

Tier 1 members of TCERA are eligible to receive automatic Cost-of-Living Adjustments (COLAs), based on the growth in the Riverside-San Bernardino-Ontario Consumer Price Index (CPI) rounded to 0.5% and with a 3% cap on the annual COLA increase. Any increase in the CPI above the 3% maximum increase can be banked for future years in which the change in the CPI is below 3%. The COLAs for Tiers 2-4 are determined in the same manner, except the cap on the annual increase is 2%, which has resulted in higher banks for the members in pay status than for the Tier 1 members with the same retirement dates.

It is necessary to determine an assumed rate of COLA growth, reflecting both inflation (i.e., the growth in the CPI), and the interaction of the CPI with the COLA cap and banking mechanism. Given the high inflation in recent years, Tier 1 members who retired prior to April 2023 have amassed large COLA banks that will be used to supplement any future COLAs for years in which inflation is less than 3%. As most Tier 1 retirees are well into their 70s, we recommend increasing the COLA assumption for these members to 3%. However, as this change is intended to measure the liability associated with the existing COLA banks, we do not consider it a change related to future COLA growth which is dependent on the CPI.

Based on the continued use of the 2.75% inflation assumption, for members in Tier 1 not currently in pay status, we recommend continuing to assume 2.60% annual COLAs. Additionally, for members in Tiers 2-4, we recommend continuing to assume that the COLA growth will be equal to the 2% cap.

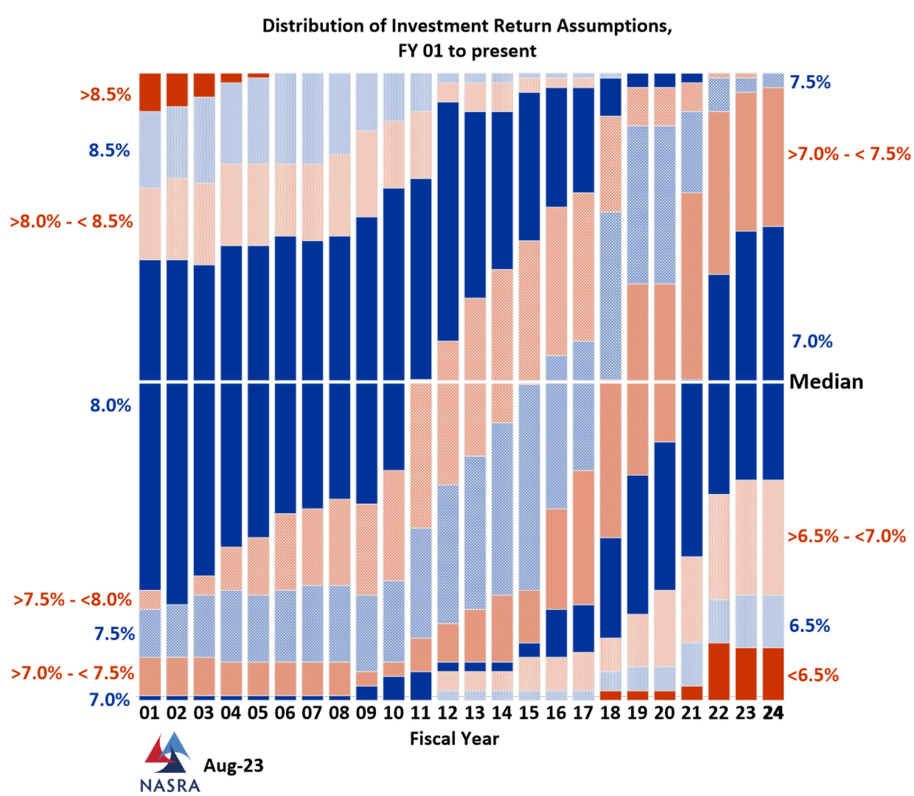
DISCOUNT RATE

The discount rate assumption is generally the most significant of all the assumptions employed in actuarial valuations. The discount rate is based on the long-term expected return on plan investments. In the short term, a higher discount rate results in lower expected contributions. However, over the long term, actual contributions will depend on actual investment returns and not the discount rate (or expected investment returns). If actual investment returns are lower than expected, contribution rates will increase in the future. It is important to set a realistic discount rate so that projections of future contributions for budgeting purposes will not be significantly biased, particularly to be too low.

Other Large Public Retirement Plans

Based on the Public Fund Survey, developed by the National Association of State Retirement Administrators (NASRA) covering most of the largest public retirement systems in the country, there has been a general movement over at least the last decade to reduce the discount rate used in actuarial valuations. Chart II-4 below shows the change in the distribution of assumptions since 2001. The median assumption is now 7.0% and the number of plans using a discount rate of 7.0% or lower has increased significantly.

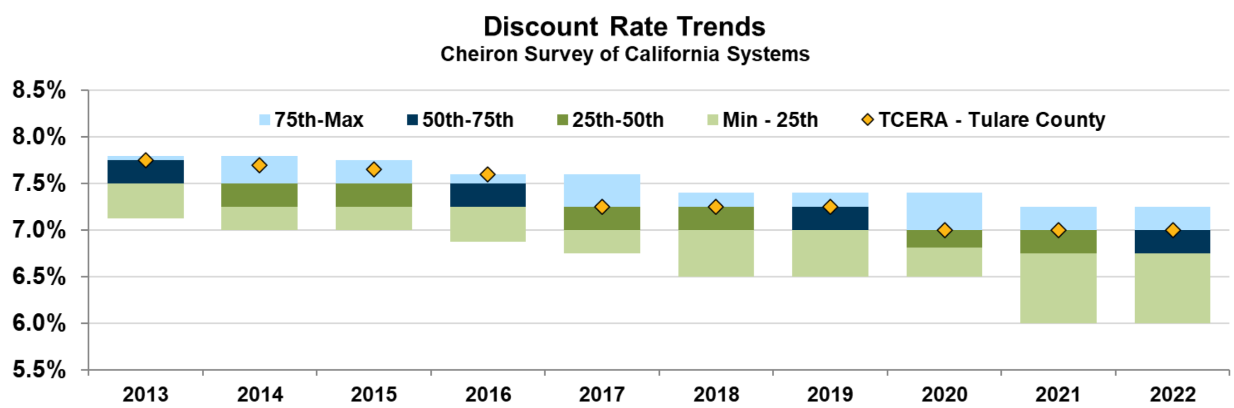
Chart II-4



SECTION II – ECONOMIC ASSUMPTIONS
DISCOUNT RATE

Cheiron's survey of California public retirement systems shows a median assumption of 6.75%. In the survey prepared by Cheiron, 17 of the 39 systems surveyed used a discount rate assumption of 6.75% in their 2022 actuarial valuation, while 10 systems used a discount rate assumption of 7.00%. Chart II-5 below shows the change in discount rate assumptions for California systems from 2013 to 2022, with a gold marker showing the Plan's discount rate assumption over this period.

Chart II-5



Target Asset Allocation and Future Expectations

The discount rate assumption depends on the anticipated average level of inflation and the anticipated average real rate of return. The real rate of return is the investment return in excess of underlying inflation. The expected real rate of return depends on the asset allocation: the portion of assets in stocks, bonds, and other asset classes which make up the Plan's asset portfolio.

Table II-1 on the next page shows the expected geometric return for the Plan's current target asset allocation using the capital market assumptions (CMAs) of the Plan's investment consultant (Verus) and using a survey of multiple investment consultants published by Horizon Actuarial Services. For both sets of assumptions, we show the results from both the 2022 and 2023 expectations, given the extreme volatility of the markets, inflation, and interest rates over the past 24 months.

Table II-1 on the next page also shows the underlying inflation assumption used by each investment consultant in the development of their capital market assumptions and computes the expected real rate of return (investment return in excess of inflation). Finally, the table shows the expectations under a variety of time horizons.

SECTION II – ECONOMIC ASSUMPTIONS
DISCOUNT RATE

Table II-1

TCERA Portfolio Return Expectations (reflects 20bp adjustment for administrative and investment expenses)				
Consultant	Nominal	Inflation	Real	Standard Deviation
2023 Expectations				
Verus (10-year)	7.56%	2.50%	5.06%	12.88%
Verus (30-year)	7.42%	2.10%	5.32%	12.88%
Horizon (Survey, 10-year)	7.32%	2.55%	4.77%	12.59%
Horizon (Survey, 20+ year)	7.64%	2.46%	5.18%	12.59%
2023 Average	7.49%	2.40%	5.08%	12.73%
2022 Expectations				
Verus (10-year)	6.25%	2.50%	3.75%	12.74%
Verus (30-year)	6.59%	2.30%	4.29%	12.74%
Horizon (Survey, 10-year)	5.83%	2.47%	3.36%	12.44%
Horizon (Survey, 20+ year)	6.94%	2.45%	4.49%	12.44%
2022 Average	6.40%	2.43%	3.97%	12.59%
2022-2023 Average	6.95%	2.42%	4.53%	12.66%
Current Assumption	7.00%	2.75%	4.25%	

We note that the returns in Table II-1 above were reduced by 0.16% to reflect administrative expenses (based on recent experience) and another 0.04% to reflect non-management related investment expenses, which is consistent with recent experience.

With respect to investment expenses, the actuarial standards on selecting a return assumption (ASOP 27) state that in general, superior or inferior returns (net of fees) should not be assumed for active versus passive management; therefore, we do not recommend a significant adjustment to the modeled returns for the fees of the asset managers. However, a slight margin is appropriate to reflect other investment-related expenses, including those of the investment advisor and custodian.

The nominal (7.00%) assumption is very close to the average across the various capital market assumptions, while the overall average real return was slightly above the current assumption. All of the information above suggests that the Board's current nominal return of 7.0%, split between an inflation assumption of 2.75%, and the real return expectation at 4.25%, remains reasonable and appropriate.

We recommend that the Board and staff continue to conduct at least a brief discussion of this assumption annually, in consultation with the Plan's actuary and investment consultant, to determine if further changes are appropriate, in particular to consider whether additional reductions in the inflation and nominal return assumptions are warranted.

SECTION II – ECONOMIC ASSUMPTIONS
DISCOUNT RATE

Finally, we note that no adjustments have been made to the expected rate of return or funding discount rate to account for the impact of the Supplemental Retiree Benefit Reserve (SRBR). The expected rate of return developed in this experience study report reflects the expected return on all assets of the Plan, regardless of whether used to fund the basic benefits of the Plan or supplemental benefits payable through the SRBR.

The actuarial valuation report includes an estimate of the potential liability associated with future potential transfers to the SRBR that could result from future investment gains. Our most recent estimate of the potential impact of these transfers on the net returns available to fund the non-SRBR benefits of the Plan was a reduction of approximately 0.3%. However, this estimate can vary significantly from year to year, based on fluctuations in the deferred losses reflected in the current Actuarial Value of Assets.

Demographic assumptions are used to predict membership behavior, including rates of retirement, termination, disability, and mortality. These assumptions are based primarily on the historical experience of TCERA, with some adjustments where future experience is expected to differ from historical experience and with deference to standard tables where TCERA experience is not fully credible and a standard table is available. For purposes of this study, merit salary increases are also considered a demographic assumption because the assumption is based primarily on TCERA's historical experience.

MERIT SALARY INCREASES

Salary increases consist of three components: Increases due to cost-of-living maintenance (inflation), increases related to non-inflationary pressures on base pay (such as productivity increases), and increases in individual pay due to merit, promotion, and longevity. Increases due to cost-of-living and non-inflationary base pay factors were addressed in an earlier section of this report.

The merit salary increase assumption is analyzed by employee group and by service. Generally, newer employees are more likely to earn a longevity increase or receive a promotion, so their salary increases tend to be greater than those for longer service employees. A longitudinal approach was used to analyze the merit increases for this study.

A *longitudinal* study reviews the average increase in pay for each level of service. To analyze the merit component, we subtracted the Plan's real wage growth – as measured by the annual increase in average valuation salary during the experience study period – from the annual pay increases experienced at each level of service.

Charts III-1 and III-2 on the following pages analyze the pay for General and Safety members, respectively, over the past six years. We also reviewed the experience over the most recent three-year period and found the experience to be similar and supportive of our recommended assumptions. Our charts show the current assumption (red line) compared to the actual experience (blue line) and the recommended assumption (green line). We backed out the wage growth – calculated as the change in average pay per active member – in order to isolate the merit, promotion, and longevity component.

We propose adjusting the Safety rates at three and four years of service to smoothen the decline in salary increases as one's career progresses, while setting an ultimate salary merit increase of 1.25% beginning at six years of service. We recommend continuing with the current assumption for General members (thus the red and green lines overlap).

SECTION III – DEMOGRAPHIC ASSUMPTIONS

MERIT SALARY INCREASES

Chart III-1: General

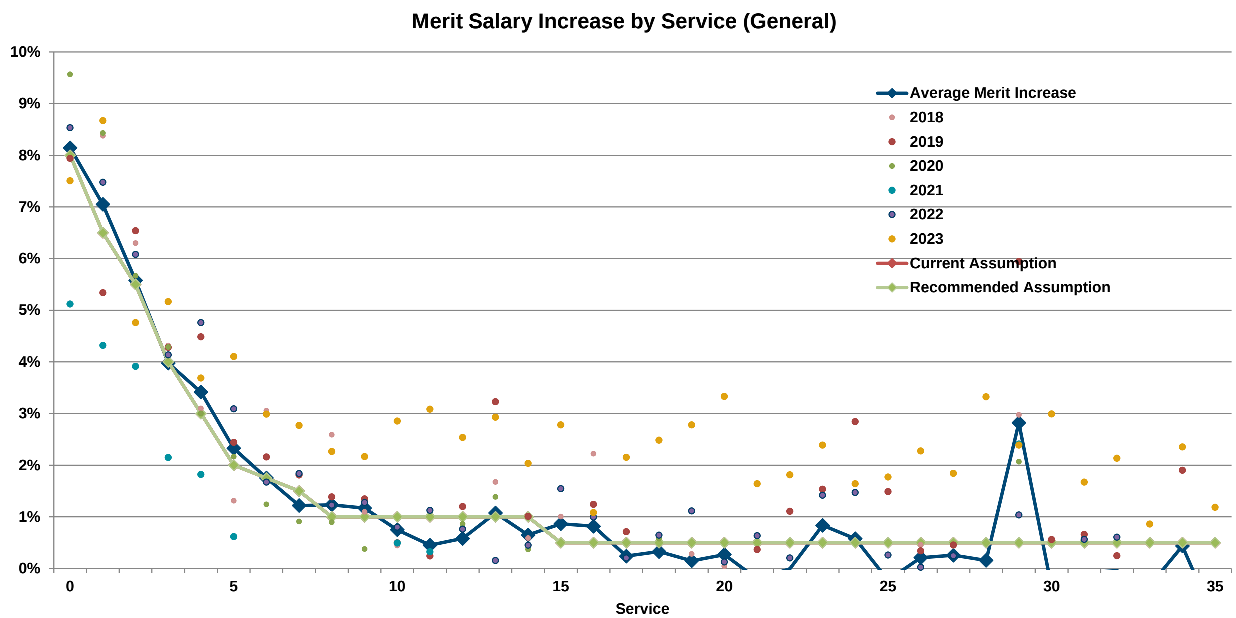
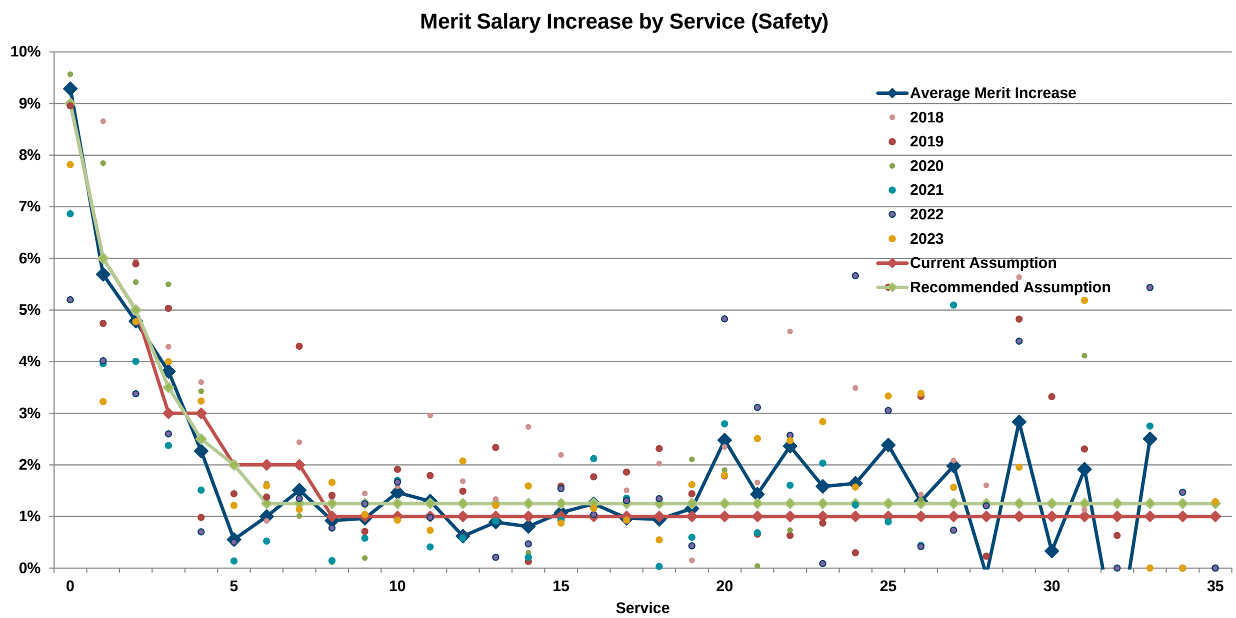


Chart III-2: Safety



ANALYSIS OF OTHER DEMOGRAPHIC ASSUMPTIONS

For all of the remaining demographic assumptions, we determined the ratio of the actual number of decrements for each membership group compared to the expected number of decrements (A/E ratio or actual-to-expected ratio). If the assumption has matched perfectly to historical experience during the study period, this ratio will be 100%. Otherwise, any recommended assumption change should move from the current A/E ratio towards 100% unless future experience is expected to be different than the experience during the period of study.

In addition, we calculated the 90% confidence interval, which represents the range within which the true decrement rate during the experience study period fell with 90% confidence. If there is insufficient data to calculate a confidence interval, the confidence interval is shown as the entire range of the graph. We generally recommend assumption changes when the current assumption is outside the 90% confidence interval of the observed experience. However, adjustments are made to account for differences between future expectations and historical experience and to account for the past experience represented by the current assumption. For mortality rates, we compare TCERA's experience to that of a standard table and adjust the tables to bring the recommended assumption closer to an A/E ratio of 100%, taking into account the level and credibility of TCERA's experience.

We also calculate an r-squared statistic for each assumption. R-squared measures how well the assumption fits the actual data and can be thought of as the percentage of the variation in actual data explained by the assumption. Ideally, r-squared would equal 1.00, although this is never the case. Any recommended assumption change should increase the r-squared compared to the current assumption making it closer to 1.00, unless the pattern of future decrements is expected to be different from the pattern experienced during the period of study.

Finally, since the amount of data that is available over a three-year period to analyze the decrements is somewhat limited, and perhaps skewed due to the COVID-19 pandemic, we have added data from the two prior study periods (from 2014-2020) to add more credibility to these calculations. We also review the proposed assumptions for the most recent three-year period only, to confirm whether the assumptions were also reasonable for this period.

See Appendices A and B for a full listing of the proposed and prior assumptions.

RETIREMENT RATES

The current retirement rates vary by group, age, and service and are applied to all members who are eligible to retire. We have combined the experience of the past three years with that of the prior two three-year periods in order to have a more robust dataset to review; the tables and charts which follow include the experience from 2014-2023.

Generally, at any given age, members with more service are more likely to retire than members with fewer years of service. We reviewed the TCERA actual retirement rates based on service groupings since TCERA is not large enough to justify assumptions for each age and service combination.

We continue to recommend separate assumptions by age for the following two service groups for General members: 1) members with less than 30 years of service, and 2) members with 30 or more years of service. We did not find that retirement rates are materially different between males and females for General members, so we continue to recommend combined male and female rates. We recommend no changes to rates for General members.

We continue to recommend separate assumptions by age for the following two service groups for Safety members: 1) members with less than 20 years of service and 2) members with 20 or more years of service. We recommend no changes to rates for Safety members.

We recommend the continued use of the same assumptions for all PEPRA members as the other members, with the exception that retirement rates are applied once the members are eligible for retirement (age 52 with 5 years of service for General PEPRA members, age 50 with 5 years of service for Safety PEPRA members). There is some expectation that General PEPRA members may retire later than those in other tiers due to their lower benefit levels. However, our initial analysis of the members who have retired under the General PEPRA formula indicates slightly higher rates of retirement than expected among these members, so there is no evidence as of yet to indicate different assumptions for these members are warranted. The Safety formulas for PEPRA and non-PEPRA members do not differ significantly, so we also recommend continuing to use the same assumptions for both groups.

See Appendices A and B for a full listing of the rates.

SECTION III – DEMOGRAPHIC ASSUMPTIONS
RETIREMENT RATES

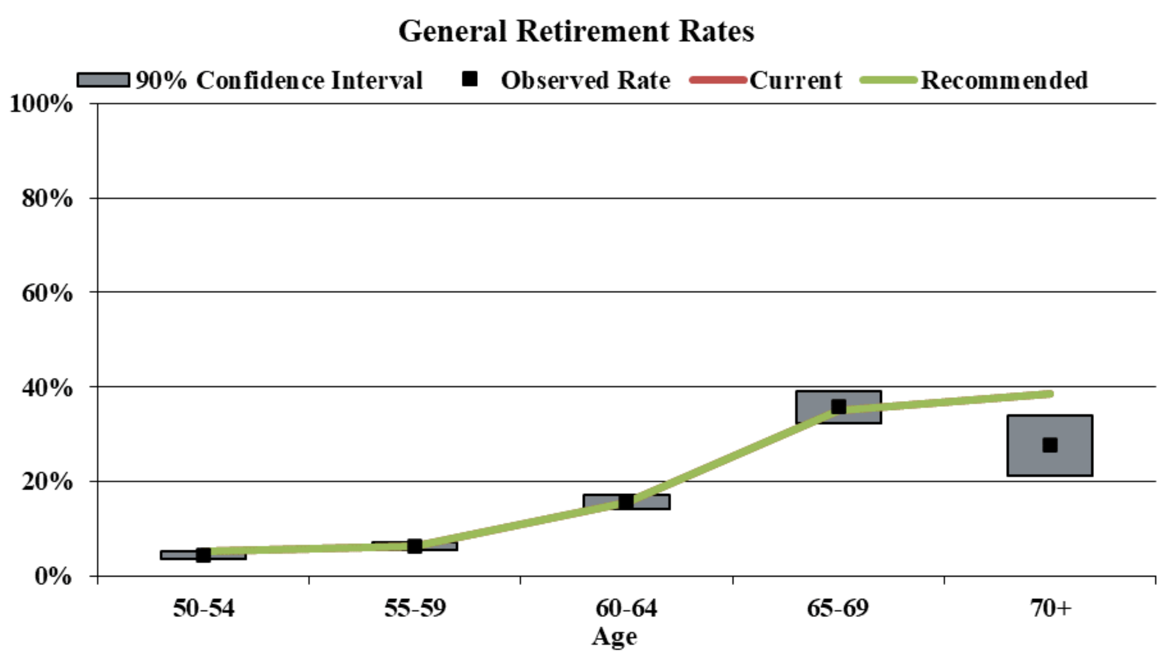
Table III-R1 shows the calculation of actual-to-expected ratios for General members at all retirement-eligible service levels. Chart III-R1 shows the information graphically along with the 90% confidence interval.

The data shows lower actual retirement rates than expected under the current assumption. However, due to actual rates being close to the current rates at all age and service levels below age 70, we do not recommend any changes to the current assumption. There were fewer retirements than expected above age 70, but these members do not have a material impact on the results, and we believe a maximum retirement age of 75 represents a reasonable assumption for this population.

Table III-R1

General Retirement Rates									
		Retirements			Retirement Rates			A/E Ratios	
Age	Exposures	Actual	Current	Recommended	Actual	Current	Recommended	Current	Recommended
50-54	2,348	103	120	120	4.4%	5.1%	5.1%	86%	86%
55-59	2,472	157	155	155	6.4%	6.3%	6.3%	101%	101%
60-64	1,700	267	264	264	15.7%	15.5%	15.5%	101%	101%
65-69	543	194	190	190	35.7%	35.0%	35.0%	102%	102%
70+	141	39	55	55	27.7%	38.7%	38.7%	71%	71%
Total	**7,204**	**760**	**784**	**784**	**10.5%**	**10.9%**	**10.9%**	**97%**	**97%**
R-squared			**0.878**	**0.878**					

Chart III-R1



SECTION III – DEMOGRAPHIC ASSUMPTIONS

RETIREMENT RATES

Table III-R2 shows the calculation of actual-to-expected ratios for Safety. Chart III-R2 shows the information graphically along with the 90% confidence interval.

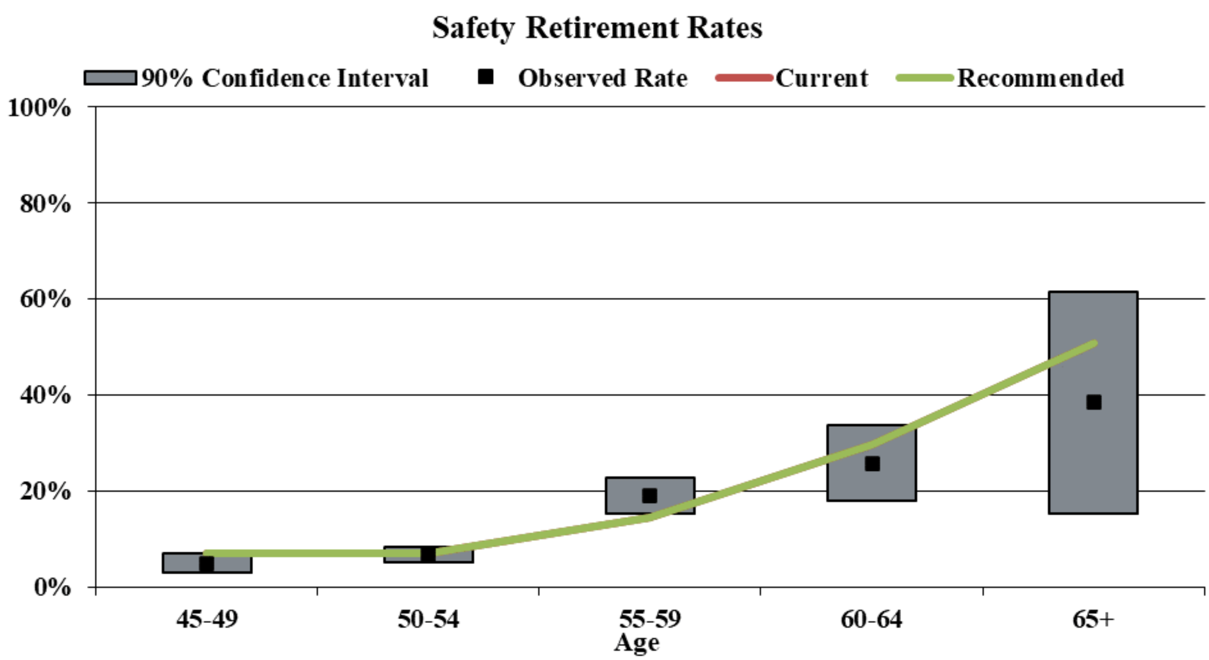
The data shows the overall level of retirements were very close to those expected, with the overall A/E ratio at 100%, and close to the confidence intervals at all age and service levels. Therefore, we do not recommend any changes to the current assumption.

See Appendices A and B for a full listing of the rates. The ultimate retirement age remains at 70.

Table III-R2

Safety Retirement Rates									
		Retirements			Retirement Rates			A/E Ratios	
Age	Exposures	Actual	Current	Recommended	Actual	Current	Recommended	Current	Recommended
45-49	330	16	23	23	4.8%	7.0%	7.0%	69%	69%
50-54	668	45	47	47	6.7%	7.0%	7.0%	96%	96%
55-59	298	57	43	43	19.1%	14.5%	14.5%	132%	132%
60-64	89	23	26	26	25.8%	29.7%	29.7%	87%	87%
65+	13	5	7	7	38.5%	50.8%	50.8%	76%	76%
Total	**1,398**	**146**	**146**	**146**	**10.4%**	**10.5%**	**10.5%**	**100%**	**100%**
R-squared			**0.730**	**0.730**					

Chart III-R2



TERMINATION RATES

Termination rates reflect the frequency at which active members leave employment for reasons other than retirement, death, or disability. Currently, the termination rates are based on age and service for both General and Safety members, with unisex assumptions applied to both groups. Basing termination rates on both age and years of service avoids under-weighting the liabilities that can occur if using age-based rates only. The termination rates do not apply once members are eligible for a service retirement benefit.

After review of the actual termination trends, we recommend termination rates solely based on service with rates generally declining throughout the employee's working lifetime to an ultimate rate of 2.5% with 15 years of service. We did not find that termination rates are materially different between males and females for General members, so we continue to recommend using unisex tables.

Similarly, we recommend termination rates based on service only for Safety members with the same assumptions for both males and females.

To make the best use of the available member data, we study all terminations together – vested terminations, terminating members who withdraw their contributions, and members who transfer to a reciprocal pension plan – to determine an overall termination rate. We then analyze the percentages of terminating members who withdraw their contributions, transfer, or are eligible for a vested benefit. As with the retirement rate analysis, we combined the experience from the most recent three years (2020-2023) with the experience from the prior two studies (2014-2020).

SECTION III – DEMOGRAPHIC ASSUMPTIONS

TERMINATION RATES

Table III-T1 shows the calculation of actual-to-expected ratios for General members. Chart III-T1 shows the information graphically along with the 90% confidence interval.

The data shows that the actual termination rates are slightly higher in aggregate than what the current assumption expects. The current rates are based on both age and service; however, the recommended rates are solely based on service. Despite the more simplistic approach, both the r-squared and A/E ratios improve based on the recommended rates to 0.997 and 107%, respectively.

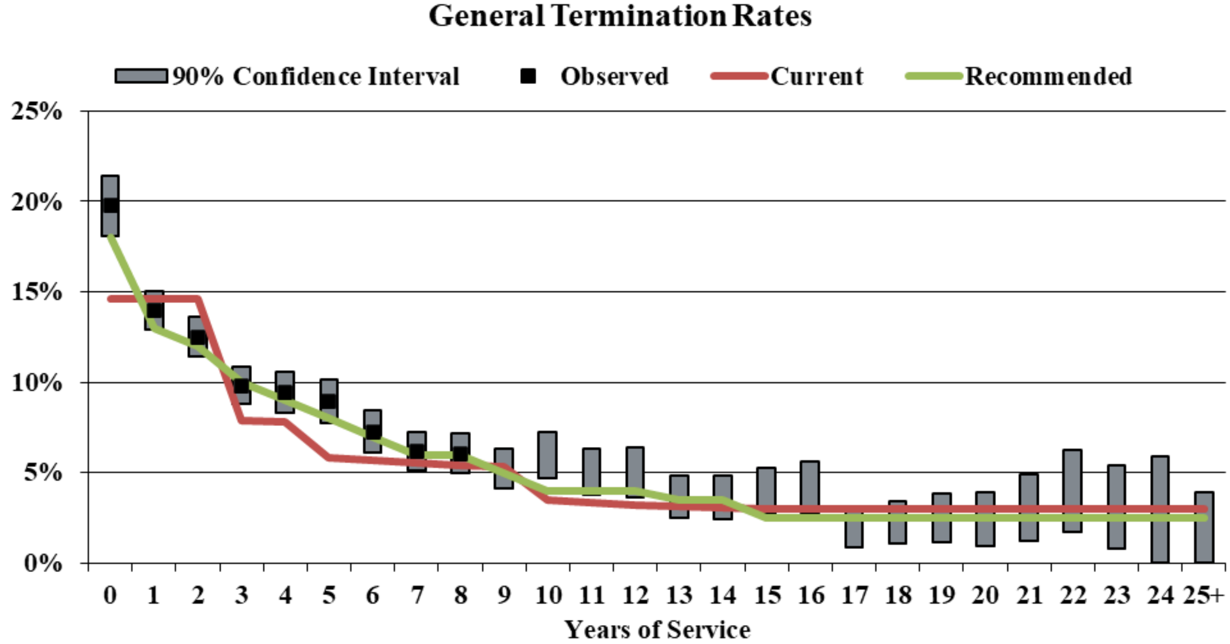
See Appendices A and B for a full listing of the recommended and prior rates.

Table III-T1

General Termination Rates									
		Terminations			Termination Rates			A/E Ratios	
Service	Exposures	Actual	Current	Recommended	Actual	Current	Recommended	Current	Recommended
0	1,548	306	227	279	19.77%	14.65%	18.00%	135%	110%
1	2,775	388	406	361	13.98%	14.65%	13.00%	95%	108%
2	2,444	306	357	293	12.52%	14.62%	12.00%	86%	104%
3	2,217	218	174	222	9.83%	7.86%	10.00%	125%	98%
4	1,872	177	146	168	9.46%	7.78%	9.00%	122%	105%
5	1,505	135	88	120	8.97%	5.84%	8.00%	154%	112%
6	1,327	96	75	93	7.23%	5.67%	7.00%	128%	103%
7	1,294	80	71	78	6.18%	5.52%	6.00%	112%	103%
8	1,229	74	66	74	6.02%	5.39%	6.00%	112%	100%
9	1,157	60	61	58	5.19%	5.31%	5.00%	98%	104%
10	896	53	31	36	5.92%	3.47%	4.00%	171%	148%
11	741	37	25	30	4.99%	3.33%	4.00%	150%	125%
12	685	34	22	27	4.96%	3.22%	4.00%	154%	124%
13	680	25	21	24	3.68%	3.15%	3.50%	117%	105%
14	663	24	20	23	3.62%	3.08%	3.50%	118%	103%
15	624	25	19	16	4.01%	3.02%	2.50%	133%	160%
16	532	22	16	13	4.14%	3.00%	2.50%	138%	165%
17	441	8	13	11	1.81%	3.00%	2.50%	60%	73%
18	378	8	11	9	2.12%	3.00%	2.50%	71%	85%
19	340	8	10	9	2.35%	3.00%	2.50%	78%	94%
20	307	7	9	8	2.28%	3.00%	2.50%	76%	91%
21	245	7	7	6	2.86%	3.00%	2.50%	95%	114%
22	175	7	5	4	4.00%	3.00%	2.50%	133%	160%
23	130	4	4	3	3.08%	3.00%	2.50%	103%	123%
24	85	2	3	2	2.35%	3.00%	2.50%	78%	94%
25+	127	2	4	3	1.57%	3.00%	2.50%	52%	63%
Total	**24,417**	**2,113**	**1,894**	**1,970**	**8.65%**	**7.76%**	**8.07%**	**112%**	**107%**
R-squared			**0.959**	**0.997**					

SECTION III – DEMOGRAPHIC ASSUMPTIONS
TERMINATION RATES

Chart III-T1



SECTION III – DEMOGRAPHIC ASSUMPTIONS
TERMINATION RATES

Table III-T2 shows the calculation of actual-to-expected ratios for Safety members with less than 20 years of service. Chart III-T2 shows the information graphically along with the 90% confidence interval.

The data shows higher actual termination rates than expected under the current assumption. The recommended assumption increases the aggregate assumed rates of termination and decreases the aggregate A/E ratio from 128% to 119%. The r-squared also improves to 0.975.

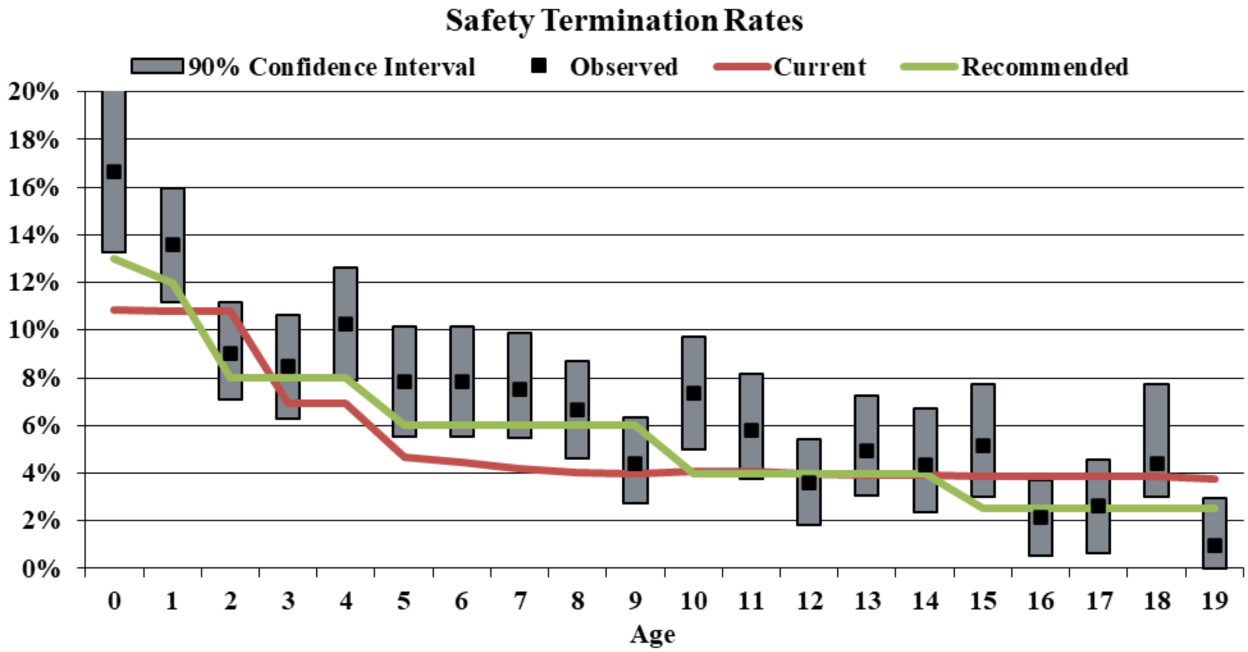
See Appendices A and B for a full listing of the recommended and prior rates.

Table III-T2

Safety Termination Rates									
		Terminations			Termination Rates			A/E Ratios	
Service	Exposures	Actual	Current	Recommended	Actual	Current	Recommended	Current	Recommended
0	294	49	32	38	16.67%	10.87%	13.00%	153%	128%
1	545	74	59	65	13.58%	10.82%	12.00%	126%	113%
2	509	46	55	41	9.04%	10.82%	8.00%	84%	113%
3	460	39	32	37	8.48%	6.95%	8.00%	122%	106%
4	419	43	29	34	10.26%	6.94%	8.00%	148%	128%
5	344	27	16	21	7.85%	4.66%	6.00%	168%	131%
6	344	27	15	21	7.85%	4.44%	6.00%	177%	131%
7	385	29	16	23	7.53%	4.19%	6.00%	180%	126%
8	391	26	16	23	6.65%	4.05%	6.00%	164%	111%
9	363	16	14	22	4.41%	3.99%	6.00%	110%	73%
10	340	25	14	14	7.35%	4.11%	4.00%	179%	184%
11	294	17	12	12	5.78%	4.06%	4.00%	142%	145%
12	277	10	11	11	3.61%	4.00%	4.00%	90%	90%
13	262	13	10	10	4.96%	3.94%	4.00%	126%	124%
14	253	11	10	10	4.35%	3.91%	4.00%	111%	109%
15	233	12	9	6	5.15%	3.88%	2.50%	133%	206%
16	188	4	7	5	2.13%	3.86%	2.50%	55%	85%
17	153	4	6	4	2.61%	3.85%	2.50%	68%	105%
18	137	6	5	3	4.38%	3.80%	2.50%	115%	175%
19	101	1	4	3	0.99%	3.75%	2.50%	26%	40%
Total	**6,292**	**479**	**373**	**402**	**7.61%**	**5.93%**	**6.38%**	**128%**	**119%**
R-squared			**0.921**	**0.975**					

SECTION III – DEMOGRAPHIC ASSUMPTIONS
TERMINATION RATES

Chart III-T2



SECTION III – DEMOGRAPHIC ASSUMPTIONS
TERMINATION RATES

TYPES OF TERMINATION

When a vested member terminates employment, the member has the option of receiving a refund of contributions with interest or a deferred annuity. If an employee terminates employment and works for a reciprocal employer (also referred to as a transfer), the employee's retirement benefit is based on the employee's service with TCERA and Final Compensation based on employment with the reciprocal employer.

Tables III-T3, III-T4, and III-T5 show the comparison of the actual rates to the current and recommended assumptions based on an analysis of members who terminated in the last nine years.

As seen in Table III-T3, the percentage of General male members who elected to receive a deferred vested retirement benefit (i.e., did not elect a refund of contributions) was lower than expected over the past nine years for General male members with at least 10 years of service. We therefore recommend decreasing the assumption pertaining to how many terminated vested General male members will to receive a deferred annuity rather than an immediate return of contributions.

Table III-T3

Types of Termination for General Male Members				
Service	Type of Termination	Actual	Current	Recommended
5 - 10	Refund of Contributions	26%	25%	25%
	Deferred Annuity	74%	75%	75%
10 - 15	Refund of Contributions	19%	15%	20%
	Deferred Annuity	81%	85%	80%
15 - 20	Refund of Contributions	26%	15%	20%
	Deferred Annuity	74%	85%	80%
20+	Refund of Contributions	27%	15%	20%
	Deferred Annuity	73%	85%	80%

SECTION III – DEMOGRAPHIC ASSUMPTIONS
TERMINATION RATES

As seen in Table III-T4, the actual number of General female members electing a deferred annuity over the past nine years was close to the current assumed rate. We recommend only a slight decrease for those members with 10-15 years of service.

Table III-T4

Types of Termination for General Female Members				
Service	**Type of Termination**	**Actual**	**Current**	**Recommended**
5 - 10	Refund of Contributions	42%	45%	45%
	Deferred Annuity	58%	55%	55%
10 - 15	Refund of Contributions	40%	30%	35%
	Deferred Annuity	60%	70%	65%
15 - 20	Refund of Contributions	24%	25%	25%
	Deferred Annuity	76%	75%	75%
20+	Refund of Contributions	18%	25%	25%
	Deferred Annuity	82%	75%	75%

Similarly, the actual number of Safety members electing a deferred annuity over the past nine years was close to the current assumed rate with the exception of those with 15-20 years of service. These members elected to receive a deferred annuity more often than expected and thus we recommend increasing the assumption for these members from 60% to 80%.

Table III-T5

Types of Termination for Safety Members				
Service	**Type of Termination**	**Actual**	**Current**	**Recommended**
5 - 10	Refund of Contributions	36%	40%	40%
	Deferred Annuity	64%	60%	60%
10 - 15	Refund of Contributions	42%	40%	40%
	Deferred Annuity	58%	60%	60%
15 - 20	Refund of Contributions	18%	40%	20%
	Deferred Annuity	82%	60%	80%
20+	Refund of Contributions	8%	0%	0%
	Deferred Annuity	92%	100%	100%

RECIPROCAL TRANSFERS

We reviewed new retirements from deferred vested status during the last nine years and the proportion of those retirements representing reciprocal transfers was 59% for General members, and 69% for Safety members. We use this approach of reviewing the percentage of those retiring from deferred status, versus the alternative approach of reviewing the reported rates of reciprocity upon termination, since reciprocity does not have to be reported until retirement. We recommend no change to the percentage of deferred vested members expected to establish reciprocity from the current assumptions of 60% for General members and 65% for Safety members.

RECIPROCAL PAY INCREASES

If a member terminates employment and works for a reciprocal employer, the member's retirement benefit is ultimately computed using the highest Final Compensation based on employment with the reciprocal employer. For this assumption, we recommend our typical approach of using the base wage growth assumption (currently 3.00%), plus the ultimate rate of merit/longevity increases of 0.50% for General members, and 1.25% for Safety members (updated from 1.00%), to project annual pay increases from the date of termination to the ultimate date of retirement. This approach results in no change from the current assumption of 3.50% for General members and an increase from 4.00% to 4.25% for Safety members.

DEFERRED RETIREMENT AGE

An analysis of all terminated members with a vested right to a benefit, who retired in the last six years, showed that on average General members retired at age 60.4 and Safety members retired at age 55.3, with little difference in the averages between those who did and did not establish reciprocity. We recommend maintaining the assumptions that deferred General members will commence receiving benefits at age 60, and age 55 for Safety members.

DISABILITY RATES

TCERA's disability rates include rates for both ordinary and duty-related disability. For both types of disability, there are currently separate rates for General male members, General female members, and Safety members. The amount of disability experience is fairly limited, even with the experience of the past nine years included in the study period included. Only 96 duty-related disabilities and 36 ordinary disabilities occurred during the last nine years for General and Safety combined.

Actual duty disability rates were generally in-line with the current assumption for both General and Safety members. With this, and the very low actual duty-related disabilities over the past three years, we recommend maintaining the current unisex assumptions for both General and Safety.

The data shows that there were no ordinary disabilities among Safety members in the past three years. However, because the assumed rates are already low, we recommend maintaining the current ordinary disability assumption. Similarly, for General members, there were only two disabilities in the prior three years. We will continue to monitor the experience of the plan to determine if reductions in these rates will be warranted in the future.

See Appendix A or B for a full listing of the rates.

SECTION III – DEMOGRAPHIC ASSUMPTIONS
DISABILITY RATES

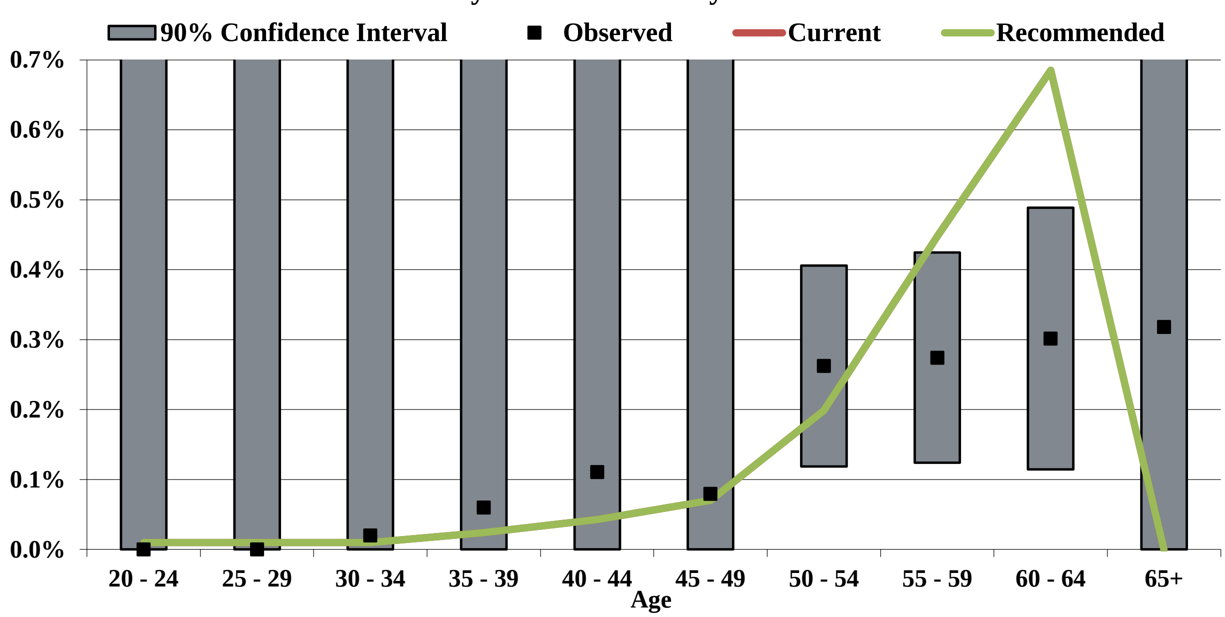
Table III-D1 shows the calculation of actual-to-expected ratios for duty-related disability rates for all General members. Chart III-D1 shows the information graphically along with the 90% confidence interval.

The data shows slightly lower actual disability rates than expected under the current assumption. However, due to having insufficient credible experience and the actual rates being close to the current rates, producing an A/E ratio of 91%, we do not recommend any changes to the current assumption.

Table III-D1

General Duty-Related Disability Rates									
		Disabilities			Disability Rates			A/E Ratios	
Age	Exposures	Actual	Current	Recommended	Actual	Current	Recommended	Current	Recommended
20 - 24	748	0	0	0	0.00%	0.01%	0.01%	0%	0%
25 - 29	3,611	0	0	0	0.00%	0.01%	0.01%	0%	0%
30 - 34	5,022	1	1	1	0.02%	0.01%	0.01%	199%	199%
35 - 39	4,995	3	1	1	0.06%	0.02%	0.02%	251%	251%
40 - 44	4,519	5	2	2	0.11%	0.04%	0.04%	259%	259%
45 - 49	3,768	3	3	3	0.08%	0.07%	0.07%	113%	113%
50 - 54	3,430	9	7	7	0.26%	0.20%	0.20%	132%	132%
55 - 59	3,281	9	15	15	0.27%	0.45%	0.45%	61%	61%
60 - 64	2,322	7	16	16	0.30%	0.69%	0.69%	44%	44%
65+	943	3	0	0	0.32%	0.00%	0.00%	0%	0%
Total	**32,639**	**40**	**44**	**44**	**0.1%**	**0.1%**	**0.1%**	**91%**	**91%**
R-squared			**0.231**	**0.231**					

Chart III-D1
General Duty-Related Disability Rates



SECTION III – DEMOGRAPHIC ASSUMPTIONS
DISABILITY RATES

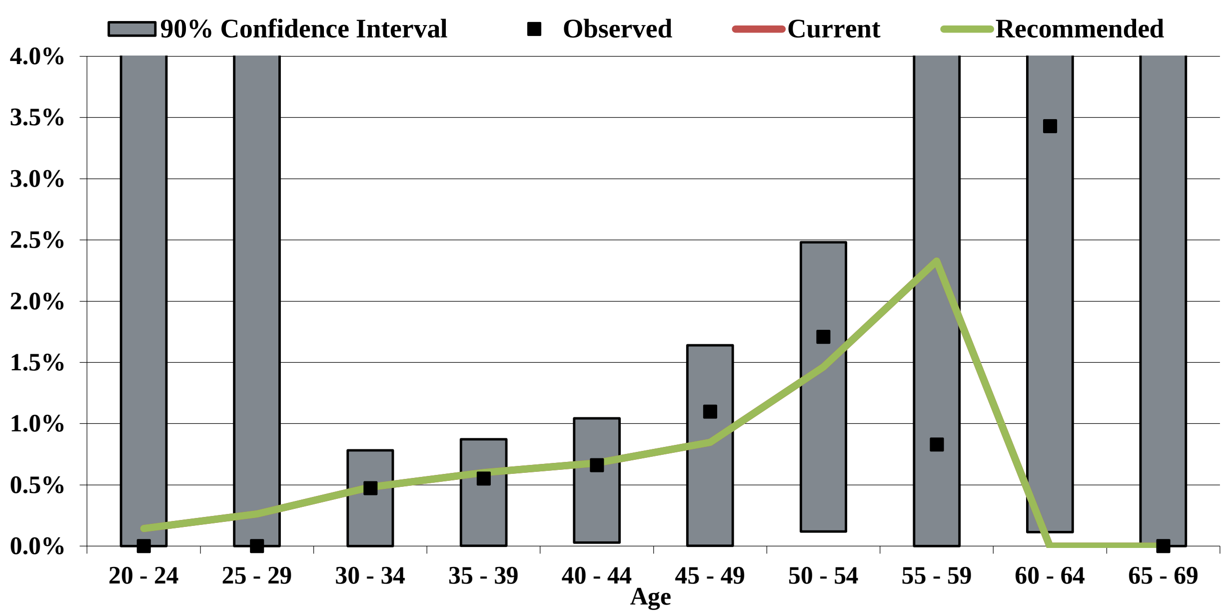
Table III-D2 shows the calculation of actual-to-expected ratios for duty-related disability rates for Safety members. Chart III-D2 shows the information graphically along with the 90% confidence interval.

The data shows the total number of actual duty-related disabilities to be the same as the total expected count, however, some of these occurrences were at different ages than expected. Due to having insufficient credible experience and the actual overall rates being close to the current rates, producing an A/E ratio of 101%, we do not recommend any changes to the current assumption.

Table III-D2

Safety Duty-Related Disability Rates									
		Disabilities			Disability Rates			A/E Ratios	
Age	Exposures	Actual	Current	Recommended	Actual	Current	Recommended	Current	Recommended
20 - 24	246	0	0	0	0.00%	0.14%	0.14%	0%	0%
25 - 29	1,245	0	3	3	0.00%	0.26%	0.26%	0%	0%
30 - 34	1,475	7	7	7	0.47%	0.48%	0.48%	98%	98%
35 - 39	1,448	8	9	9	0.55%	0.60%	0.60%	92%	92%
40 - 44	1,212	8	8	8	0.66%	0.68%	0.68%	97%	97%
45 - 49	1,002	11	8	8	1.10%	0.85%	0.85%	130%	130%
50 - 54	761	13	11	11	1.71%	1.46%	1.46%	117%	117%
55 - 59	362	3	8	8	0.83%	2.33%	2.33%	36%	36%
60 - 64	175	6	0	0	3.43%	0.00%	0.00%	0%	0%
65+	0	0	0	0	0.00%	0.00%	0.00%	0%	0%
Total	**7,926**	**56**	**56**	**56**	**0.7%**	**0.7%**	**0.7%**	**101%**	**101%**
R-squared			**0.171**	**0.171**					

Chart III-D2
Safety Duty-Related Disability Rates



SECTION III – DEMOGRAPHIC ASSUMPTIONS
DISABILITY RATES

Tables III-D3 and III-D4 show the calculation of actual-to-expected ratios for ordinary disability rates for General members and Safety members, respectively.

Due to the lack of credible disability experience for these groups, we do not recommend any changes to the current assumptions.

Table III-D3

General Ordinary Disabilitiy Rates									
		Disabilities			Disability Rates			A/E Ratios	
Age	Exposures	Actual	Current	Recommended	Actual	Current	Recommended	Current	Recommended
20 - 24	748	0	0	0	0.00%	0.00%	0.00%	0%	0%
25 - 29	3,611	0	0	0	0.00%	0.01%	0.01%	0%	0%
30 - 34	5,022	1	1	1	0.02%	0.01%	0.01%	199%	199%
35 - 39	4,995	2	4	4	0.04%	0.08%	0.08%	52%	52%
40 - 44	4,519	2	6	6	0.04%	0.13%	0.13%	33%	33%
45 - 49	3,768	3	7	7	0.08%	0.19%	0.19%	42%	42%
50 - 54	3,430	7	9	9	0.20%	0.28%	0.28%	74%	74%
55 - 59	3,281	8	12	12	0.24%	0.37%	0.37%	65%	65%
60 - 64	2,322	3	11	11	0.13%	0.48%	0.48%	27%	27%
65+	943	1	0	0	0.11%	0.00%	0.00%	0%	0%
Total	**32,639**	**27**	**51**	**51**	**0.08%**	**0.16%**	**0.16%**	**53%**	**53%**
R-squared			**0.343**	**0.343**					

Table III-D4

Safety Ordinary Disabilitiy Rates									
		Disabilities			Disability Rates			A/E Ratios	
Age	Exposures	Actual	Current	Recommended	Actual	Current	Recommended	Current	Recommended
20 - 24	246	0	0	0	0.00%	0.00%	0.00%	0%	0%
25 - 29	1,245	0	1	1	0.00%	0.05%	0.05%	0%	0%
30 - 34	1,475	1	1	1	0.07%	0.05%	0.05%	136%	136%
35 - 39	1,448	1	1	1	0.07%	0.05%	0.05%	138%	138%
40 - 44	1,212	4	1	1	0.33%	0.08%	0.08%	409%	409%
45 - 49	1,002	0	2	2	0.00%	0.16%	0.16%	0%	0%
50 - 54	761	2	3	3	0.26%	0.39%	0.39%	67%	67%
55 - 59	362	1	2	2	0.28%	0.63%	0.63%	44%	44%
60 - 64	175	0	0	0	0.00%	0.00%	0.00%	0%	0%
65+	0	0	0	0	0.00%	0.00%	0.00%	0%	0%
Total	**7,926**	**9**	**10**	**10**	**0.11%**	**0.12%**	**0.12%**	**91%**	**91%**
R-squared			**0.025**	**0.025**					

MORTALITY RATES

Post-retirement mortality assumptions are typically developed separately by gender for both healthy annuitants and disabled annuitants. Pre-retirement mortality assumptions are developed separately for males and females. Unlike most of the other demographic assumptions that rely exclusively on the experience of the plan, for mortality, standard mortality tables and projection scales serve as the primary basis for the assumption.

The steps in our analysis are as follows:

1. Select a standard mortality table that is, based on experience, most closely matching the anticipated experience of TCERA.
2. Compare actual TCERA experience to what would have been predicted by the selected standard table for the period of the experience study.
3. Adjust the standard table either fully or partially depending on the level of credibility for TCERA experience. This adjusted table is called the base table.
4. Select an appropriate standard mortality improvement projection scale and apply it to the base table.

In general, we recommend assumption changes when the Actual-to-Expected (A/E) ratio for the current assumption is significantly different than 100%.

At the time of the last experience study in 2020, we recommended the continued use of the RP-2014 mortality tables to predict near-term mortality experience for TCERA, with additional future improvements based on the most recent improvement scale produced by the Society of Actuaries' Retirement Plans Experience Committee (RPEC) at that time (the MP-2019 improvement scale). RPEC has also completed an extensive mortality study of public sector pension plans and issued a set of tables based on experience from this population. As part of this study, we reviewed TCERA's experience compared to both the RP-2014 base tables and the public sector base tables and found that the RP-2014 continues to provide a reasonable predictor of mortality experience for the TCERA population.

Since the prior experience study, RPEC has also continued to release new mortality improvement scales, with the most recent one (Scale MP-2021) reflecting two more years of Social Security data (2018-2019) than was used in the development of Scale MP-2019. It also reflects lower expected improvement rates than Scale MP-2019, based on further slowing in mortality improvement, even prior to the experience during the COVID-19 pandemic.

MP-2021, similar to MP-2019, represents the Society of Actuaries' recommended actuarial methodology in incorporating mortality improvement trends with actual recent mortality rates, by using rates that vary not only by age but also by calendar year – known as a two-dimensional approach to projecting mortality improvements. Scale MP-2021 was designed with the intent of being applied to mortality on a generational basis. The effect of this is to build in an automatic expectation of future improvements in mortality.

SECTION III – DEMOGRAPHIC ASSUMPTIONS

MORTALITY RATES

The TCERA experience is only partially credible based on standard statistical theory, even with an extended study period of six or nine years. TCERA healthy annuitants, besides General males, experienced overall higher rates of death than expected, with a 109% actual-to-expected ratio for General females, a 132% actual-to-expected ratio for Safety females (though experience in this category is limited), and a 106% actual-to-expected ratio for Safety males. TCERA healthy General males experienced overall lower rates of death than expected, with a 97% actual-to-expected ratio. We recommend an increase from the current adjustment of 8% to 10% to the RP-2014 base tables for General females and removing the adjustment to the RP-2014 base tables for General males. Additionally, we recommend a 5% adjustment for both Safety females and males, increased from no adjustment and a 4.5% adjustment, respectively.

As there is very little experience for TCERA disabled retirees, with only 60 deaths over the nine-year period for General and 19 deaths for Safety, we recommend no changes to the base tables for both General and Safety. Similarly, there were only 45 active deaths for General and 9 active deaths for Safety over the nine-year period, so we recommend the continued use of the non-annuitant rates associated with the base tables along with the same adjustments as for healthy annuitants. Furthermore, we recommend no change to the percentage of Safety deaths assumed to be duty-related due to lack of data.

Rather than weighting the experience based on the number of members living and dying, we have weighted the experience based on benefit size. This approach has been recommended by RPEC, since members with larger benefits are expected to live longer, and a benefit-weighted approach helps avoid underestimating the liabilities.

Based on this information, we are recommending the following base mortality table assumptions:

SECTION III – DEMOGRAPHIC ASSUMPTIONS
MORTALITY RATES

Healthy General active members, retirees, and beneficiaries and Safety beneficiaries

- The sex distinct Retired Pensioners (RP) 2014 Combined Healthy Tables, published by the Society of Actuaries, with Generational improvements using Projection Scale MP-2021, with no adjustment for males and 10% for females to reflect Plan experience.

Healthy Safety active members and retirees

- The sex distinct Retired Pensioners (RP) 2014 Combined Healthy Tables with blue-collar adjustment, published by the Society of Actuaries, with Generational improvements using Projection Scale MP-2021, with 5% adjustment for both males and females to reflect Plan experience.

Disabled members

- The sex distinct Retired Pensioners (RP) 2014 Disabled Retiree Mortality Table, published by the Society of Actuaries, with Generational improvement using Projection Scale MP-2021.

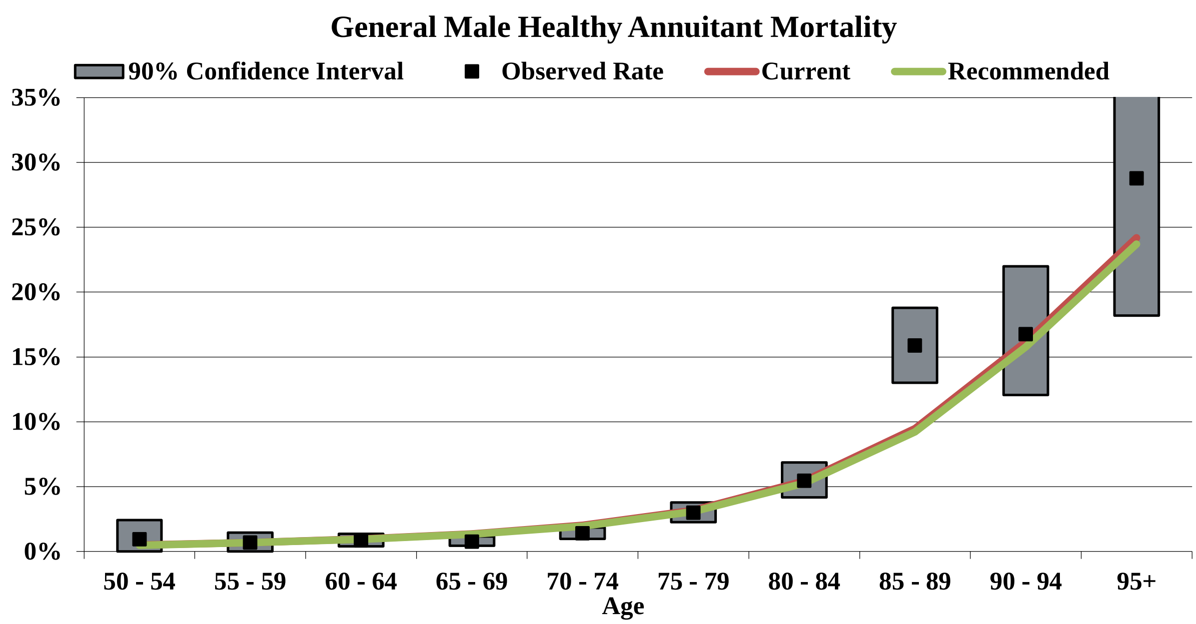
Tables III-M1, III-M2, III-M3, and III-M4 on the following pages show the calculation of actual-to-expected healthy annuitant death ratios for General male, General female, Safety male, and Safety female members, respectively. Charts III-M1, III-M2, III-M3, and III-M4 show the information graphically along with the 90% confidence intervals.

SECTION III – DEMOGRAPHIC ASSUMPTIONS
MORTALITY RATES

Table III-M1

Healthy Annuitant Mortality - Base Table for General Males								
Age Band	Exposures	Actual Deaths	Weighted Exposures	Weighted Deaths			A/E Ratios	
				Actual	Current	Recommended	Current	Recommended
50 - 54	124	1	97,087	909	484	468	188%	194%
55 - 59	414	2	541,065	3,696	3,721	3,655	99%	101%
60 - 64	1,024	11	1,853,832	15,978	17,763	17,519	90%	91%
65 - 69	1,832	24	4,470,103	34,394	60,493	58,886	57%	58%
70 - 74	1,963	45	4,859,710	68,177	97,928	94,674	70%	72%
75 - 79	1,325	47	2,995,359	89,850	94,924	92,126	95%	98%
80 - 84	744	50	1,351,699	73,738	73,254	71,219	101%	104%
85 - 89	415	60	678,700	107,774	64,324	62,595	168%	172%
90 - 94	141	32	265,095	44,424	42,900	41,834	104%	106%
95 +	55	15	99,759	28,702	24,130	23,644	119%	121%
Total	**8,037**	**287**	**17,212,410**	**467,642**	**479,920**	**466,623**	**97%**	**100%**
R-Squared					**0.574**	**0.576**		

Chart III-M1

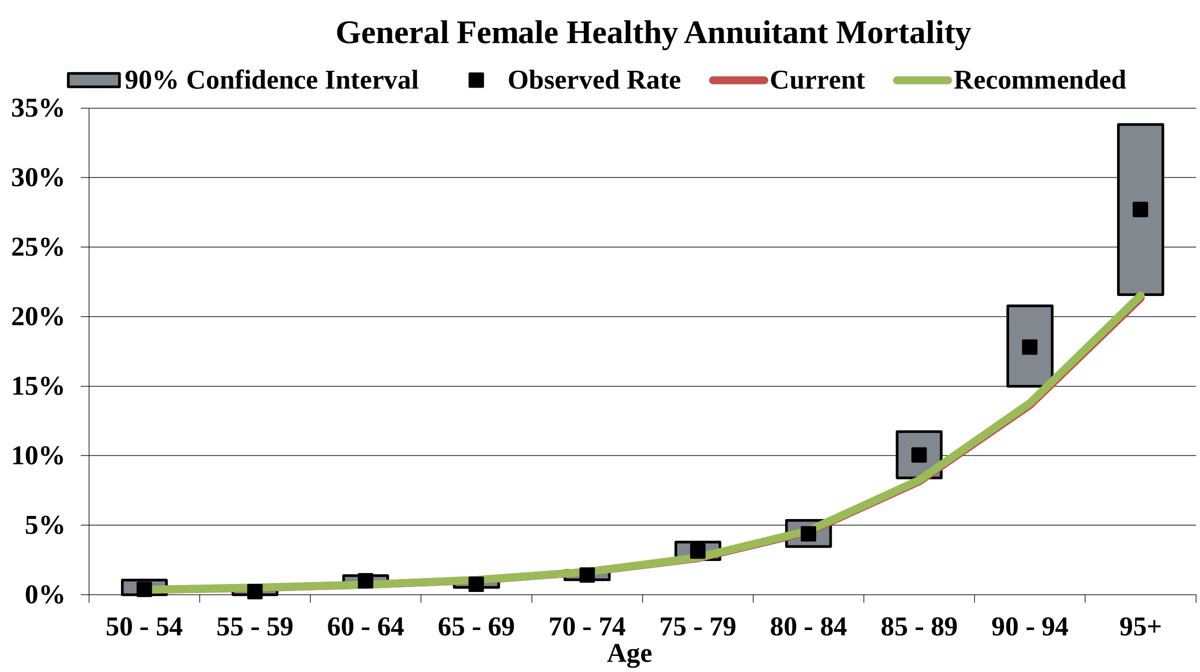


SECTION III – DEMOGRAPHIC ASSUMPTIONS
MORTALITY RATES

Table III-M2

Healthy Annuitant Mortality - Base Table for General Females								
Age Band	Exposures	Actual Deaths	Weighted Exposures	Weighted Deaths			A/E Ratios	
				Actual	Current	Recommended	Current	Recommended
50 - 54	286	2	269,053	1,041	923	950	113%	110%
55 - 59	933	4	1,196,008	2,732	5,776	5,980	47%	46%
60 - 64	2,126	19	3,648,323	36,428	25,804	26,257	141%	139%
65 - 69	3,226	29	5,595,350	42,395	58,429	58,826	73%	72%
70 - 74	3,144	49	5,103,540	71,922	83,044	83,903	87%	86%
75 - 79	2,063	57	3,204,392	100,688	84,273	85,527	119%	118%
80 - 84	1,274	58	1,783,133	78,193	80,670	81,798	97%	96%
85 - 89	904	88	1,214,922	122,178	99,029	100,137	123%	122%
90 - 94	467	77	572,810	101,981	78,222	78,993	130%	129%
95 +	139	39	129,275	35,829	27,600	27,815	130%	129%
Total	**14,562**	**422**	**22,716,806**	**593,386**	**543,771**	**550,185**	**109%**	**108%**
R-Squared					**0.744**	**0.744**		

Chart III-M2

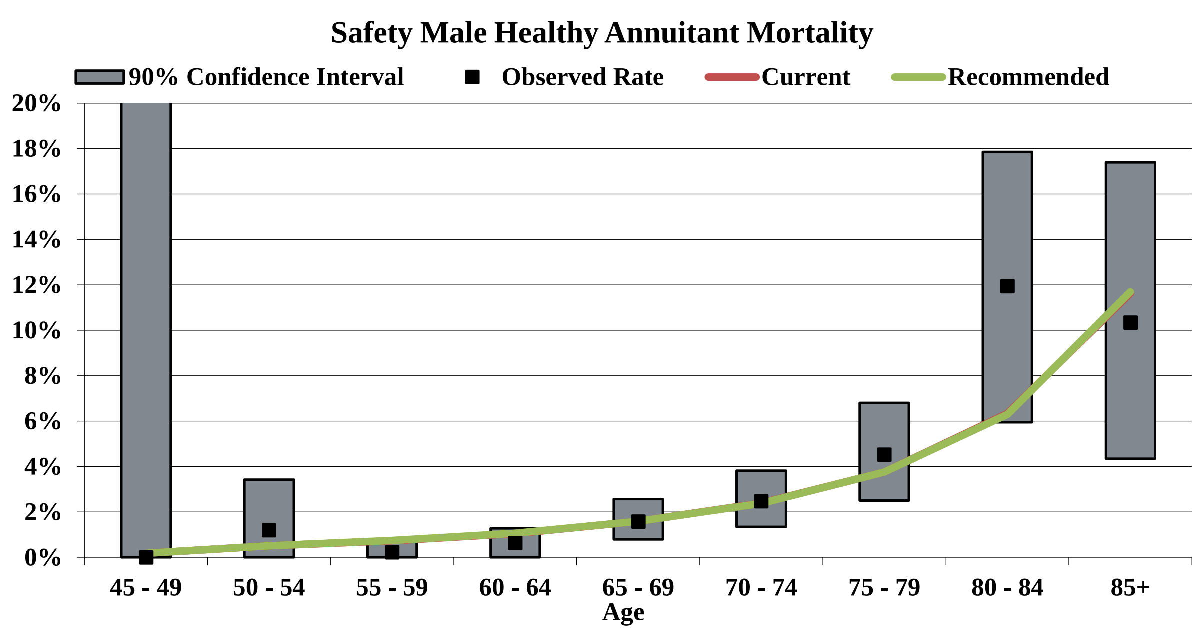


SECTION III – DEMOGRAPHIC ASSUMPTIONS
MORTALITY RATES

Table III-M3

Healthy Annuitant Mortality - Base Table for Safety Males								
Age Band	Exposures	Actual Deaths	Weighted Exposures	Weighted Deaths			A/E Ratios	
				Actual	Current	Recommended	Current	Recommended
45 - 49	12	0	22,869	0	42	41	0%	0%
50 - 54	117	1	213,588	2,576	1,103	1,100	234%	234%
55 - 59	375	1	1,324,189	3,053	9,768	9,858	31%	31%
60 - 64	471	4	1,754,369	11,074	18,476	18,716	60%	59%
65 - 69	505	8	1,997,019	31,538	31,833	31,822	99%	99%
70 - 74	445	8	1,674,363	41,486	40,150	39,820	103%	104%
75 - 79	279	15	951,122	43,019	35,767	35,747	120%	120%
80 - 84	84	9	283,176	33,841	17,942	17,821	189%	190%
85+	46	6	131,707	13,629	15,313	15,400	89%	88%
Total	**2,334**	**52**	**8,352,402**	**180,216**	**170,394**	**170,326**	**106%**	**106%**
R-Squared					**0.408**	**0.407**		

Chart III-M3

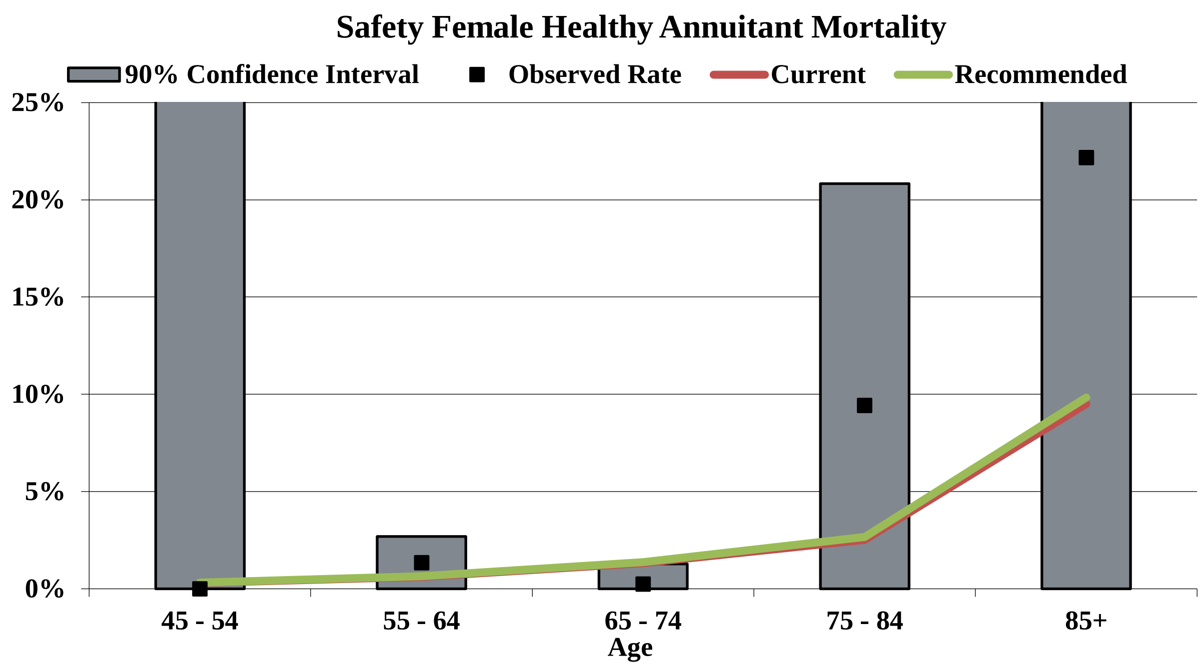


SECTION III – DEMOGRAPHIC ASSUMPTIONS
MORTALITY RATES

Table III-M4

Healthy Annuitant Mortality - Base Table for Safety Females								
Age Band	Exposures	Actual Deaths	Weighted Exposures	Weighted Deaths			A/E Ratios	
				Actual	Current	Recommended	Current	Recommended
45 - 54	47	0	96,103	0	289	307	0%	0%
55 - 64	186	1	513,117	6,871	3,157	3,332	218%	206%
65 - 74	156	1	536,530	1,308	7,052	7,353	19%	18%
75 - 84	24	1	72,281	6,812	1,818	1,925	375%	354%
85+	7	2	12,832	2,845	1,218	1,262	234%	225%
Total	**420**	**5**	**1,230,862**	**17,837**	**13,535**	**14,179**	**132%**	**126%**
R-Squared					**0.022**	**0.023**		

Chart III-M4



SECTION III – DEMOGRAPHIC ASSUMPTIONS
MORTALITY RATES

We have not shown the data for the disabled and active member mortality experience, as the number of deaths is very low – 79 total disabled deaths and 54 total active deaths – over the nine-year period, which is not enough data to produce sufficiently credible assumptions. We recommend continuing the practice of aligning non-annuitant mortality assumptions with the respective healthy annuitant mortality assumptions discussed above.

Additionally, there is limited data for duty-related Safety member deaths. The data shows nine non-annuitant deaths for all Safety members over the nine-year study period. Given the lack of credible data, we recommend no change to the percentage of deaths assumed to be duty related.

Mortality Assumptions for Employee Contribution Rates

For purposes of determining employee contribution rates, the use of generational mortality improvements is impractical from an administrative perspective. Therefore, we recommend using the base mortality tables described above (various RP-2014 tables with adjustments) projected using Scale MP-2021 from 2014 to 2047. These static projections are intended to approximate generational mortality improvements.

The projection periods are based upon the duration of active liabilities for the respective affected groups (approximately 21 years), and the period during which the associated employee contribution rates will be in use (central year of 2026). The employee contribution rates are also blended using a male/female weighting of 30%/70% for General Members and 75%/25% for Safety members.

We anticipate that these mortality assumptions will be used to determine the employee contribution rates in effect for the period of July 1, 2024 through June 30, 2027. We also anticipate that the mortality assumptions for this purpose will be updated again after the next experience study covering the period from July 1, 2023 through June 30, 2026.

SECTION III – DEMOGRAPHIC ASSUMPTIONS
OTHER DEMOGRAPHIC ASSUMPTIONS

FAMILY COMPOSITION

Members who are married at the time of retirement are entitled to an unreduced 60% joint and survivor annuity.

An analysis of all retired General members showed that 77% of males are married and 58% of females are married. Over the last nine years, the percentages of members retiring with a spouse are 65% for males and 55% for females. We recommend reducing the marriage assumption for future female General retirees from 60% to 55% and no change the current assumption of 80% for future male General retirees.

An analysis of all retired Safety members showed that 82% of males and 55% of females are married. Over the last nine years, the percentages of members retiring with a spouse are 75% for males and 55% for females. We recommend reducing the marriage assumption for future male Safety retirees from 85% to 80% and reducing the assumption for future female Safety retirees from 65% to 55%.

An analysis of all retired General members showed that on average male members are 2.3 years older than their spouses and female members are 2.0 years younger than their spouses. Similarly, an analysis of all retired Safety members showed that on average male members are 2.3 years older than their spouses and female members are 2.5 years younger than their spouses. We recommend updating the current assumption for male members to be two years older than their spouse from the prior assumption of three years and maintaining the assumption that female members are two years younger than their spouse.

We performed an additional review of the recent retirement data and found that there is a small but consistent number of married retirees who elect an optional form of benefit other than the unreduced 60% Joint and Survivor allowance, which is the only subsidized form of payment available. By electing a different option, these married members are foregoing the value of the subsidy. Therefore, we are also recommending an additional assumption that 87.5% of all future retirees who are not retiring under a duty disability with eligible beneficiaries elect the unreduced benefit, and the remaining 12.5% will elect an optional form with a reduced benefit.

SICK LEAVE SERVICE LOAD

Members who are eligible for service retirement can convert unused sick leave to benefit service. An analysis of individual retirement calculations in the prior experience study showed that, on average, leave conversions added roughly 1.1% and 2.0% to benefit service for General members and Safety members, respectively. Consequently, we recommended adding a flat benefit service load of 1% for General members and 2% for Safety members in determining liabilities for future service retirements. As the experience associated with sick leave cash outs during the COVID period may not be representative of other time periods, we recommend maintaining the current sick leave service loads and revisiting this assumption at the time of the next Experience Study.

APPENDIX A – SUMMARY OF RECOMMENDED ASSUMPTIONS

The recommended economic and demographic assumptions were adopted by the Board at their October 11, 2023 meeting. The assumptions are based on an experience study covering the period from July 1, 2020 through June 30, 2023 (which also incorporates data from July 1, 2014 through June 30, 2020).

1. Rate of Return

Assets are assumed to earn 7.00% net of investment and administrative expenses.

2. Inflation

The Consumer Price Index (CPI) is assumed to increase at the rate of 2.75% per year. This assumption is also used to project the compensation limit for PEPRA members.

3. Post Retirement COLA

Benefits are assumed to increase after retirement at the rate of 2.6% per year for Tier 1 participants and 2% per year for all participants in Tiers 2-4. An additional COLA of 0.4% per year (for a total COLA growth rate of 3.0%) is included for Tier 1 participants in pay status to reflect their accumulated COLA banks.

4. Internal Revenue Code Limits and PEPRA Pensionable Compensation Limits

The maximum benefit and maximum compensation limitations under Internal Revenue Code Sections 415 and 401(a)(17), respectively, are not reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit after retirement. The PEPRA compensation limit, which is $146,042 for calendar year 2023 for members participating in Social Security, was applied.

5. Interest on Member Contributions

The annual credited interest rate on member contributions is assumed to be 7.00%.

6. Family Composition

Percentage married for deferred vested terminations and all active members who retire, become disabled, or die during active service is shown below. Spouses of male members are assumed to be female and two years younger. Spouses of female members are assumed to be male and two years older. Actual spouse demographic data is reflected following benefit commencement.

Division	Gender	Percentage
General	Male	80%
General	Female	55%
Safety	Male	80%
Safety	Female	55%

APPENDIX A – SUMMARY OF RECOMMENDED ASSUMPTIONS

87.5% of future retirees with eligible beneficiaries who do not have a service-related disability are assumed to elect the 60% Joint and Survivor allowance, with the remainder receiving an actuarially reduced form of benefit.

7. Increases in Pay

Wage inflation component: 3.00%

Additional longevity and promotion component:

Longevity and Promotion Increases		
Service	General	Safety
0	8.00%	9.00%
1	6.50%	6.00%
2	5.50%	5.00%
3	4.00%	3.50%
4	3.00%	2.50%
5	2.00%	2.00%
6	1.75%	1.25%
7	1.50%	1.25%
8	1.00%	1.25%
9	1.00%	1.25%
10	1.00%	1.25%
11	1.00%	1.25%
12	1.00%	1.25%
13	1.00%	1.25%
14	1.00%	1.25%
15+	0.50%	1.25%

8. Sick Leave Service Credit Upon Service Retirement

Active members' service retirement benefits are adjusted by a percentage, 1% for General and 2% for Safety, for anticipated conversions of sick leave to retirement service credit.

APPENDIX A – SUMMARY OF RECOMMENDED ASSUMPTIONS

9. Termination

Years of Service	Rates of Termination	
	General	Safety
0	18.00%	13.00%
1	13.00%	12.00%
2	12.00%	8.00%
3	10.00%	8.00%
4	9.00%	8.00%
5	8.00%	6.00%
6	7.00%	6.00%
7	6.00%	6.00%
8	6.00%	6.00%
9	5.00%	6.00%
10	4.00%	4.00%
11	4.00%	4.00%
12	4.00%	4.00%
13	3.50%	4.00%
14	3.50%	4.00%
15	2.50%	2.50%
16	2.50%	2.50%
17	2.50%	2.50%
18	2.50%	2.50%
19	2.50%	2.50%
20 and over	2.50%	2.50%

Rates of termination apply to active Members who terminate their employment. Rates are assumed not to apply after eligibility for retirement.

Former members with contributions on deposit are assumed to receive a retirement benefit commencing at the following ages:

General Members: Age 60
Safety Members: Age 55

10. Rates of Deferred Vested Termination

Rates of deferred vested termination are a percentage of the termination rates shown on the previous page.

Service	General Males	General Females	Safety
5-10	75%	55%	60%
10-15	80%	65%	60%
15-20	80%	75%	80%
20+	80%	75%	100%

APPENDIX A – SUMMARY OF RECOMMENDED ASSUMPTIONS

11. Reciprocal Transfers

60% of General and 65% of Safety deferred vested terminated members that leave their member contributions on deposit with the Plan are assumed to be reciprocal.

Reciprocal members are assumed to remain with the reciprocal agency until retirement, and receive annual salary increases of 3.50% for General members and 4.25% for Safety members.

APPENDIX A – SUMMARY OF RECOMMENDED ASSUMPTIONS

12. Rates of Disability

Disability rates of active participants are shown below.

Rates of Disability						
	General - Males		General - Females		Safety	
Age	Ordinary	Duty	Ordinary	Duty	Ordinary	Duty
20	0.000%	0.010%	0.000%	0.010%	0.000%	0.110%
21	0.000%	0.010%	0.000%	0.010%	0.000%	0.120%
22	0.000%	0.010%	0.000%	0.010%	0.000%	0.130%
23	0.000%	0.010%	0.000%	0.010%	0.000%	0.140%
24	0.000%	0.010%	0.000%	0.010%	0.000%	0.150%
25	0.010%	0.010%	0.010%	0.010%	0.050%	0.170%
26	0.010%	0.010%	0.010%	0.010%	0.050%	0.200%
27	0.010%	0.010%	0.010%	0.010%	0.050%	0.250%
28	0.010%	0.010%	0.010%	0.010%	0.050%	0.300%
29	0.010%	0.010%	0.010%	0.010%	0.050%	0.350%
30	0.010%	0.010%	0.010%	0.010%	0.050%	0.400%
31	0.010%	0.010%	0.010%	0.010%	0.050%	0.450%
32	0.010%	0.010%	0.010%	0.010%	0.050%	0.500%
33	0.010%	0.010%	0.010%	0.010%	0.050%	0.520%
34	0.010%	0.010%	0.010%	0.010%	0.050%	0.540%
35	0.020%	0.020%	0.080%	0.020%	0.050%	0.560%
36	0.020%	0.020%	0.080%	0.020%	0.050%	0.580%
37	0.020%	0.020%	0.080%	0.020%	0.050%	0.600%
38	0.030%	0.030%	0.120%	0.030%	0.050%	0.620%
39	0.030%	0.030%	0.130%	0.030%	0.050%	0.640%
40	0.030%	0.030%	0.140%	0.030%	0.075%	0.660%
41	0.040%	0.045%	0.160%	0.045%	0.075%	0.670%
42	0.040%	0.045%	0.170%	0.045%	0.080%	0.680%
43	0.040%	0.045%	0.180%	0.045%	0.085%	0.690%
44	0.050%	0.050%	0.190%	0.050%	0.090%	0.700%
45	0.050%	0.055%	0.200%	0.055%	0.095%	0.750%
46	0.050%	0.060%	0.220%	0.060%	0.100%	0.800%
47	0.060%	0.070%	0.240%	0.070%	0.150%	0.850%
48	0.070%	0.080%	0.260%	0.080%	0.200%	0.900%
49	0.080%	0.090%	0.280%	0.090%	0.250%	0.950%
50	0.090%	0.100%	0.300%	0.100%	0.300%	1.000%
51	0.100%	0.150%	0.320%	0.150%	0.350%	1.250%
52	0.120%	0.200%	0.340%	0.200%	0.400%	1.500%
53	0.140%	0.250%	0.360%	0.250%	0.450%	1.750%
54	0.160%	0.300%	0.380%	0.300%	0.500%	2.000%
55	0.180%	0.350%	0.400%	0.350%	0.550%	2.250%
56	0.200%	0.400%	0.420%	0.400%	0.600%	2.300%
57	0.220%	0.450%	0.440%	0.450%	0.650%	2.350%
58	0.240%	0.500%	0.480%	0.500%	0.700%	2.400%
59	0.260%	0.550%	0.520%	0.550%	0.750%	2.450%
60	0.280%	0.600%	0.540%	0.600%	0.000%	0.000%
61	0.300%	0.650%	0.560%	0.650%	0.000%	0.000%
62	0.320%	0.700%	0.600%	0.700%	0.000%	0.000%
63	0.340%	0.750%	0.620%	0.750%	0.000%	0.000%
64	0.360%	0.800%	0.640%	0.800%	0.000%	0.000%
65 and over	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

APPENDIX A – SUMMARY OF RECOMMENDED ASSUMPTIONS

13. Rates of Mortality for Healthy Lives

Mortality rates for General actives, retirees, beneficiaries, terminated vested, and reciprocals are based on the sex distinct Retired Pensioner (RP) 2014 Combined Healthy Tables, published by the Society of Actuaries, with Generational improvement using Projection Scale MP-2021 from 2014, with no additional adjustment for males and an adjustment of 10% for females to reflect Plan experience.

Mortality rates for Safety actives, retirees, beneficiaries, terminated vested, and reciprocals are based on the sex distinct Retired Pensioner (RP) 2014 Combined Healthy Tables with blue-collar adjustment, published by the Society of Actuaries, with Generational improvement using Projection Scale MP-2021 from 2014, and increased by 5% for both males and females to reflect Plan experience.

14. Rates of Mortality for Retired Disabled Lives

Mortality rates for disabled retirees are based on the sex distinct Retired Pensioner (RP) 2014 Disabled Retiree Mortality Table, published by the Society of Actuaries, with Generational improvement using Projection Scale MP-2021 from 2014.

15. Duty-Related Deaths (Safety Employees Only)

Percentage of deaths assumed to be duty related	
Age	
20-24	37%
25-30	42%
31-34	45%
35-43	50%
44-45	52%
46-47	54%
48-49	56%
50-54	58%
55-56	60%
57-58	62%
59	63%

APPENDIX A – SUMMARY OF RECOMMENDED ASSUMPTIONS

16. Rates of Retirement

Rates of retirement are based on age and service according to the following below.

	General		Safety	
	Years of Service		Years of Service	
Age	Less than 30	30 or more	Less than 20	20 or more
45	0.00%	0.00%	7.00%	7.00%
46	0.00%	0.00%	7.00%	7.00%
47	0.00%	0.00%	7.00%	7.00%
48	0.00%	0.00%	7.00%	7.00%
49	0.00%	0.00%	7.00%	7.00%
50	5.00%	10.00%	7.00%	7.00%
51	5.00%	10.00%	7.00%	7.00%
52	5.00%	10.00%	7.00%	7.00%
53	5.00%	10.00%	7.00%	7.00%
54	5.00%	10.00%	7.00%	7.00%
55	6.00%	10.00%	10.00%	18.00%
56	6.00%	10.00%	10.00%	18.00%
57	6.00%	10.00%	10.00%	18.00%
58	6.00%	10.00%	10.00%	18.00%
59	6.00%	10.00%	10.00%	18.00%
60	15.00%	20.00%	20.00%	40.00%
61	15.00%	20.00%	20.00%	40.00%
62	15.00%	20.00%	20.00%	40.00%
63	15.00%	20.00%	20.00%	40.00%
64	15.00%	20.00%	20.00%	40.00%
65	35.00%	35.00%	40.00%	75.00%
66	35.00%	35.00%	40.00%	75.00%
67	35.00%	35.00%	40.00%	75.00%
68	35.00%	35.00%	40.00%	75.00%
69	35.00%	35.00%	40.00%	75.00%
70	35.00%	35.00%	100.00%	100.00%
71	35.00%	35.00%	100.00%	100.00%
72	35.00%	35.00%	100.00%	100.00%
73	35.00%	35.00%	100.00%	100.00%
74	35.00%	35.00%	100.00%	100.00%
75 and over	100.00%	100.00%	100.00%	100.00%

APPENDIX B – SUMMARY OF PRIOR ASSUMPTIONS

The TCERA Board has the authority to select economic and demographic assumptions for the Plan. The assumptions used in the most recent actuarial valuations reflected the results of an Experience Study performed by Cheiron covering the period July 1, 2017 through June 30, 2020.

1. **Rate of Return**

   Assets are assumed to earn 7.00% net of investment and administrative expenses.

2. **Inflation**

   The Consumer Price Index (CPI) is assumed to increase at the rate of 2.75% per year. This assumption is also used to project the compensation limit for PEPRA members.

3. **Post Retirement COLA**

   Benefits are assumed to increase after retirement at the rate of 2.6% per year for Tier 1 and 2% per year for Tiers 2-4.

4. **Internal Revenue Code Limits and PEPRA Pensionable Compensation Limits**

   The maximum benefit and maximum compensation limitations under Internal Revenue Code Sections 415 and 401(a)(17), respectively, are not reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit after retirement. The PEPRA compensation limit, which is $146,042 for calendar year 2023 for members participating in Social Security, was applied.

5. **Interest on Member Contributions**

   The annual credited interest rate on member contributions is assumed to be 7.00%.

6. **Family Composition**

   Percentage married for all active members who retire, become disabled, or die during active service is shown below. Male members are assumed to be three years older than their wives, and female members are assumed to be two years younger than their husbands.

Division	Gender	Percentage
General	Males	80%
General	Female	60%
Safety	Male	85%
Safety	Female	65%

APPENDIX B – SUMMARY OF PRIOR ASSUMPTIONS

7. Increases in Pay

Wage inflation component: 3.00%

Additional longevity and promotion component:

Longevity and Promotion Increases		
Service	General	Safety
0	8.00%	9.00%
1	6.50%	6.00%
2	5.50%	5.00%
3	4.00%	3.00%
4	3.00%	3.00%
5	2.00%	2.00%
6	1.75%	2.00%
7	1.50%	2.00%
8	1.00%	1.00%
9	1.00%	1.00%
10	1.00%	1.00%
11	1.00%	1.00%
12	1.00%	1.00%
13	1.00%	1.00%
14	1.00%	1.00%
15+	0.50%	1.00%

8. Sick Leave Service Credit Upon Service Retirement

Active members' service retirement benefits are adjusted by a percentage, 1% for General and 2% for Safety, for anticipated conversions of sick leave to retirement service credit.

APPENDIX B – SUMMARY OF PRIOR ASSUMPTIONS

9. Termination

	Rates of Termination						
	General				Safety		
	Years of Service				Years of Service		
Age	Less than 3	3 to 5	5 to 10	10 or more	Less than 3	3 to 5	5 or more
20	15.00%	12.00%	10.00%	10.00%	11.00%	7.00%	6.00%
21	15.00%	12.00%	10.00%	10.00%	11.00%	7.00%	6.00%
22	15.00%	12.00%	10.00%	10.00%	11.00%	7.00%	6.00%
23	15.00%	12.00%	10.00%	10.00%	11.00%	7.00%	6.00%
24	15.00%	12.00%	10.00%	10.00%	11.00%	7.00%	6.00%
25	15.00%	8.00%	8.00%	8.00%	11.00%	7.00%	6.00%
26	15.00%	8.00%	8.00%	8.00%	11.00%	7.00%	6.00%
27	15.00%	8.00%	8.00%	8.00%	11.00%	7.00%	6.00%
28	15.00%	8.00%	8.00%	8.00%	11.00%	7.00%	6.00%
29	15.00%	8.00%	8.00%	8.00%	11.00%	7.00%	6.00%
30	15.00%	8.00%	6.00%	5.00%	11.00%	7.00%	4.50%
31	15.00%	8.00%	6.00%	5.00%	11.00%	7.00%	4.50%
32	15.00%	8.00%	6.00%	5.00%	11.00%	7.00%	4.50%
33	15.00%	8.00%	6.00%	5.00%	11.00%	7.00%	4.50%
34	15.00%	8.00%	6.00%	5.00%	11.00%	7.00%	4.50%
35	15.00%	8.00%	5.00%	3.00%	11.00%	7.00%	4.00%
36	15.00%	8.00%	5.00%	3.00%	11.00%	7.00%	4.00%
37	15.00%	8.00%	5.00%	3.00%	11.00%	7.00%	4.00%
38	15.00%	8.00%	5.00%	3.00%	11.00%	7.00%	4.00%
39	15.00%	8.00%	5.00%	3.00%	11.00%	7.00%	4.00%
40	14.25%	8.00%	5.00%	3.00%	11.00%	7.00%	4.00%
41	14.25%	8.00%	5.00%	3.00%	11.00%	7.00%	4.00%
42	14.25%	8.00%	5.00%	3.00%	11.00%	7.00%	4.00%
43	14.25%	8.00%	5.00%	3.00%	11.00%	7.00%	4.00%
44	14.25%	8.00%	5.00%	3.00%	11.00%	7.00%	4.00%
45	13.50%	8.00%	5.00%	3.00%	8.00%	6.00%	3.50%
46	13.50%	8.00%	5.00%	3.00%	8.00%	6.00%	3.50%
47	13.50%	8.00%	5.00%	3.00%	8.00%	6.00%	3.50%
48	13.50%	8.00%	5.00%	3.00%	8.00%	6.00%	3.50%
49	13.50%	8.00%	5.00%	3.00%	8.00%	6.00%	3.50%
50	12.75%	5.00%	5.00%	3.00%	8.00%	6.00%	0.00%
51	12.75%	5.00%	5.00%	3.00%	8.00%	6.00%	0.00%
52	12.75%	5.00%	5.00%	3.00%	8.00%	6.00%	0.00%
53	12.75%	5.00%	5.00%	3.00%	8.00%	6.00%	0.00%
54	12.75%	5.00%	5.00%	3.00%	8.00%	6.00%	0.00%
55	12.00%	5.00%	5.00%	3.00%	5.00%	6.00%	0.00%
56	12.00%	5.00%	5.00%	3.00%	5.00%	6.00%	0.00%
57	12.00%	5.00%	5.00%	3.00%	5.00%	6.00%	0.00%
58	12.00%	5.00%	5.00%	3.00%	5.00%	6.00%	0.00%
59	12.00%	5.00%	5.00%	3.00%	5.00%	6.00%	0.00%
60	11.25%	5.00%	5.00%	3.00%	0.00%	0.00%	0.00%
61	11.25%	5.00%	5.00%	3.00%	0.00%	0.00%	0.00%
62	11.25%	5.00%	5.00%	3.00%	0.00%	0.00%	0.00%
63	11.25%	5.00%	5.00%	3.00%	0.00%	0.00%	0.00%
64	11.25%	5.00%	5.00%	3.00%	0.00%	0.00%	0.00%
65 and over	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

APPENDIX B – SUMMARY OF PRIOR ASSUMPTIONS

Rates of termination apply to active Members who terminate their employment. Rates are assumed not to apply after eligibility for retirement.

Former members with contributions on deposit are assumed to receive a retirement benefit commencing at the following ages:

General Members: Age 60
Safety Members: Age 55

10. Rates of Deferred Vested Termination

Rates of deferred vested termination are a percentage of the termination rates shown on the previous page.

Service	General Males	General Females	Safety
5-10	75%	55%	60%
10-15	85%	70%	60%
15-20	85%	75%	60%
20+	85%	75%	100%

11. Reciprocal Transfers

60% of General and 6% of Safety deferred vested terminated members that leave their member contributions on deposit with the Plan are assumed to be reciprocal.

Reciprocal members are assumed to remain with the reciprocal agency until retirement, and receive annual salary increases of 3.50% for General members and 4.00% for Safety members.

APPENDIX B – SUMMARY OF PRIOR ASSUMPTIONS

12. Rates of Disability

Rates of Disability						
	General – Males		General – Females		Safety	
Age	Ordinary	Duty	Ordinary	Duty	Ordinary	Duty
20	0.000%	0.010%	0.000%	0.010%	0.000%	0.110%
21	0.000%	0.010%	0.000%	0.010%	0.000%	0.120%
22	0.000%	0.010%	0.000%	0.010%	0.000%	0.130%
23	0.000%	0.010%	0.000%	0.010%	0.000%	0.140%
24	0.000%	0.010%	0.000%	0.010%	0.000%	0.150%
25	0.010%	0.010%	0.010%	0.010%	0.050%	0.170%
26	0.010%	0.010%	0.010%	0.010%	0.050%	0.200%
27	0.010%	0.010%	0.010%	0.010%	0.050%	0.250%
28	0.010%	0.010%	0.010%	0.010%	0.050%	0.300%
29	0.010%	0.010%	0.010%	0.010%	0.050%	0.350%
30	0.010%	0.010%	0.010%	0.010%	0.050%	0.400%
31	0.010%	0.010%	0.010%	0.010%	0.050%	0.450%
32	0.010%	0.010%	0.010%	0.010%	0.050%	0.500%
33	0.010%	0.010%	0.010%	0.010%	0.050%	0.520%
34	0.010%	0.010%	0.010%	0.010%	0.050%	0.540%
35	0.020%	0.020%	0.008%	0.020%	0.050%	0.560%
36	0.020%	0.020%	0.008%	0.020%	0.050%	0.580%
37	0.020%	0.020%	0.008%	0.020%	0.050%	0.600%
38	0.030%	0.030%	0.120%	0.030%	0.050%	0.620%
39	0.030%	0.030%	0.130%	0.030%	0.050%	0.640%
40	0.030%	0.030%	0.140%	0.030%	0.075%	0.660%
41	0.040%	0.045%	0.160%	0.045%	0.075%	0.670%
42	0.040%	0.045%	0.170%	0.045%	0.080%	0.680%
43	0.040%	0.045%	0.180%	0.045%	0.085%	0.690%
44	0.050%	0.050%	0.190%	0.050%	0.090%	0.700%
45	0.050%	0.055%	0.200%	0.055%	0.095%	0.750%
46	0.050%	0.060%	0.220%	0.060%	0.100%	0.800%
47	0.060%	0.070%	0.240%	0.070%	0.150%	0.850%
48	0.070%	0.080%	0.260%	0.080%	0.200%	0.900%
49	0.080%	0.090%	0.280%	0.090%	0.250%	0.950%
50	0.090%	0.100%	0.300%	0.100%	0.300%	1.000%
51	0.100%	0.150%	0.320%	0.150%	0.350%	1.250%
52	0.120%	0.200%	0.340%	0.200%	0.400%	1.500%
53	0.140%	0.250%	0.360%	0.250%	0.450%	1.750%
54	0.160%	0.300%	0.380%	0.300%	0.500%	2.000%
55	0.180%	0.350%	0.400%	0.350%	0.550%	2.250%
56	0.200%	0.400%	0.420%	0.400%	0.600%	2.300%
57	0.220%	0.450%	0.440%	0.450%	0.650%	2.350%
58	0.240%	0.500%	0.480%	0.500%	0.700%	2.400%
59	0.260%	0.550%	0.520%	0.550%	0.750%	2.450%
60	0.280%	0.600%	0.540%	0.600%	0.000%	0.000%
61	0.300%	0.650%	0.560%	0.650%	0.000%	0.000%
62	0.320%	0.700%	0.600%	0.700%	0.000%	0.000%
63	0.340%	0.750%	0.620%	0.750%	0.000%	0.000%
64	0.360%	0.800%	0.640%	0.800%	0.000%	0.000%
65 and over	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

APPENDIX B – SUMMARY OF PRIOR ASSUMPTIONS

13. Rates of Mortality for Healthy Lives

Mortality rates for General actives, retirees, beneficiaries, terminated vested, and reciprocals are based on the sex distinct Retired Pensioner (RP) 2014 Combined Healthy Tables, published by the Society of Actuaries, with Generational improvement using Projection Scale MP-2019 from 2014, and increased by 2.2% for males and 8.0% for females to reflect Plan experience.

Mortality rates for Safety actives, retirees, beneficiaries, terminated vested, and reciprocals are based on the sex distinct Retired Pensioner (RP) 2014 Combined Healthy Tables with blue-collar adjustment, published by the Society of Actuaries, with Generational improvement using Projection Scale MP-2019 from 2014, and increased by 4.5% for males to reflect Plan experience.

14. Rates of Mortality for Retired Disabled Lives

Mortality rates for disabled retirees are based on the sex distinct Retired Pensioner (RP) 2014 Generational Disabled Annuitant Mortality Table, published by the Society of Actuaries, with Generational improvement using Projection Scale MP-2019 from 2014.

15. Duty-Related Deaths (Safety Employees Only)

Age	Percentage of deaths assumed to be duty related
20-24	37%
25-30	42%
31-34	45%
35-43	50%
44-45	52%
46-47	54%
48-49	56%
50-54	58%
55-56	60%
57-58	62%
59	63%

APPENDIX B – SUMMARY OF PRIOR ASSUMPTIONS

16. Rates of Retirement

Rates of retirement are based on age and service according to the following below.

	General Years of Service		Safety Years of Service	
Age	Less than 30	30 or more	Less than 20	20 or more
45	0.00%	0.00%	7.00%	7.00%
46	0.00%	0.00%	7.00%	7.00%
47	0.00%	0.00%	7.00%	7.00%
48	0.00%	0.00%	7.00%	7.00%
49	0.00%	0.00%	7.00%	7.00%
50	5.00%	10.00%	7.00%	7.00%
51	5.00%	10.00%	7.00%	7.00%
52	5.00%	10.00%	7.00%	7.00%
53	5.00%	10.00%	7.00%	7.00%
54	5.00%	10.00%	7.00%	7.00%
55	6.00%	10.00%	10.00%	18.00%
56	6.00%	10.00%	10.00%	18.00%
57	6.00%	10.00%	10.00%	18.00%
58	6.00%	10.00%	10.00%	18.00%
59	6.00%	10.00%	10.00%	18.00%
60	15.00%	20.00%	20.00%	40.00%
61	15.00%	20.00%	20.00%	40.00%
62	15.00%	20.00%	20.00%	40.00%
63	15.00%	20.00%	20.00%	40.00%
64	15.00%	20.00%	20.00%	40.00%
65	35.00%	35.00%	40.00%	75.00%
66	35.00%	35.00%	40.00%	75.00%
67	35.00%	35.00%	40.00%	75.00%
68	35.00%	35.00%	40.00%	75.00%
69	35.00%	35.00%	40.00%	75.00%
70	35.00%	35.00%	100.00%	100.00%
71	35.00%	35.00%	100.00%	100.00%
72	35.00%	35.00%	100.00%	100.00%
73	35.00%	35.00%	100.00%	100.00%
74	35.00%	35.00%	100.00%	100.00%
75 and over	100.00%	100.00%	100.00%	100.00%

CHEIRON

Classic Values, Innovative Advice

SACRS VOTING PROXY FORM

The following are authorized by the ___________________________ County Retirement Board to vote on behalf of the County Retirement System at the upcoming SACRS Conference

(If you have more than one alternate, please attach the list of alternates in priority order):

______________________________________ Voting Delegate

____________________________________ Alternate Voting Delegate

These delegates were approved by the Retirement Board on _____ / _____ / _____.

The person authorized to fill out this form and submit electronically on behalf of the Retirement Board:

Signature: ________________________________

Print Name: ________________________________

Position: ________________________________

Date: ________________________________

Please send your system's voting proxy by October 1, 2023, to Sulema Peterson, SACRS Executive Director at Sulema@sacrs.org.

Sam Brindley, Managing Director

October 25, 2023

BlackRock®

Tulare County Employees Retirement Association (TCERA) – Market Outlook

The opinions expressed are of the Customized Multi-sector team as of September 30, 2023, and may change as subsequent conditions vary.

FIM1023U/S-3178979-1/12

US Economy and Markets in Review

September 2023

Duration Adjusted Excess Returns versus Treasuries by Sector

Duration adjusted excess returns by sector (in basis points)																
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023 Q1	2023 Q2	Jul-23	Aug-23	Sep-23	2023 Q3	2023 YTD*
Bloomberg Agg Index	10	-53	138	121	-101	199	28	30	-116	-9	59	32	-10	-21	0	50
Agency (US and xUS)	10	-133	121	148	-78	208	-355	14	-74	13	28	6	6	3	16	57
MBS	40	-5	-11	52	-59	61	-17	-83	-224	-50	76	28	-33	-81	-85	-59
ABS	53	44	95	92	13	71	106	20	-32	-5	58	23	5	1	29	82
CMBS	108	-28	236	158	-39	181	51	98	-132	-74	81	21	2	12	35	42
Credit	-18	-169	442	335	-280	620	18	158	-104	21	126	83	-6	3	77	224
High Yield**	-112	-577	1573	610	-358	934	225	664	-353	123	279	124	17	-37	102	504
Emerging Markets***	-120	3	880	614	-345	638	-130	122	-300	-84	260	155	-69	-2	80	256

Note: Index performance is shown for illustrative purposes only. You cannot invest directly in an index. **Past performance is not indicative of future returns**. Please refer to Important Notes section for disclosure information. Source: Bloomberg, Barclays; data as of September 30, 2023 . The opinions expressed are of BlackRock as of September 30 2023 and can change with market conditions.

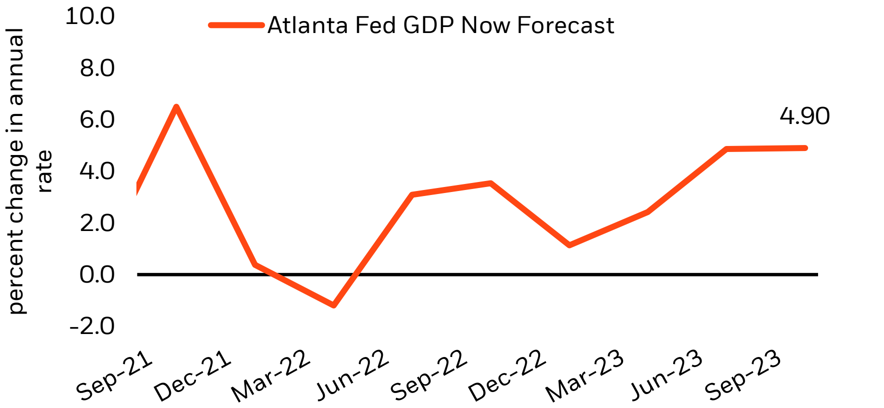
* Unannualized

** Bloomberg US Corporate High Yield Index

*** Bloomberg emerging markets USD Aggregate Index (USD)

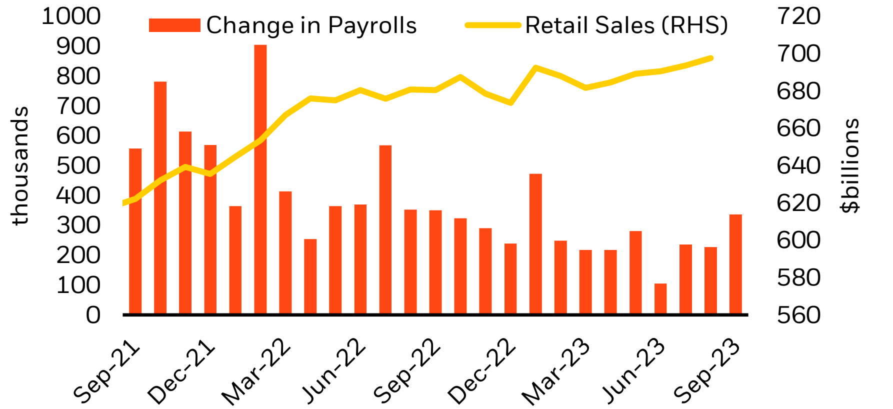
Economic data continues to be resilient despite restrictive monetary policy but....

Robust economic data has moved 3Q GDP forecasts to levels well above trend



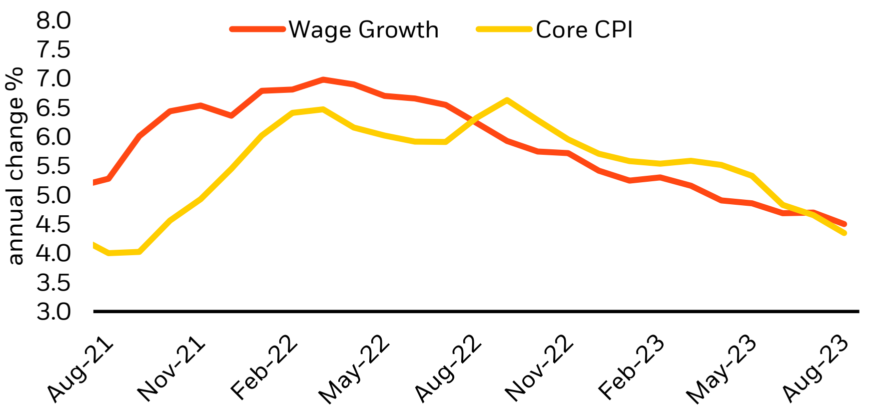
Source: Atlanta Federal Reserve 10/05/2023. There is no guarantee that estimates will come to pass.

The labor market shows little sign of slowing down and has been supporting consumption



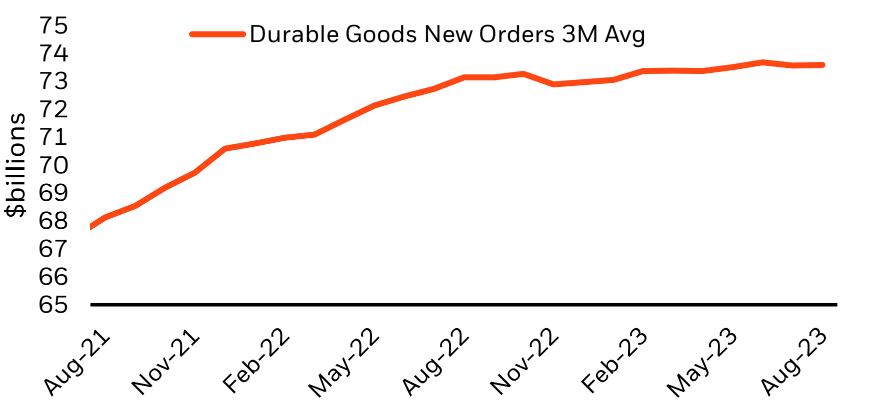
Source: FRED, Bureau of Labor Statistics, Census Bureau 09/30/2023.

Wage growth has surpassed inflation



Source:: LSEG data stream, Bureau of Labor Statistics 09/30/2023.

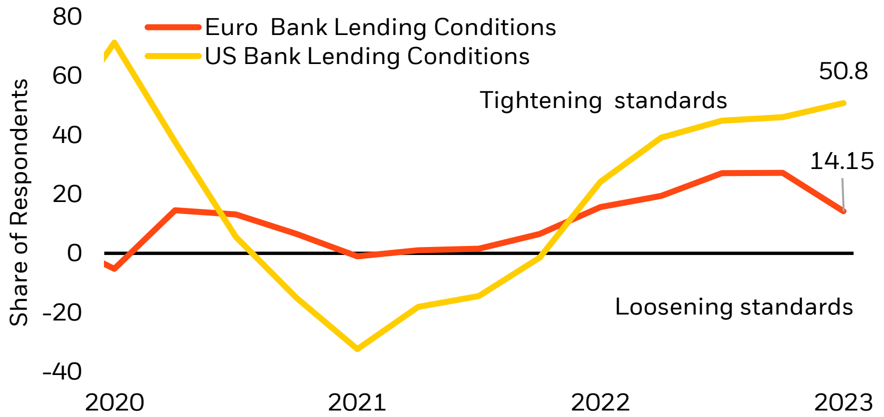
Rising durable good orders may indicate a rebound in manufacturing



Source:: FRED, Census Bureau 09/30/2023.

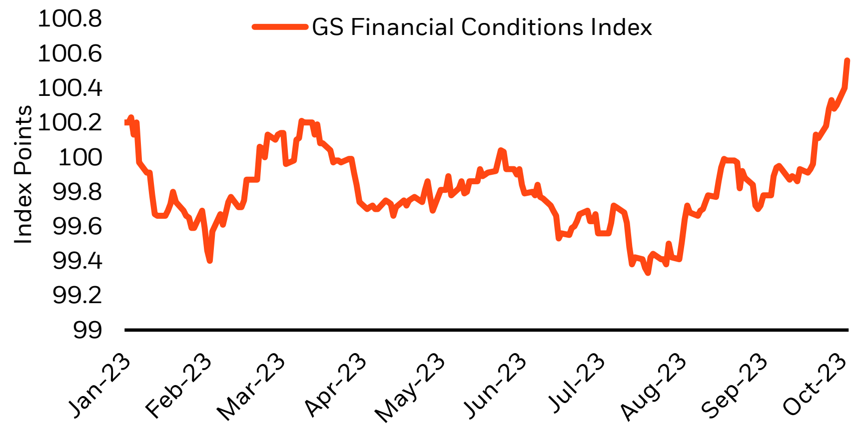
…plenty of risks remain and only time will tell if they translate into a slowdown or recession

Lending conditions continue to be challenging



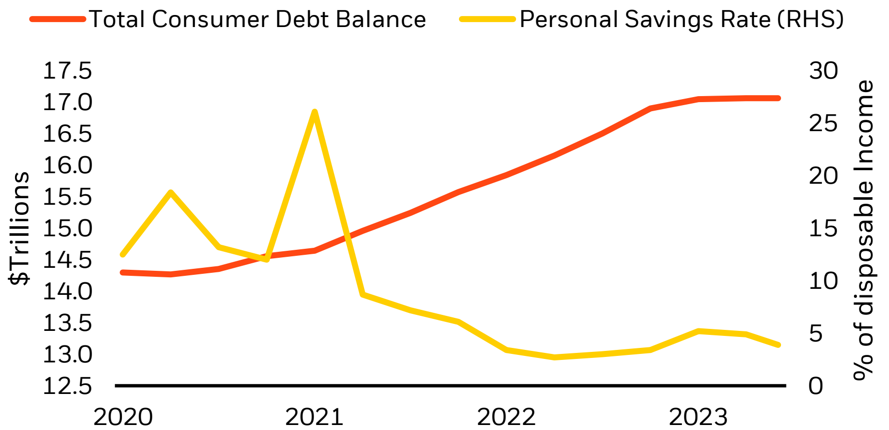
Source: LSEG data stream, Federal Reserve Senior Officer Loan Survey 09/30/2023.

Financial conditions have advanced to the tightest levels of the year



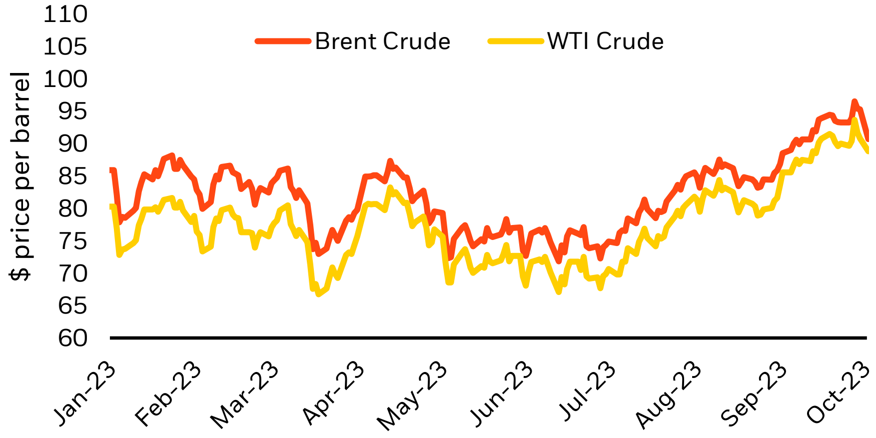
Source: Bloomberg, Goldman Sachs 10/01/2023. It is not possible to invest directly in an index.

Consumer debt has been rising while savings rates have declined



Source: FRED, BEA, Federal Reserve Bank of New York 09/30/2023.

Advancing oil prices could negatively impact growth and inflation



Source: LSEG data stream 09/30/2023.

The Fed reinforced the "higher-for-longer" rate environment which exerted pressure on Treasury yields

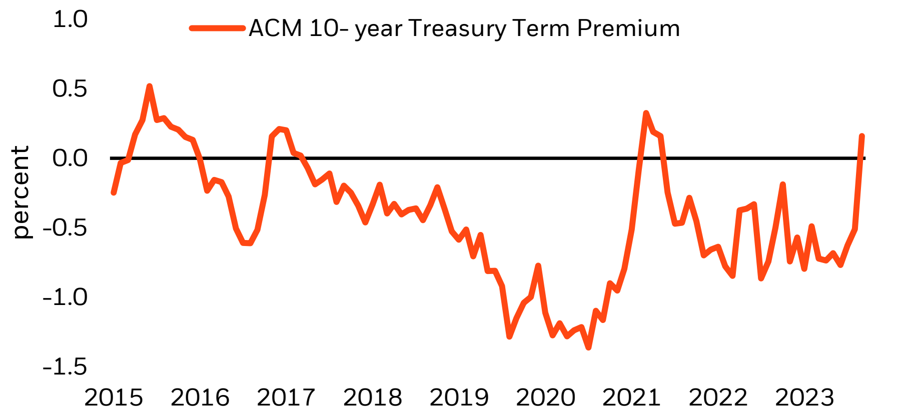
The Fed upgraded their economic forecasts and increased rate projections for 2025

September FOMC Summary of Economic Projections Vs June 2023 Projections

Quarterly Change	2023	2024	2025
Change in real GDP	2.1	1.5	1.8
June projection	1.0	1.1	1.8
Unemployment rate (%, Q4 avg)	3.8	4.1	4.1
June projection	4.1	4.5	4.5
PCE inflation	3.3	2.5	2.2
June projection	3.2	2.5	2.1
Core PCE inflation	3.7	2.6	2.3
June projection	3.9	2.6	2.2
Federal funds rate	5.6	5.1	3.9
June projection	5.6	4.6	3.4

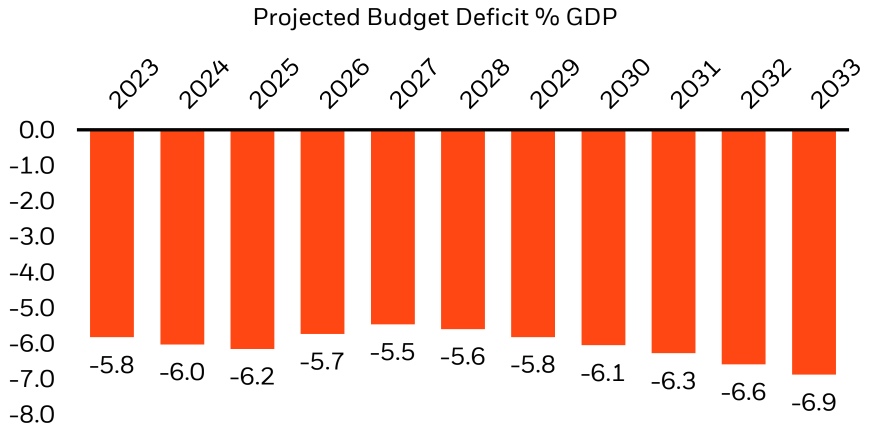
Source: Federal Reserve, Barclays. Table omits 2026 and long run projections 09/30/2023. There is no guarantee that estimates will come to pass.

The term premium estimate moved positive for the first time since 2021



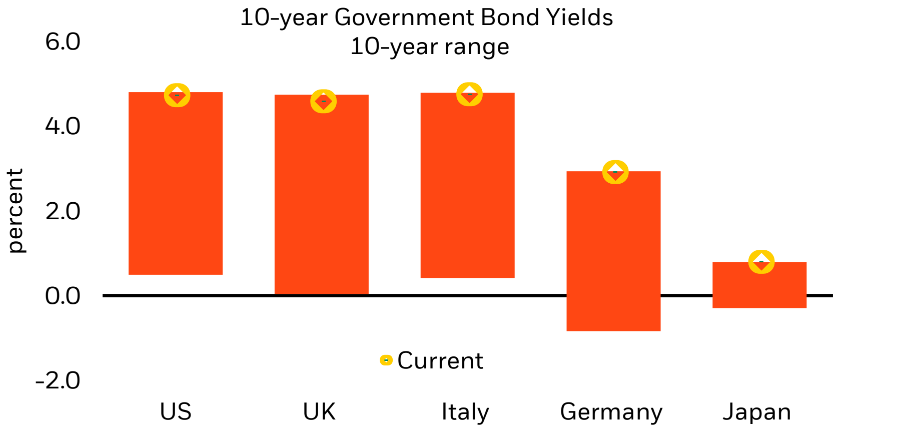
Source: Federal Reserve Bank of New York 09/30/2023.

A large government deficit is expected to persist for the foreseeable future



Source: Congressional Budget Office 09/30/2023. There is no guarantee that estimates will come to pass.

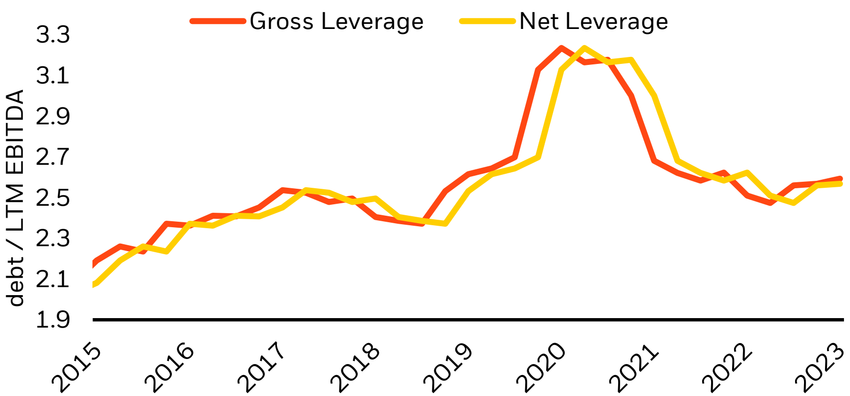
Yields moved higher while the yield curve steepened, globally yields are at the top of their 10-year range



Source: LSEG data stream 09/30/2023.

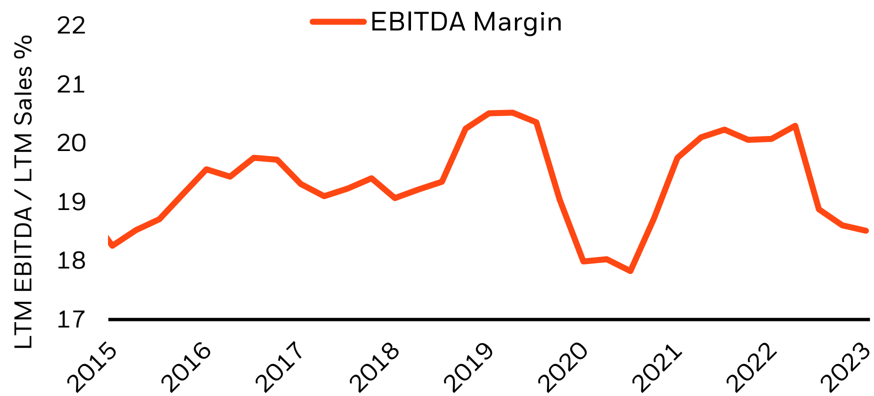
Leverage has not moved materially higher, but margins and interest coverage declined

Conservative balance sheet management has kept leverage below pre-COVID levels



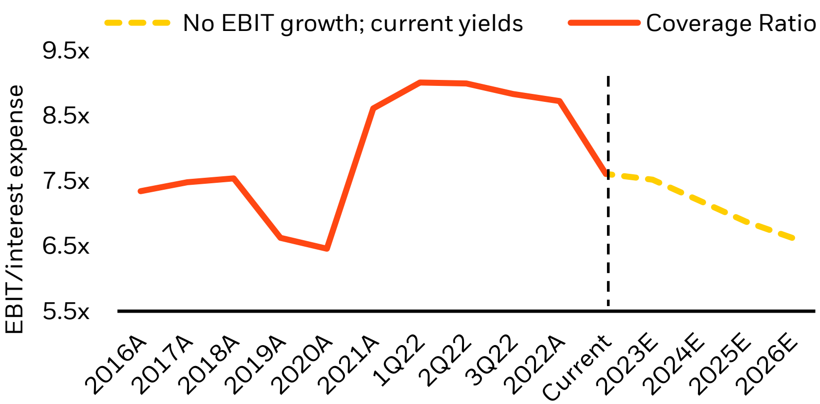
Source: Bank of America 9/30/2023. Median values for US HG non-financial issuers: ex. Utilities in the ICE BofA IG corporate index . Reflects 2Q earnings.

Higher input costs have exerted pressure on profit margins



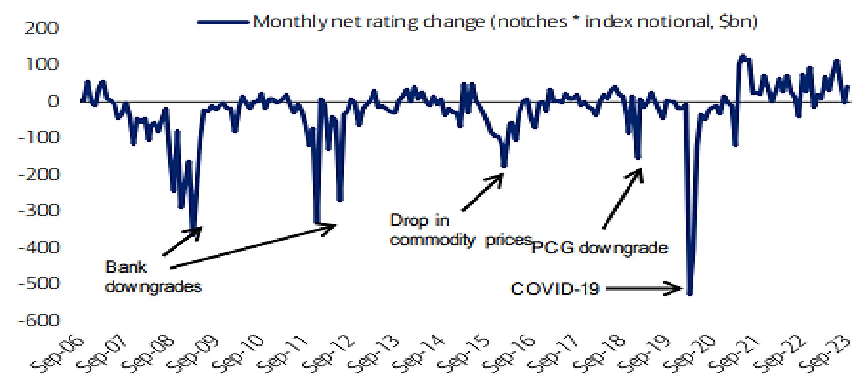
Source: Bank of America 9/30/2023. Median values for US HG non-financial issuers: ex. Utilities in the ICE BofA IG corporate index . Reflects 2Q earnings .

Interest coverage has moved lower but may recover if earnings growth meets consensus



Source: BBG, BlackRock 09/30/2023. Market weighted values for US IG non-financial issuers in the BBG Corporate Index. Projection estimates the coverage ratio with no EBIT growth and current refinancing rates. There is no guarantee that estimates will come to pass.

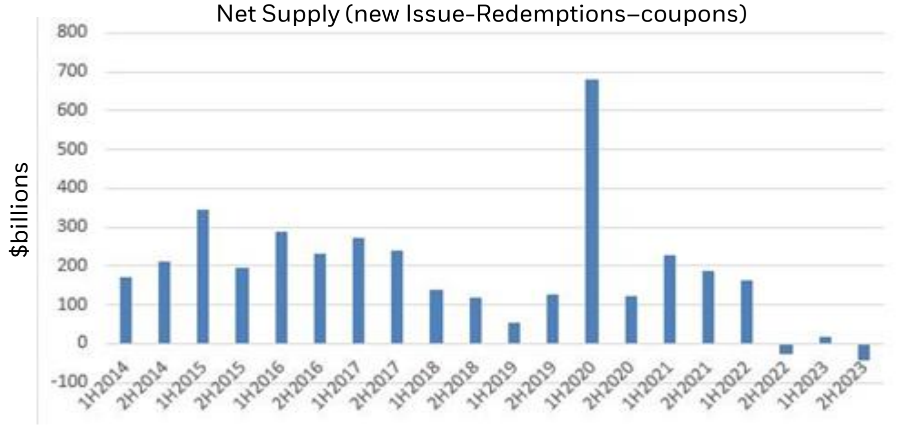
Rating actions continue to be net positive as fundamentals broadly remain healthy



Source: Bank of America 10/06/2023. net rating change equals upgrades less downgrades. Based on the average of Moody's, S&P and Fitch, if available. We also include the watch as 2/3 of a notch and the outlook as 1/3 of a notch. Restricted to DM bonds in ICE BofA IG corporate index COA0.

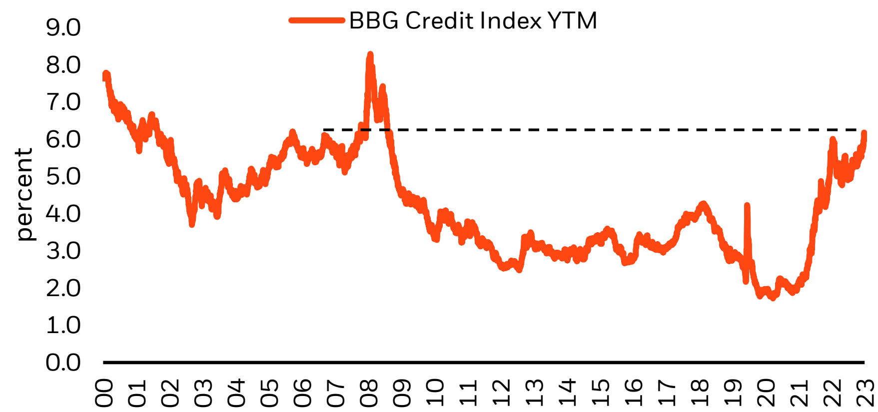
High yields and muted supply continue to attract investors and have kept spreads in a narrow range even when other risk assets sold off

Net IG Issuance is the lowest in years



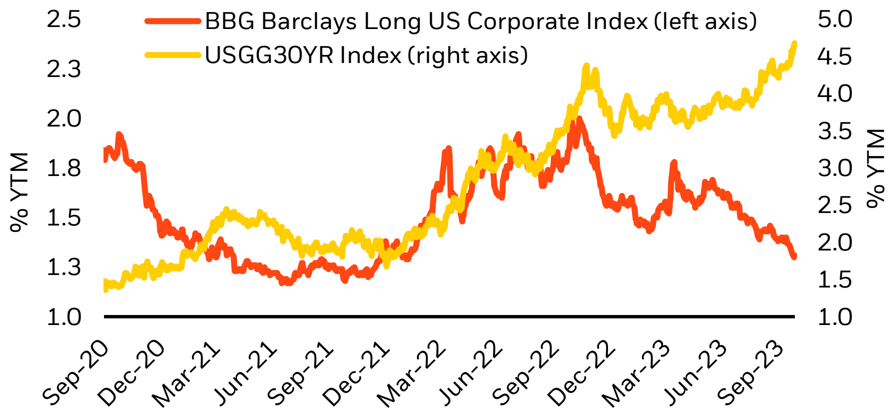
Source: Goldman Sachs 09/30/2023.

Excluding the GFC, yields are at their highest levels since 2007



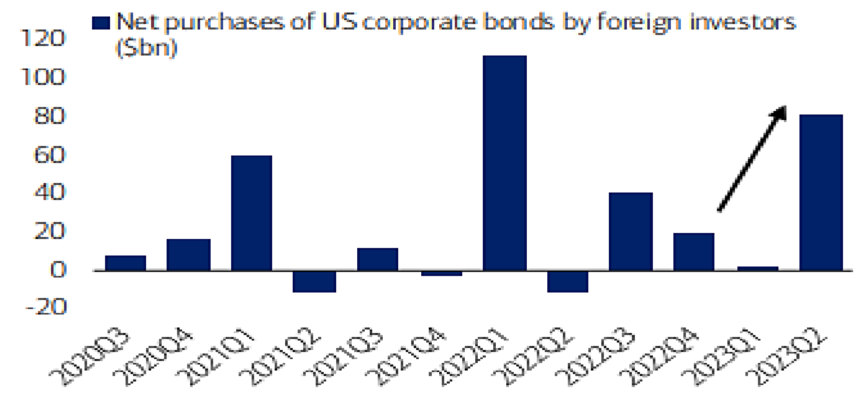
Source: Barclays 10/06/2023. It is not possible to directly invest in an index. **Past Performance is not a reliable indicator of future results.**

long-dated treasury yields have attracted institutional investors towards the back-end of the credit curve



Source: Bloomberg 09/30/2023. It is not possible to directly invest in an index. **Past Performance is not a reliable indicator of future results.**

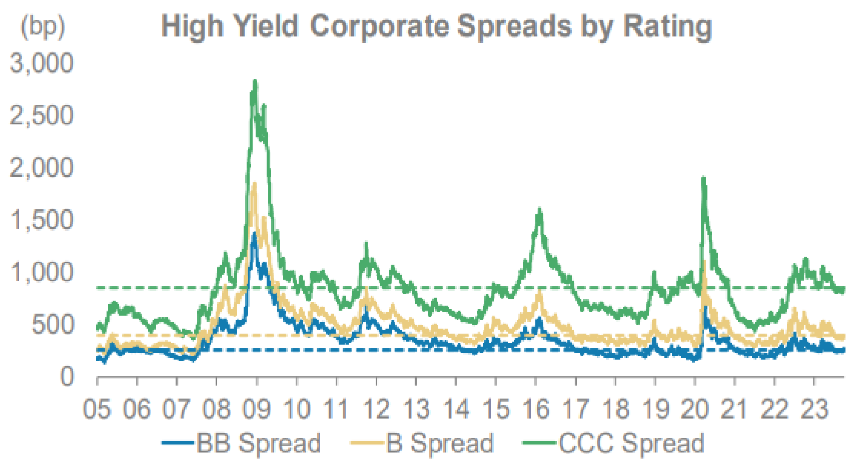
Foreign demand remains elevated despite elevated hedging costs



Source: Bank of America, Federal Reserve 09/30/2023.

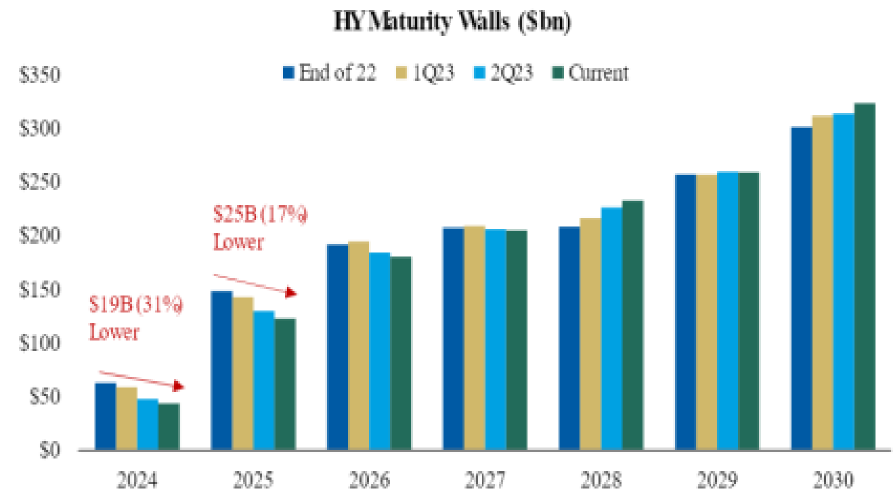
High Yield (HY) Credit

Spread Levels Continue To Be Near Their Tights Despite The Recent Increase In All-in Yield



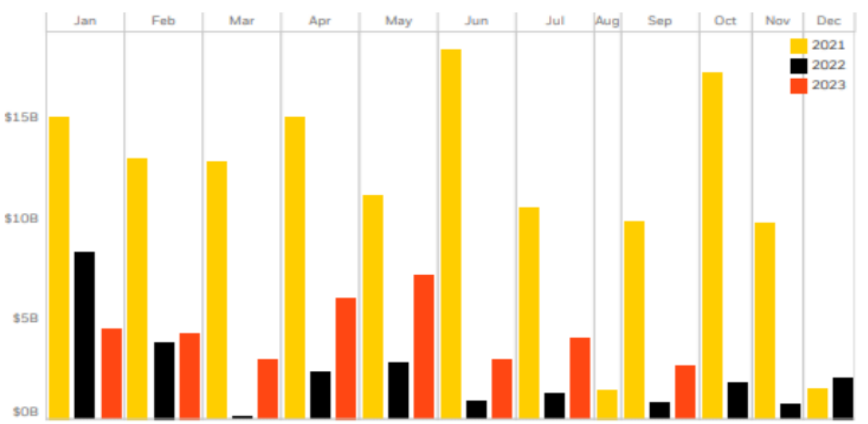
Source: Bloomberg, Morgan Stanley as of September 30tht, 2023.

HY Maturity Walls Continue To Get Pushed Out



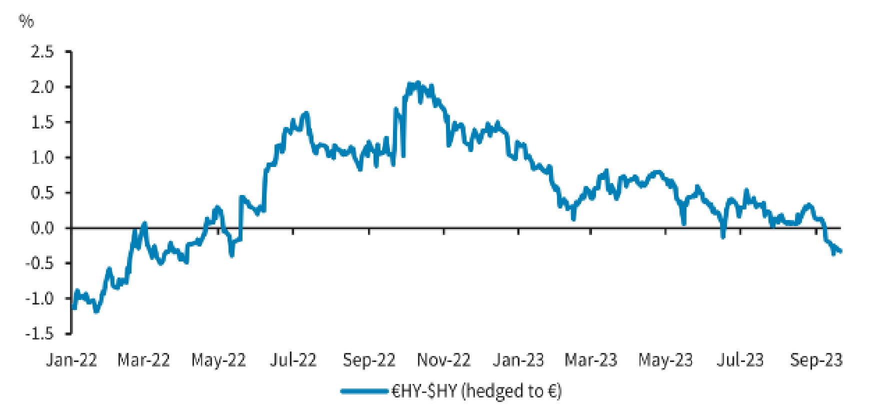
Source: BlackRock, Bloomberg as of September 30th, 2023.

Supply Has Been Significantly Lower Than Recent Years



Source: BlackRock as of September 30th, 2023.

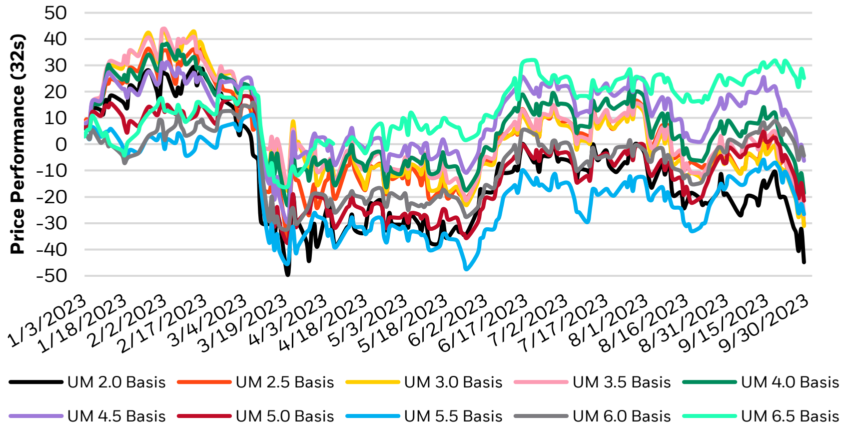
The €HY Yield Advantage Over $HY After Hedging Has Now Disappeared



Source: Barclays Research, Bloomberg as of September 30th, 2023. Excludes financials. $HY hedged to €s using 3-month FX forwards.

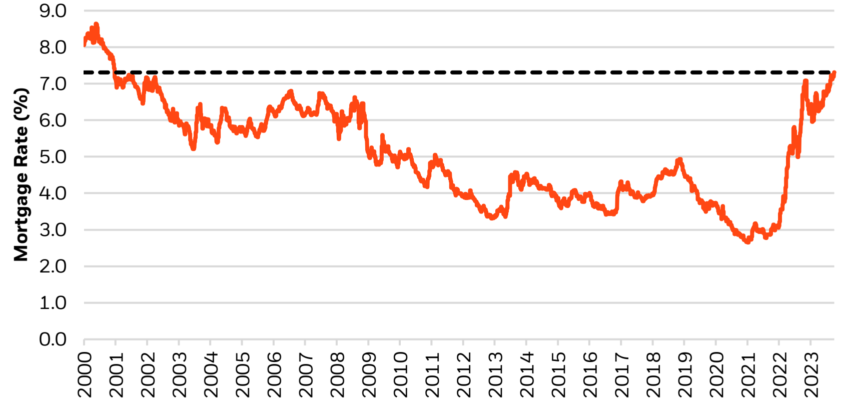
Agency MBS

Mortgage performance was weakest in the bottom half of the coupon stack (UM 2.0s – 4.5s)



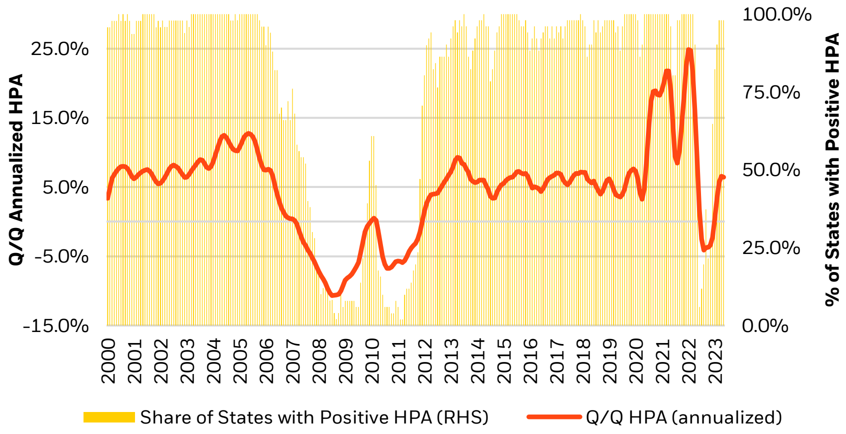
Source: BlackRock using data from Bloomberg, as of 9/29/2023.

Average 30-year fixed rate mortgage hit 7.35%, the highest level since 2002



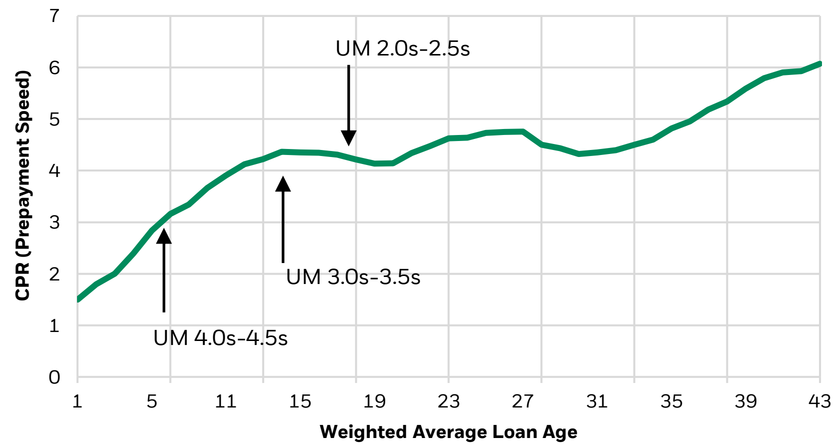
Source: Freddie Mac Primary Mortgage Market Survey for 30-yr Fixed Rate Mortgages as of 10/2/2023, with observations dating back to 1/1/2000.

Resilient housing market, however, provides further support for turnover



Source: Zillow as of 8/1/2023.

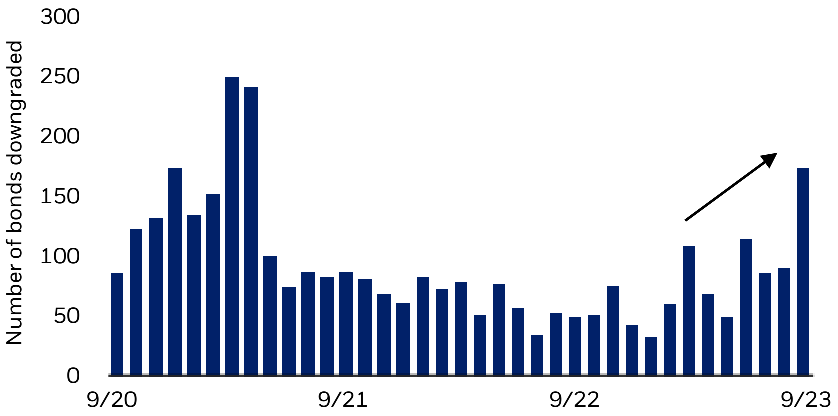
Seasoning difference creates relative value opportunity for long lower coupons vs middle coupons



Source: BlackRock Agency Mortgage team as of 9/29/2023.

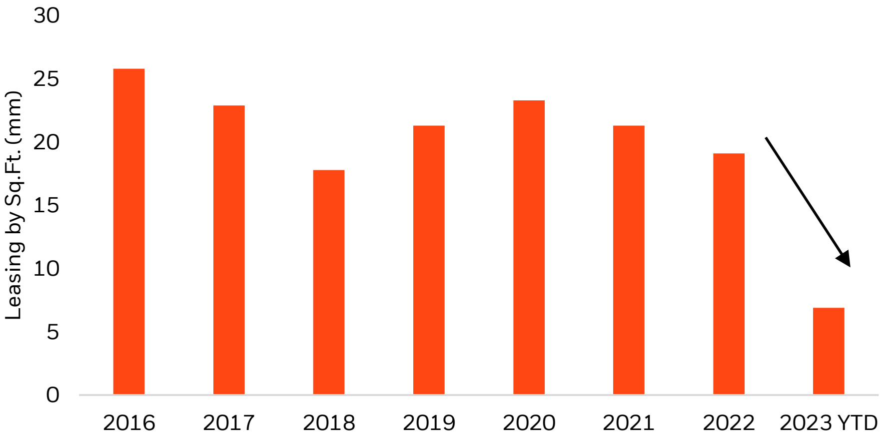
Securitized Assets

CMBS downgrades have accelerated in recent months as lower quality issues have come under pressure; September saw 188 downgrades



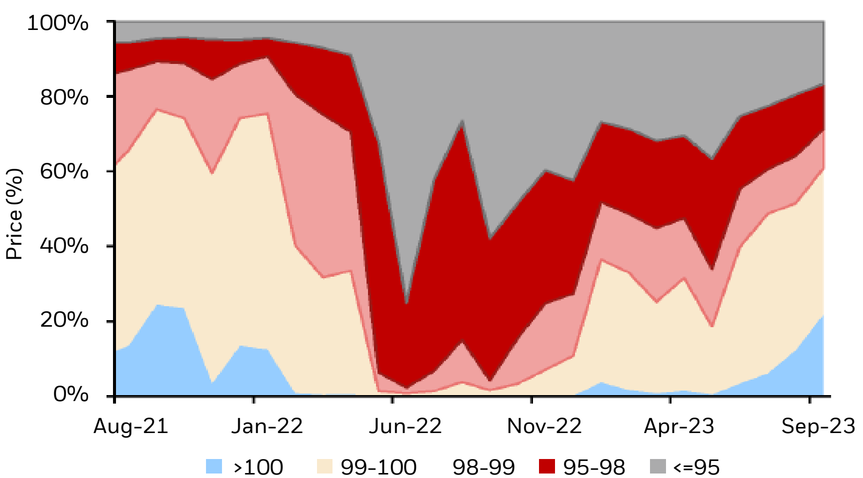
Source: Source: Barclays, BofA Global Research as of September 26th, 2023

Industrial collateral leasing is showing signs of slowing as major tenants (FedEx, DHL) have been less active this year



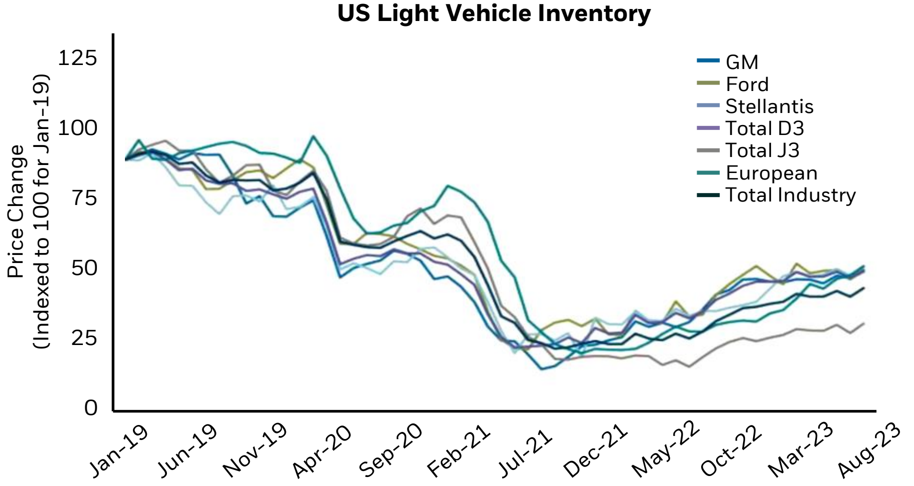
Source: CoStar, Mizuho as of September 26th, 2023

As loan index prices have continued to rally, the share of loans trading above par also continues to increase



Source: Nomura as of September 26th, 2023

US Industry light vehicle inventory continues to run below 2019 levels for GM, Ford, and Stellantis (D3) and other major automakers



Source: Autodata, JPM as of August 31st, 2023

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Important Notes Cont'd

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It is not possible to directly invest in an unmanaged index.

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JUNE 2023
Real Assets Outlook

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Key themes

Key themes for 2023

Observations driving our outlook

What's next for inflation…

In our Outlook last year, we said the following "We believe inflation will likely begin falling later in 2022" and though that turned out to be true, we came to that conclusion because we believed the Fed would choke off the pressures of inflation. Coming into 2023, it appeared as though inflation would continue to retreat lower, albeit slowly, but unexpected price increases have complicated the picture. There are now banking instability issues, geopolitics, a softening economy and a dozen other headline issues weighing on investors' minds. But staying on inflation, we believe the Fed will do what it says and keep policy tight until inflation returns to their target level. We do not want to be on the other side of that trade. We expect rates to stay higher for longer and that could present challenges and opportunities across private markets which have broadly failed to adjust equity values for the new higher rate environment.

Dislocations in real estate

Market dynamics within real estate have shifted dramatically over the last year. The multi-decade decline in interest rates that have provided a tailwind in real estate reversed in mid-2022. Cap rates are typically correlated with changes in interest rates over the long term, however private real estate cap rates have not kept pace with the move to higher rates recently, reflecting reluctance to mark assets to the new rate regime. Transactions have slowed the last three quarters with wide bid-ask spreads persisting. Over the near term, we expect rising cap rates, slower growth and higher borrowing costs to continue to pressure private real estate valuations and likely trigger pockets of stress and distress. Further compounding issues, banks and other lenders have pulled back from the market creating a financing gap for asset owners.

Values remain elevated across infrastructure

Infrastructure was one of the few bright spots in 2022 as valuations held-up and transaction activity was robust. In a year when inflation and rising interest rates depressed equity and debt valuations, slowed transaction activity and disrupted capital markets, real assets (excl. real estate) performed remarkably well. The issue we see today is that valuations are stretched, debt costs are going up, but equity valuations have yet to adjust to a higher interest rate environment. A slowing of transaction activity would be one sign that sponsors are becoming more price sensitive. Until we see valuations adjust lower, especially in core/core plus infrastructure, we would be cautious about putting fresh capital into the asset class.

Declining interest in natural resources looks to continue

Commodity-related investments experienced a marked rebound in performance in 2021 and 2022, following years of disappointing performance. It was a vindication of sorts, in that when inflation finally took hold, the asset class delivered on the promise of providing an inflation hedge. After years of declining interest from investors, oil and gas companies rode high as they outperformed every other sector in the equity universe. And yet, with all this renewed attention, the fundraising environment for natural resource funds remains bleak. The challenging market for exits among oil/gas companies, the global trends in ESG and the declining rate of inflation, among other factors, has resulted in muted interest from institutional investors.

Outlook summary

Outlook summary

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
Core real estate	Core real estate was up 7.5% in 2022, primarily due to a strong start to the year in the first two quarters. The momentum has shifted however, as rising interest rates have put downward pressure on valuations. The appraisal process has been slow to recognize this as transactions have been falling since the 3rd quarter of 2022, hampering the ability to find comparable sales. Redemption queues are as high as they've been since the GFC. We expect further write-downs to hit core real estate funds in 2023.	— Cap rates have not yet fully adjusted to the new higher interest rate environment. 4th quarter of 2022 saw a modest adjustment, but we expect more to come over the next several quarters — Core real estate returns tend to have high correlation to overall GDP growth. There are risks to weakening fundamentals if a recession materializes.	We recommend clients continue to rebalance/reduce exposure to core ODCE funds where possible, although redemption exit queues are in place for most funds. We recommend continued diversification into alternative property types to reduce existing exposures to office, which may face longer term challenges.	Negative
Value-add real estate	Transaction levels have slowed down dramatically as wide bid-ask spreads are persisting. Value-add GPs are seeing few opportunities right now as sellers are still reluctant to transact at the clearing prices currently being offered. Increasing borrowing costs will likely apply pressure on returns for strategies reliant upon higher leverage. An economic slowdown is expected to reduce rent growth opportunities.	— Rising interest rates will increase borrowing costs on higher leveraged value-add strategies, pressuring total returns. — Slowing rent growth as the economy cools has the potential to further reduce forecasted returns	We continue to favor strategies with limited focus on office and those less reliant on high leverage. Asset management value-add will be important as cap rate compression and market growth will be less reliable sources of return. Patience will be a virtue for management teams as transactions, when they happen today, have yet to fully adjust for higher borrowing costs.	Neutral
Opportunistic real estate	Over the last couple of years, pockets of stress have occurred in Covid-19 affected sectors such as office, retail and hospitality. The rising interest rate environment is producing stress and distress across the real estate spectrum as the cost of financing balloons, loan-to-values move up and lenders pull out of the market. Borrowers will be forced to get creative with financing as they often lack fresh equity capital and want to minimize their dilution. Preferred equity gap financing, structured solutions and investments in debt may see attractive opportunities. We could see the reemergence of NPL portfolios in Europe as banks shed assets to shore-up their balance sheets.	— Rising interest rates will increase borrowing costs on higher leveraged strategies, pressuring total returns. — Competition could be a challenge as large sums of capital have been raised waiting for this opportunity to emerge. — Increasing construction costs due to materials and labor may pressure development strategies.	Non-core funds with vintage years during periods of economic stress tend to be some of the best performing vintages. The impact from higher rates will likely create more attractive entry points. Loans coming due at higher borrowing costs and at higher loan-to-values sets the stage for opportunities to provide rescue capital. GPs with experience in distressed situations and those able to be flexible up and down the cap stack are viewed favorably.	Positive
Real estate debt	Lending rates have increased, both from floating rate base rates as well as spreads. Traditional lending sources (banks and insurance companies) are retreating from writing loans as they move to reduce risk across their balance sheets. The wall of maturities coming due over the next few years will need refinancing and private lenders are well positioned to take advantage of the opportunity.	— Rising rates, while generally positive for lending strategies, could also decrease transaction volumes and therefore increase competition for deals. — Loan defaults are also on the horizon so having capabilities to structure workouts will be important	Senior lending strategies look attractive as borrowing costs have risen, both in base rates and spreads. Private capital providers look attractive as there will be less competition from traditional lending sources.	Positive

Outlook summary (continued)

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
REITs	REITs were down 27.0% in 2022, reflecting an implied cap rate increase across sectors. REITs rallied back in early 2023, erasing about half of the loss they experienced in 2022 but have more recently sold-off again as financials have come under pressure. While REITs valuations are somewhat pricing in a higher rate environment, we would not characterize the current valuations as cheap or compelling.	— REITs have higher leverage than core real estate — Rising interest rates can have a negative effect on REITs and all yield-sensitive assets over short periods. — REITs are sensitive to economic decline and general equity market volatility.	Verus believes REITs can provide liquid exposure to real estate with the following caveats: high sensitivity to equity market volatility over shorter holding periods, higher leverage and higher exposures to non-core sectors. Active management is preferred. REIT valuations are currently at a slight discount; however, this has been volatile and difficult to time. If we see a substantial sell-off in 2023, we could pivot to a positive outlook, but we are not there yet.	**Neutral**
Commodities	Commodities had another impressive year in 2022, led by the energy sector, which was up +36% for the year. The asset classes final year returns masked what was a highly volatile year as Fed rate rises began putting pressure on inflation forces. While still early in the year, commodities are experiencing selling pressure as central banks continue to tighten monetary policy in order to stamp out inflation.	— Central banks have signaled their primary goal is to contain inflation which, if successful, would be a headwind for commodities. — Investors have benefitted from steep backwardation in oil-related commodities, but as front month contracts move lower, the curve trade is likely to erode.	Verus does not view commodity futures as an attractive asset class to hold long term. As an inflation hedge, commodities are one of the best exposures to own that benefits from early stages of inflation. We are even more cautious about a position in commodities this year and would consider reallocating some of your exposure to more attractive segments of the market.	Negative
TIPS	Rising inflation has led to positive total returns and outperformance of TIPS relative to nominal bonds. Breakeven rates have risen sharply following the lows in 2020, especially in 5-year break-evens. Currently, TIPS have a negative yield and are susceptible to rising rates though that can be offset if inflation continues to exceed market expectations. The other concern is the unwinding of the Fed balance sheet where TIPS are widely held, putting additional selling pressure on the bonds.	— Decreasing inflation expectations or rising nominal interest rates would be a headwind to TIPS. — Continued low rates creates a high cost of carry.	Low absolute current yields and uncertain inflation expectations has led to low total return expectations for TIPS, especially relative to other real asset investment opportunities. If inflation continues higher, TIPS could provide protection to portfolios.	**Neutral**

Outlook summary (continued)

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
Core Infrastructure	Performance in core infrastructure was strong in 2022, as capital flowed into the sector and valuations improved, especially for energy-related assets. Along with performance, the high inflationary environment increased LP interest in the asset class. Fundraising continues to increase as more managers offer evergreen fund structures. We expect the higher interest rate environment to be a headwind to valuations and would not be surprised to see write-downs beginning to ripple through the open-end market in 2023. While relatively resilient to recessionary forces, sub-sectors linked to GDP like transportation and logistics may also face challenges.	— Strong fundraising trends in infrastructure has elevated valuations and increased competition for high quality assets. — Infrastructure assets provide varying degrees of inflation protection. While some assets have contracted annual revenue increases tied to CPI, many others have pre-determined increases at 2-3% or no adjustments at all. — Core assets are sensitive to interest rates and with inflation trending down, increased costs of capital could erode margins and push valuations lower.	Entry today is less attractive given rich valuations and an elevated interest rate environment. We prefer allocations to value-add, although core can still maintain defense characteristics from sectors less exposed to GDP risk. We would recommend waiting on new commitments to core open-end infrastructure funds until we get a better sense for the path of interest rates and/or we begin to see funds adjust valuations lower to account for the higher cost of capital environment.	**Negative**
Value-add Infrastructure	Transaction activity has been robust the past 12 months, despite the rising rate environment. As inflation slows and cost of capital stays elevated, we would expect that to cool as buyers adjust valuations lower. There remains a significant capital need for more modern infrastructure in order to keep up with the digital economy and electrification of the grid. We would be cautious about strategies that expose investors to technology risk and/or commercialization risk in both sectors.	— Many GPs that have been successful in the sector have grown rapidly, raising $15+ billion-dollar funds. Deploying this amount of capital while still delivering alpha becomes a challenge for most private market managers. — Increased interest rates will have two affects: eroding margins as the cost of debt increases and increasing cap rates as investors demand a higher equity return. The change in expectations around what is "market value" is likely to slow transactions.	The asset class offers a compelling return profile that aligns well with long duration pools of capital. Value-add infrastructure comes with higher operational/execution risk than core so investors should expect a broader range of outcomes and greater emphasis on manager selection. Given the shift in interest rate environment, we expect valuations to improve but that transition could be bumpy.	**Neutral**
Energy Transition	New development projects of renewable assets will continue to accelerate as solar and wind farms are now the cheapest form of new build electricity. Outside of traditional solar & wind, there are potentially higher returning opportunities for newer technologies such as battery storage and CC&S. Policies like the Inflation Reduction Act will act as a catalyst, increasing adoption and making technologies more viable. Growth in electric vehicles is expected to strain our existing power generation capabilities and transmission infrastructure which presents an investment opportunity but does challenge the transition away from hydrocarbons.	— The market is becoming more competitive with over 4x as much capital fundraised today as compared to the last decade. — Several approaches that reduce our carbon emissions such as green hydrogen and carbon capture technology are nascent and commercially unproven. Investments in this space will take venture-like risk and rely on significant cost reductions as well as favorable policy regimes to be successful.	Energy demand growth will increase opportunities in the energy transition sector but the opportunity to achieve an attractive return remains difficult given competition. Sectors like EV infrastructure and Distributed Energy Resources offer decreased technology risk and attractive markets for growth. Tailwinds for the strategy make for interesting opportunities though we are seeing risk underpriced in the marketplace so backing the right manager will be critical.	**Neutral**

Outlook summary (continued)

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
Oil & Gas	Much of what we wrote about Oil/Gas investing in 2022 still applies now. The one crucial difference is that tightening central bank policy now brings demand uncertainty and higher financing costs for producers. Reinvestment in new oil & gas supply is still an issue, even with higher commodity prices, as E&P companies favor returning cash to investors and governments place additional burdens on hydrocarbon extraction. There remains tailwinds in favor of commodity producers but the demand picture from slowing economic activity adds additional risk. We still believe that private markets capital that funded a lot of the growth in energy production will continue to shrink as institutions shift capital towards cleaner forms of energy.	— Oil/gas producers made record profits in 2022, though those are set to come down as commodity prices fall and operating costs skyrocket. The temptation to allocate capital to the sector is understandable but for private capital investors, we still believe the exit risk is too high for us to gain comfort. Older oil/gas funds are still struggling for liquidity and absent a complete reversal of a low carbon future, we think that will only get worse 7-10 years down the road as funds investing today look for an exit. — Longer-term, oil demand is expected to decline as non-carbon sources of power outcompete hydrocarbons.	Higher commodity prices continue to reward owners of commodity producers with record profits. There was a time when investing in oil/gas funds was a reasonable strategy, albeit highly cyclical. Today, the challenges in liquidity, regulatory policy and demand uncertainty make underwriting formidable. For investors with a confident view on the direction of energy commodity prices, we would consider public market investment opportunities in E&P over an illiquid private fund investment.	**Negative**
Midstream Energy / MLPs	Midstream indices were up around 30% in 2022, outperforming most other sectors. The last two Outlooks highlighted the challenges that private midstream funds would face in deploying capital to traditional gathering and processing deals and that was largely accurate. Public midstream companies are outcompeting private funds with a lower cost of capital and the opportunity set is narrower today than it was 10 years ago. While we were negative on the midstream asset class last year, we still find it challenging to recommend an investment in an asset class with long-term demand uncertainty.	— The public midstream market appears stronger and more attractive than it has been in recent years but the long-term outlook for the asset class remains weak. The near-term performance for the asset class is likely to be attractive but tactical trades into the asset class have been incredibly challenging to time. After two years of exceptionally high returns, MLPs are still trailing listed infrastructure by a wide margin on a 5-, 7- and 10-year basis.	We retain a negative outlook for midstream energy, despite the positive tailwinds that higher oil/gas prices could bring to this sector in the near-term. Longer-term, we think the unknown risks remain too high for our comfort.	**Negative**

Outlook summary (continued)

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
Mining	There has been a lot of hype around demand growth in industrial metals as the transition to clean energy moves forward. Notable price jumps in metals/minerals like Lithium, Cobalt and Copper over the past few years as demand has surged lend credibility to the story. We see the same long-term trends as others and have been positive on the sector for many years. Industrial metals did soften in 2022 and are down so far in 2023 though long-term the tailwinds of demand appear intact. That said, a global economic slowdown and uncertainty around China consumption has put near-term pressure on many mining commodities. We still prefer the tailwinds of mining to petroleum but would not be surprised if prices cool off in 2023.	— Global GDP growth and the economy in China are the two biggest risks in the sector. China represents a disproportionately large buyer of industrial metals, so its economy and industrial output have a large impact on metal prices. — Recycling, substitution and more efficient extraction methods are always a concern as commodity prices move higher. High commodity prices tend to end the same way, with lower commodity prices as either demand falls or with unexpected surges in supply. — Investors need to be keenly aware of the jurisdictions that they have exposure to, and the companies track record on ESG issues.	Longer-term, we believe the demand outlook looks favorable for several industrial metals. We would not be surprised to see near-term price weakness as new supply comes online but that could be a more interesting entry point. The mining majors are flush with cash which could trigger an M&A cycle which would be good for the junior miners. However, there are a host of idiosyncratic risks in funding mining operations outside of the macro-economic environment. We will look for skilled GPs with a track record of successfully managing these risks while generating attractive returns.	**Positive**
Timberland	Timberland was up 12.9% in 2022, most of which was appreciation driven. Unlike other commodity sectors that experienced meaningfully higher prices, sawtimber prices, at least for southern pine, were up a modest 1.6% in 2022. Income, as a component of the NCREIF Timberland return, was actually lower in 2022 than it was in 2021. Land values went up in 2022 due to lower discount rates but we question how sustainable that will be if cash flows are flat to negative YoY. Housing starts have collapsed in the past 12 months as mortgage rates more than doubled, which is a bearish sign for lumber demand. Overall, we do not see returns keeping up with their 2021 and 2022 levels for the asset class.	— Projected lower inflation levels, slowing housing construction and higher input costs are just some of the issues creating headwinds for the asset class. The Southern U.S. timber region has yet to see the sawtimber price appreciation that other regions have experienced and appear set to miss out on the surging lumber prices that hit consumer the last few years. — Liquidity has been an issue for the asset class for the better part of a decade and fundraising trends have yet to improve to the point that we could see transactions becoming robust.	Despite the last two years of above average returns, we would continue to avoid allocations to timberland. There are more attractive options available in real assets and many that have cash flows that justify the higher valuation. Fundraising has been slow to non-existent for closed-end timber funds for several years which has resulted in a slow transaction market.	**Negative**

Outlook summary (continued)

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
Agriculture	After several years of flat cropland prices, 2021 and 2022 saw a meaningful jump in land values on the back of higher commodity prices. Supply disruptions from Covid and more recently, the War in Ukraine, sent grain prices to multi-decade highs that have begun to stabilize in 2023. Fundraising has been slow in the last few years as income returns remained unattractive, and investors favored other asset classes. Still, agriculture investments remain a reasonable hedge against inflation and provide a stable return profile from land appreciation and yield. Structural drivers are making agriculture more attractive as global demand rises and the amount of arable land remains relatively stable.	— Agriculture is a highly illiquid asset class that is not suited to tactical investment opportunities. The asset class does look more attractive today, relative to recent history, but enthusiasm should be tempered given the long hold periods (>10 years) and volatile commodity prices. We would recommend diversifying across crop types and geography within the U.S. — The War in Ukraine has revealed the extent to which Eastern Europe and Ukraine have been major suppliers of certain grains and their disruptions impact on global commodities. It has also highlighted the risk that comes from investing outside stable markets like the U.S. While Ukraine was not a preferred destination for U.S. institutional investors in agriculture, the returns available in emerging economies are not high enough to overcome the currency and economic/political risk.	Agriculture crops are broadly broken down into row and permanent crops with row crops benefiting the most from recent supply disruptions. Row crops also make up around 75% of all acreage planted in the U.S. so liquidity and market depth is greater, relative to permanent crops. That said, row crops have lower income potential and less value-add optionality. For investors seeking pure-play cropland investments, we would recommend diversifying across row and permanent crops focused on the U.S. market. The fragmented nature of farmland in the U.S. has made scaling a challenge so we would be weary of strategies seeking to deploy large pools of capital (>$1B). We also view agriculture investments where crop and land are a component of a broader value-add investment strategy as attractive.	**Neutral**

Current conditions and outlooks

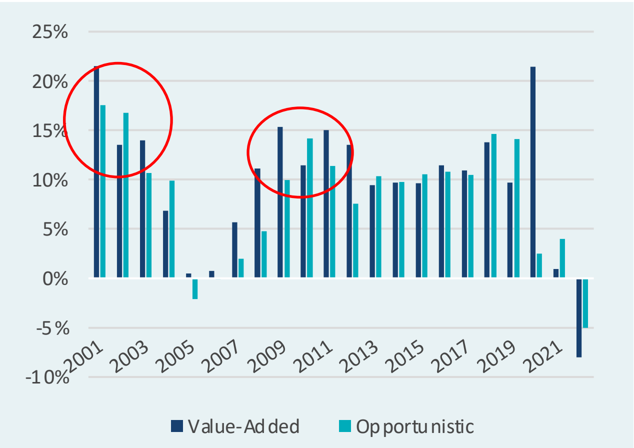
Real estate performance – Recent history

- Core real estate (NFI-ODCE Index) was up 7.5% in 2022, primarily due to a strong start to the year in the first two quarters. The momentum has shifted however as rising interest rates have put downward pressure on valuations. Returns turned negative in 4Q'22 (-5.0%) and continued in 1Q'23 (-3.3%). We expect further write-downs to hit core real estate funds in 2023.
- Property type sector dispersion remained high in 2022 with industrial (+14.6%) and multifamily (+7.1%) leading the way. Office and retail were the laggards with office turning negative at -3.4%.
- Public real estate securities (REITs) were early to recognize the changing landscape within real estate. In 2022, REITs were down 26.9% (Wilshire REIT Index). Valuations have rebounded a little in early 2023 with REITs returning a positive 2.3% in 1Q'23.
- Non-core real estate vintage funds have historically outperformed during recessionary years and early recovery periods (e.g., 2000-2003 and 2009-2011) as market dislocations created attractive entry valuations. Given the recent stress in the market, current non-core vintages could be attractive, especially opportunistic strategies with a focus on distress.

NCREIF PROPERTY INDEX RETURNS (CORE)

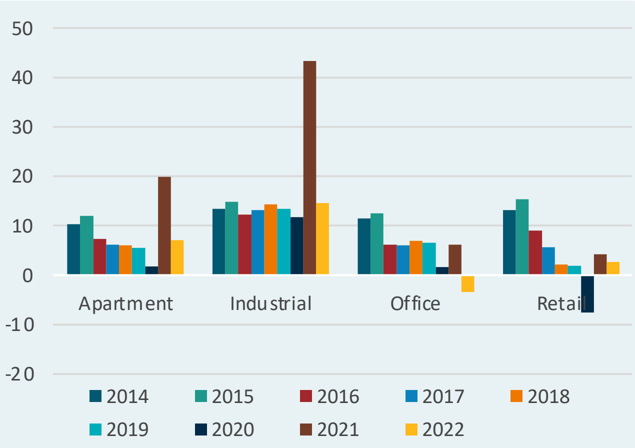
Source: NCREIF, as of 12/31/22

VINTAGE YEAR MEDIAN RETURN (%)
NON-CORE REAL ESTATE



Source: Thomason Reuters, as of 9/30/22

CORE SECTOR ANNUAL RETURNS (%)



Source: NCREIF, as of 12/31/22

Real estate fundamentals

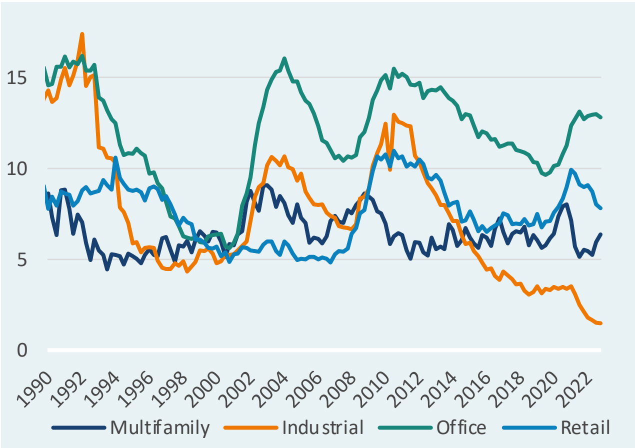
— Private real estate fundamentals have remained relatively steady in terms of vacancy rates and rental growth, with the office sector being a notable exception.

— Cap rates spreads however, have shrunk to zero as cap rates have yet to fully adjust to the higher interest rate environment. While cap rates and interest rates do not trade in lock step over shorter time periods, they generally correlate with each other over the long run. Since mid 2022, interest rates have climbed 2.5%, while cap rates have climbed only 0.5% combined in Q4'22 and Q1'22. The valuation process tends to lag, and we expect upward pressure on cap rates to continue through 2023.

— Vacancy rates for office have stayed elevated as the sector remains under pressure from continued work from home trends. Vacancy rates for industrial, retail and multifamily remain low, although there has been an uptick over the last couple of quarters.

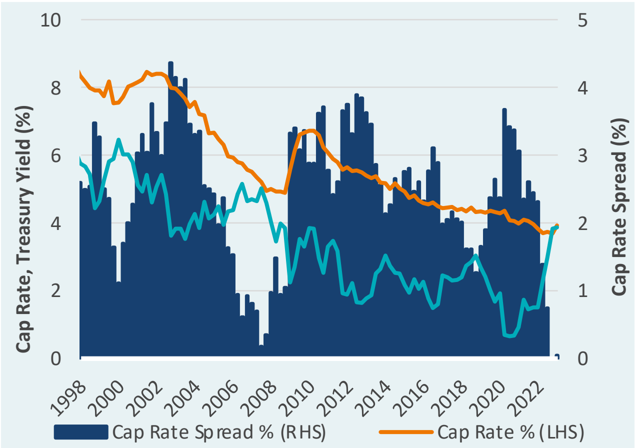
— NOI growth has come down from the highs of 2021 and early 2022 but remain positive for all sectors including office, although office has been bouncing around zero.

VACANCY BY PROPERTY TYPE



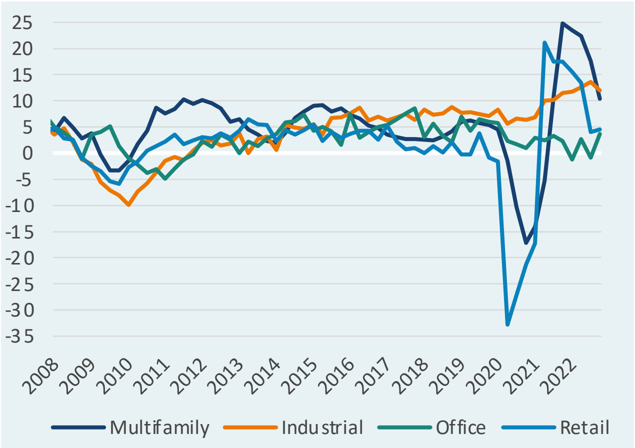
Source: NCREIF, as of 12/31/22

CAP RATE SPREADS



Source: FRED, NCREIF, as of 12/31/22

4-QTR ROLLING NOI GROWTH (%) BY PROPERTY TYPE



Source: NCREIF, as of 12/31/22

Challenges in office

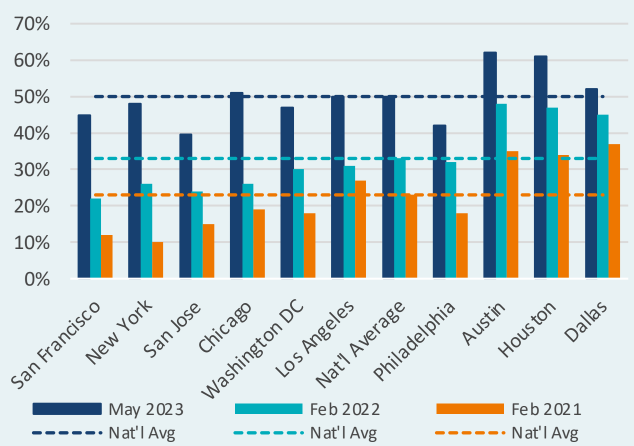
— Employees have increased office utilization from a year ago with the pandemic in the rearview mirror, however structural shifts remain with most companies embracing a hybrid work environment. Physical occupancy remains around 50% of pre-covid levels.

— Domestic migration has aided some office markets with stronger leasing volumes relative to gateway markets. Even growthier markets are still experiencing a decline in leasing relative to pre-pandemic levels.

— We continue to see a bifurcation in demand with new leasing activity gravitating towards newer office buildings with more attractive amenities. Office buildings delivered since 2015 have experienced positive net absorption since Covid began while all other buildings are facing net tenant outflows.

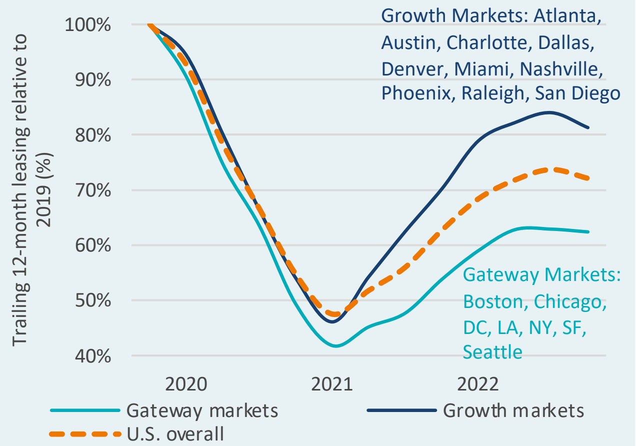
— The leasing cycle for office tends to averages 5-7 years, so many leases are still paying at pre-pandemic levels. We are in the midst of the rental re-pricing as well as overall asset valuation uncertainty. It will take several years to work through the system and fully reset pricing. Capital seeking investment in the office sector has dried up and re-financing is a challenge as lenders are all reducing exposures to the sector.

OFFICE PHYSICAL USAGE TRENDS



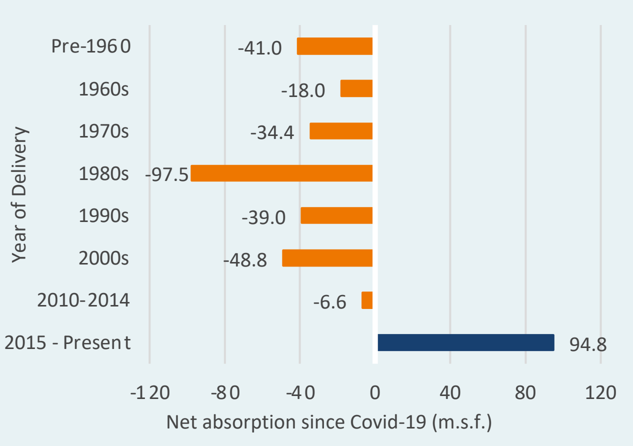
Source: Kastle, 5/8/23

REGIONAL LEASING VOLUME TRACKING OFFICE RE-ENTRY



Source: JLL, March 2023

FLIGHT TO QUALITY – NET LEASING ACTIVITY

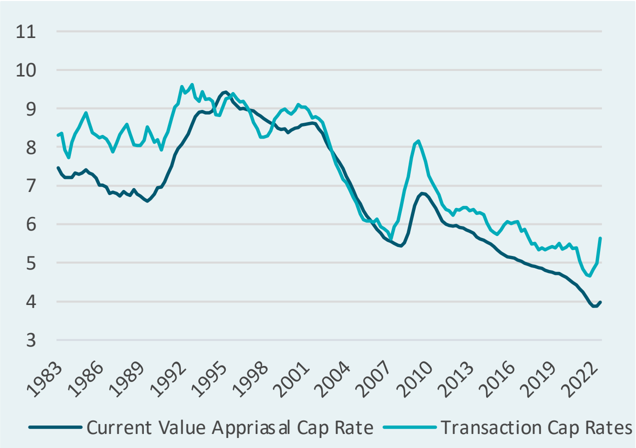


Source: JLL, March 2023

Cap rates

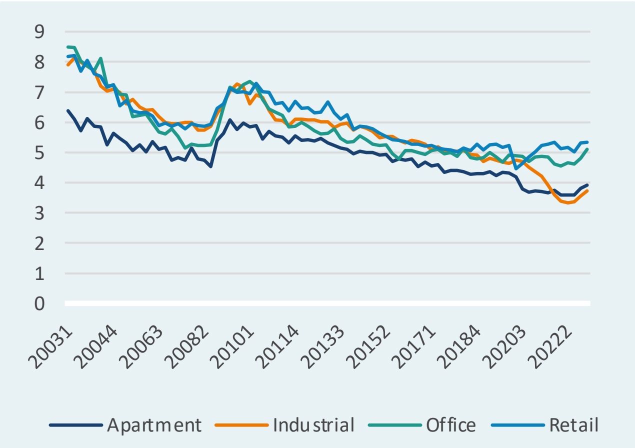
- Private real estate appraisal cap rates have been slow to react to the rising interest rate environment. This is not atypical, as the appraisal process generally lags when there is a decline in transaction volumes and fewer comparable sales or “comps” for appraisers to use as a data set.
- For transactions that are taking place, there is a widening gap with appraised values indicated there is more downside to come in private valuations as they adjust to “market”.
- We have also seen a widening gap over the last several years between property types as industrial and multifamily have been more in favor with investors versus office and retail. There has been a small uptick in cap rates for all property types over the last couple of quarters.
- We can also look to the public real estate markets for an idea of where cap rates are heading. We have seen implied cap rates move higher in the REIT market, lending additional credence to our view that cap rates in private real estate are set to move further this year. Usually, implied cap rates are more volatile but can be a leading indicator directionally as they are quicker to respond than the appraisal process.

PRIVATE CAP RATES (4-QTR MOVING AVERAGES)



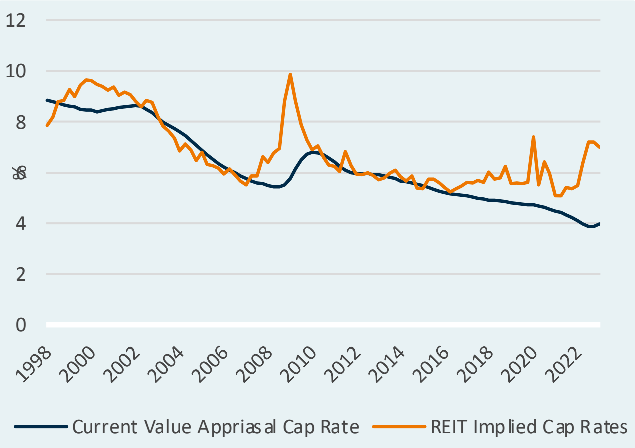
Source: NCREIF, 3/31/2023

CURRENT VALUE CAP RATES BY PROPERTY TYPE



Source: NCREIF, 3/31/2023

PRIVATE CAP RATES VS REIT IMPLIED CAP RATES



Source: NCREIF, JPMorgan, March 2023

Real estate – New supply and absorption

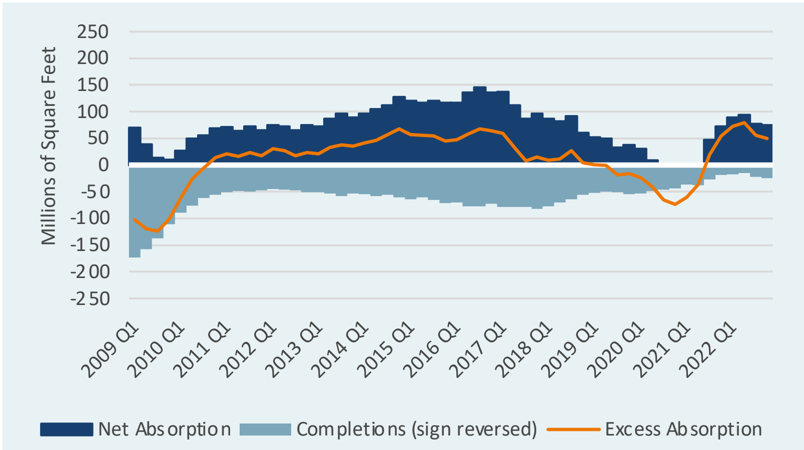
Demand has declined recently while new completions remains elevated.

Office remains severely oversupplied as demand has fallen off and completions in process pre-Covid continue to deliver.

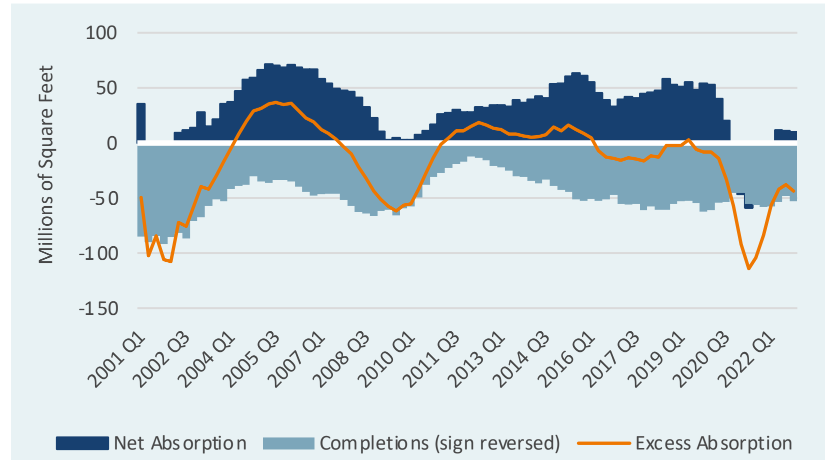
Demand has dropped recently for multi-family and industrial while completions remain elevated. Net absorption has turned negative on multifamily and is now flat in industrial.

Retail is the one bright spot for this metric, as new completions remain muted while leasing activity has picked up.

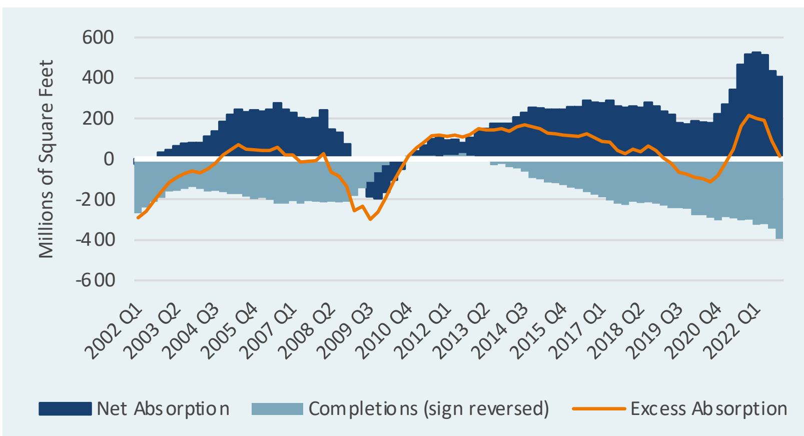
RETAIL



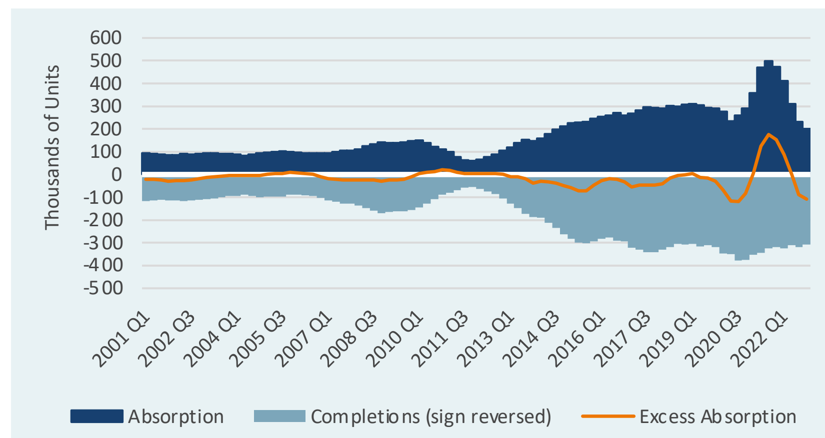
OFFICE



INDUSTRIAL



MULTIFAMILY



Source: American Realty Advisors utilizing CoStar data as of 12/31/22

Real estate fundraising

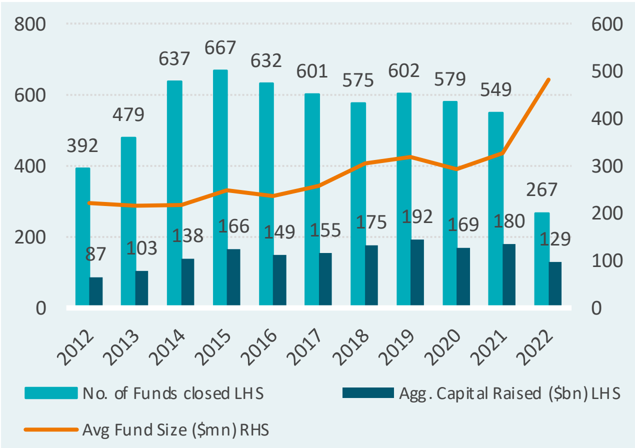
— The number of funds closed declined substantially over the last year with the total amount of capital raised coming down slightly, leading to a much higher average fund size.

— Dry powder in the closed-end fund space has come down in recent years off record highs but remain elevated. Transaction volumes declined in the second half of 2022.

— The majority of closed-end funds that closed the last couple of years were targeting opportunistic and distressed strategies, a shift from prior years where value add was substantially higher.

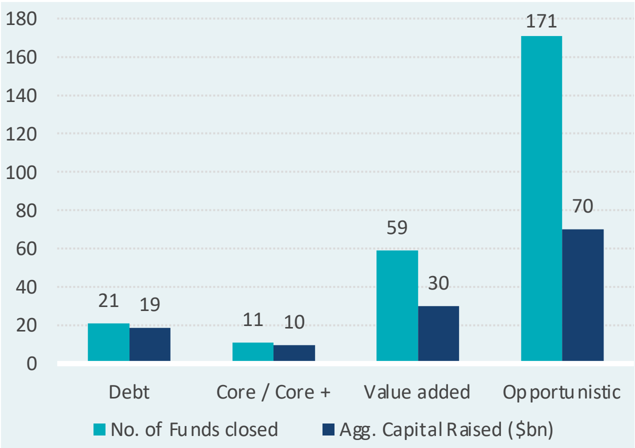
— Current core real estate open-end fund redemption queues total over $33 billion from 20 core funds that Verus recently surveyed, which has grown more than two-fold in the last year. Core funds are in the process of re-pricing, delivering negative returns, and with some investor's overweight real estate, redemption activity has hit levels not seen since the GFC.

HISTORICAL PRIVATE REAL ESTATE CLOSED-END FUNDRAISING ($B)



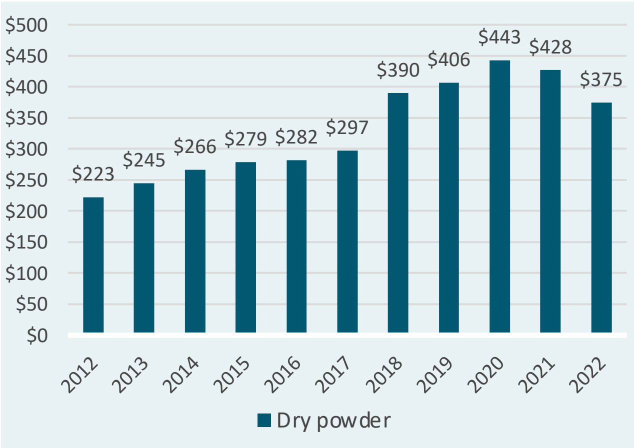
Source: Pitchbook, as of 12/31/22

20222 PRIVATE REAL ESTATE CLOSED-END FUNDRAISING ($B) BY STRATEGY



Source: Pitchbook, as of 12/31/22 (Opportunistic includes Distressed)

DRY POWDER ($B) – CLOSED-END FUNDS



Source: Pitchbook, 12/31/2022

Real estate debt

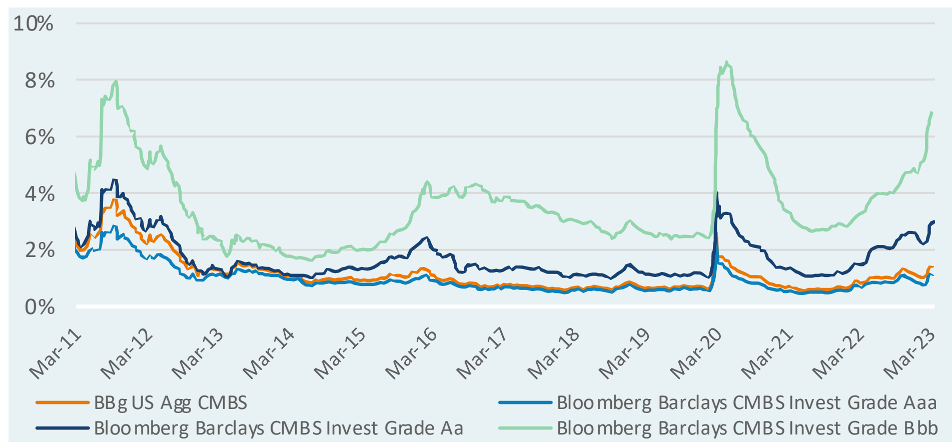
- Lending standards have tightened up for all loan types. Private lending spreads have widened, and lenders are requiring more conservative loan-to-values for new loans. CMBS spreads for most tranches have steadily increased over the last year.
- Rising interest rates are benefitting floating rate lending strategies going forward. Base rates have increased significantly as the Secured Overnight Financing Rate (SOFR) has risen from near zero to over 5% in the last year.
- Within real estate debt strategies, we are less favorable about the riskier segment of the loan market (i.e. construction loans, structured equity, etc.) as LTVs come down and lenders become owners. Having the capital and operational capabilities to assume ownership is necessary in this market environment.
- We would also caution that some evergreen debt strategies are experiencing defaults/write-downs and are likely to see additional valuation pressures, especially in the office sector.
- Transaction volumes have fallen off over the last several quarters, although for deals that are taking place, private capital is facing less competition from traditional lenders (banks and insurance companies) as many are de-risking their portfolios.

PRIVATE LENDING SPREADS

	Stable Asset Whole Loans	Transitional Asset Whole Loans	Lower Risk Mezzanine	Transitional Asset Mezzanine & Preferred Equity	Developmental Asset Mezzanine & Preferred Equity
Capital Stack	0 - 60% LTV	0 - 75% LTV	50-65% LTV	65-85% LTC	65 - 85% LTC
Duration	2-5 Years	2-5 Years	2-7 Years	2-4 Years	2-4 Years
Typical Lending Spreads	SOFR + 1.5-2.0%	SOFR + 2.85 – 4.50%	SOFR + 4.0-6.0%	SOFR + 6.0 - 8.0%	SOFR + 12-15%

Source: PGIM, as of 3/31/23

CMBS SPREADS



Source: Bloomberg, as of 3/22/2023

REITs

— REITs were earlier than private real estate in experiencing valuation adjustments in 2022, when interest rates began to rise. U.S. REITs were down 24% for the full year in 2022 but have seen a slight recovery in 1Q 2023 of +3%.

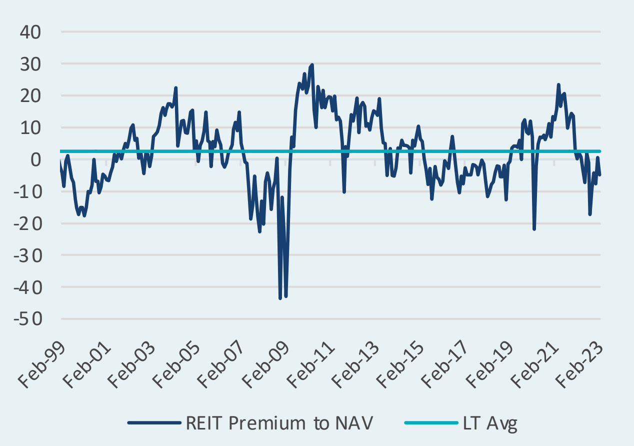
— REITs traded at a steep discount to NAV for much of the 2nd half of 2022, however a slight recovery in early 2023 has them now trading at less of a discount to NAV.

— Sector dispersion continues to be high, although most major sectors were off significantly in 2023 (office, industrial, apartments, healthcare and self-storage were all down over 22%.) Some segments of retail (shopping centers and free standing) were down less, only 7% and 13%. Office continues to be the biggest laggard, down 38% in 2022 and down another 16% in 1Q 2023.

— REITs do offer differentiated exposures vs private core real estate. Outside of the four main property types, core real estate exposure to niche property types is 8%, while REIT exposure to those same niche sectors is almost 60%.

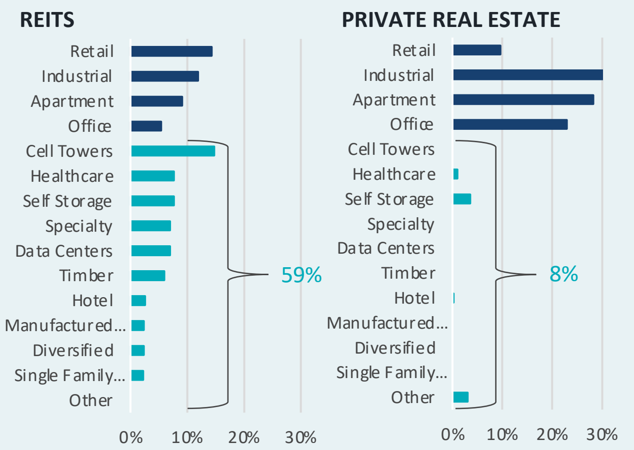
— We are neutral on REITs given only modest discounts to NAV (which is likely overvalued) but given volatility in the asset class, that could change to positive if we see a deep drawdown later this year.

REIT PREMIUM TO NAV



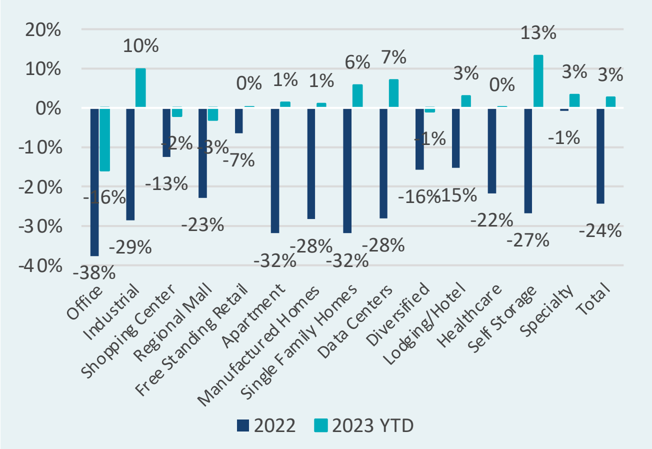
Source: JPMorgan, as of 2/28/23

NICHE SECTOR WEIGHTS IN REITS VS PRIVATE RE



Source: NCREIF, FTSE, as of 12/31/22

REIT PERFORMANCE BY SUB SECTOR



Source: Duff & Phelps, Bloomberg, as of 3/31/2023

Commodities

— Commodities were one of the few bright spots in 2022, up 16% for the year, led by energy commodities. During the first quarter of 2023, prices reversed themselves as inflation slowed and demand fell.

— The roll return component of the index remains positive though that has seen a sharp versal in 2023 and could turn negative if supply stocks build up across petroleum commodities.

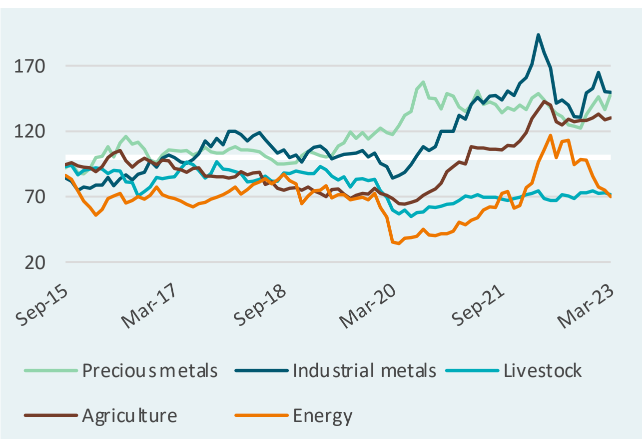
— Commodities have been a rewarding asset class to own over the last 2 years, but we don’t see those returns being sustained. We moved towards a negative outlook this year in commodities, as we see better opportunities to allocate investor capital.

INDEX AND SECTOR PERFORMANCE

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg Commodity	(0.2)	(5.4)	(5.4)	(12.5)	20.8	5.4	(1.7)
Bloomberg Agriculture	1.0	0.0	0.0	(3.6)	23.7	8.4	(0.5)
Bloomberg Energy	(6.9)	(18.7)	(18.7)	(25.1)	25.4	(1.5)	(9.2)
Bloomberg Grains	3.3	(2.4)	(2.4)	(7.8)	21.5	7.7	(2.0)
Bloomberg Industrial Metals	(0.3)	(2.1)	(2.1)	(22.1)	21.1	5.9	2.1
Bloomberg Livestock	(2.3)	(4.3)	(4.3)	(2.8)	6.0	(2.6)	(3.0)
Bloomberg Petroleum	(2.5)	(5.9)	(5.9)	(4.8)	49.4	6.6	(4.3)
Bloomberg Precious Metals	9.2	6.3	6.3	(0.4)	8.3	7.1	0.3
Bloomberg Softs	0.2	9.3	9.3	(2.3)	23.4	7.1	(1.6)

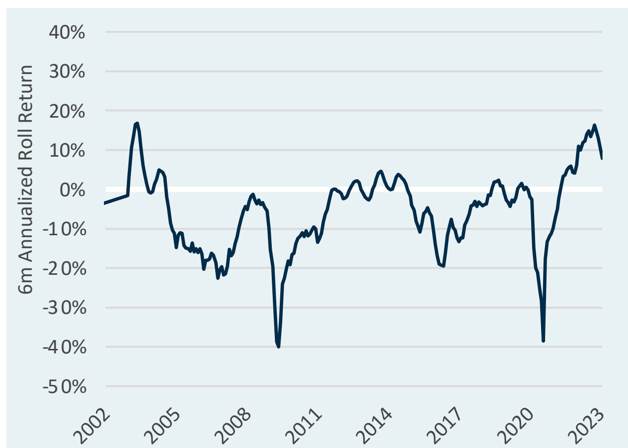
Source: Morningstar, as of 3/31/23

SECTOR PERFORMANCE



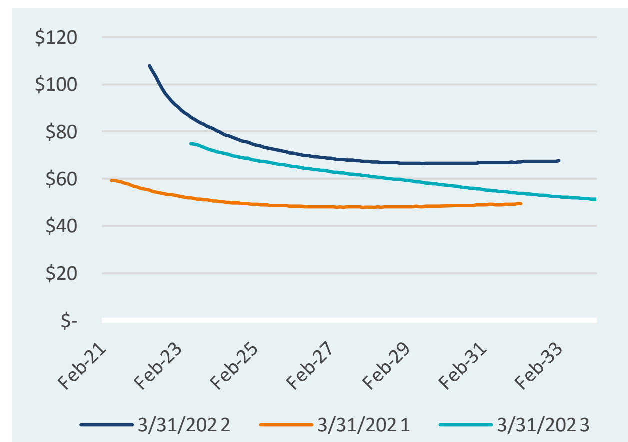
Source: Bloomberg, as of 3/31/2023

ROLL RETURN



Source: Bloomberg, as of 3/31/2023

CURVE SHAPE (WTI)



Source: Bloomberg, as of 3/31/23

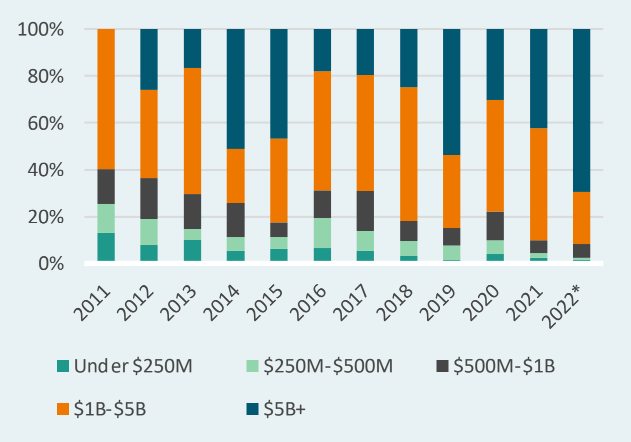
Private infrastructure

— Infrastructure fundraising slowed in 2022, much like we saw across other private market asset classes. Despite falling short of the all-time high-water mark for fundraising set in 2021, infrastructure continues to absorb much of the capital allocated to real assets. Several fundraising trends have come center stage: Mega-funds are the new normal with eight managers reaching a final close above $5B in the year. Moreover, the top 10 managers by size make up 80% of the capital raised; Digitization and decarbonization focused funds made up nearly 50% of funds raised; Geographically, North America is in favor accounting for ~70% of fundraising.

— Dry powder is down relative to the last two years in part due to a slower fundraising and managers ability to take down larger deals. After a strong start, deal volumes declined 27% at the tail end of 2022 as financing became more expensive and economic uncertainty weighed on the market.

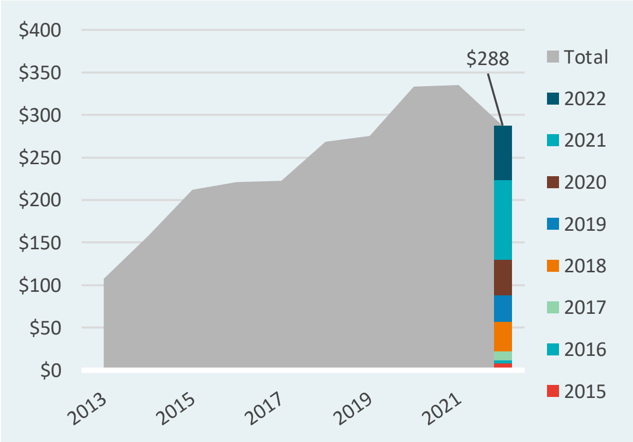
— Returns over the last year in infrastructure outperformed nearly all other private asset classes. In this regard, Infrastructure delivered on one of its key goals, to provide inflation protected returns. Going forward, we see headwinds for the asset class as higher financing costs, slowing inflation and slowing GDP growth become priced into what are fairly rich valuations.

INFRASTRUCTURE FUNDRAISE BY FUND SIZE (%)



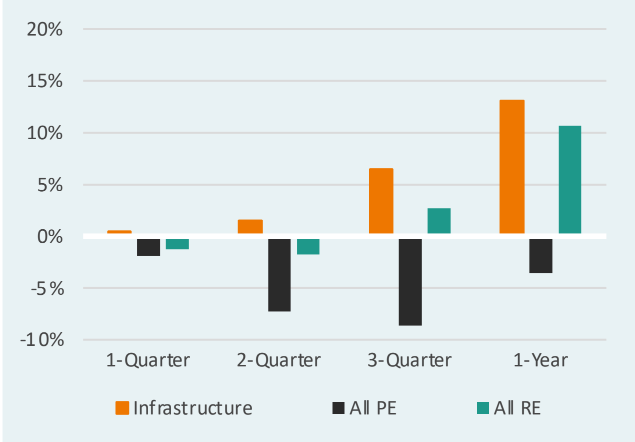
Source: Pitchbook, as of 9/30/2022

INFRASTRUCTURE MANAGER BY FUND SIZE



Source: Pitchbook , as of 9/30/2022

Q3 '22 TRAILING POOLED IRR



Source: Refinitiv C|A, as of 9/30/2022

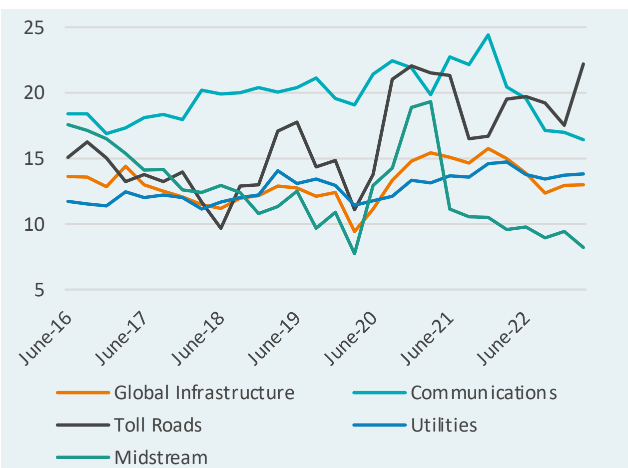
Private infrastructure (continued)

— Inflation brought forth a regime change in the cost of capital, a stark difference from the previous period of low interest rates, the impact of which has yet to be reflected in equity values. If rates stay elevated, discount rate increases should flow through to valuations. We expect that assets priced on ultra low interest rates and have bond-like fixed cash flows will be particularly susceptible to changing discount rates (ex. PPA contracts).

— Non-core infrastructure is arguably more sensitive to the rising cost of capital because of exposure to floating rate, non-investment grade debt. This can be somewhat offset by higher growth in cash flows and value-add potential by management teams. One trend we have noticed is the blurring of lines between infrastructure and traditional private equity buyouts as new industries around growing themes are added to the mix: Energy Transition, Healthcare, Waste and Digital Infrastructure have all been added into the fold. While many assets have infrastructure characteristics, many managers are accepting a period of significant investment and negative cash flow, along with development, technology, and commercial risks.

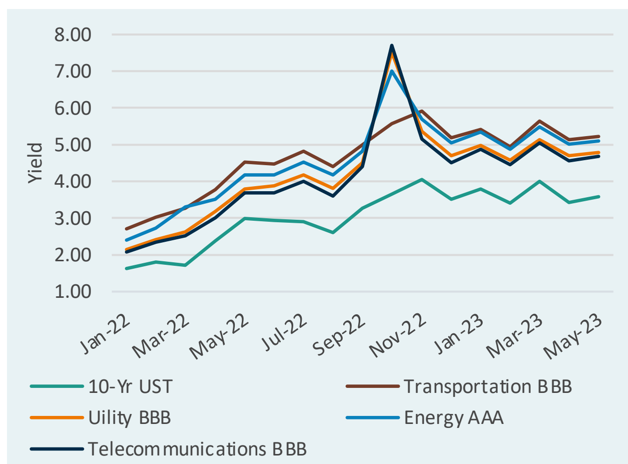
— Sector divergence is likely to be meaningful as we anticipate a decline in GDP over the coming quarters. Some areas of transportation that only recently recovered from pandemic impacts, are likely to feel the weight of recession forces as global trade slows. Telecommunications has data growth tailwinds, though valuations could come under pressure. Utilities and Social infrastructure should remain resilient.

INFRASTRUCTURE VALUATIONS – EV/EBITDA



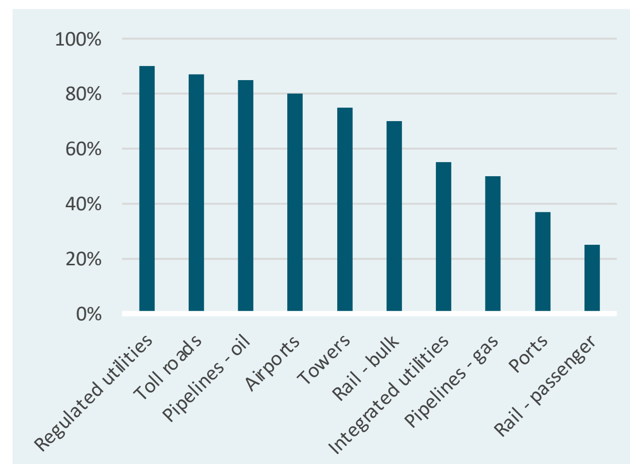
Source: Bloomberg; Dow Jones Brookfield; S&P Indices, as of 3/31/2023

RISING COST OF CAPITAL



Source: Bloomberg; ICE BofA Indices, as of 3/31/2023

DEGREE OF INFLATION PROTECTION BY SECTOR



Source: First Sentier Investors

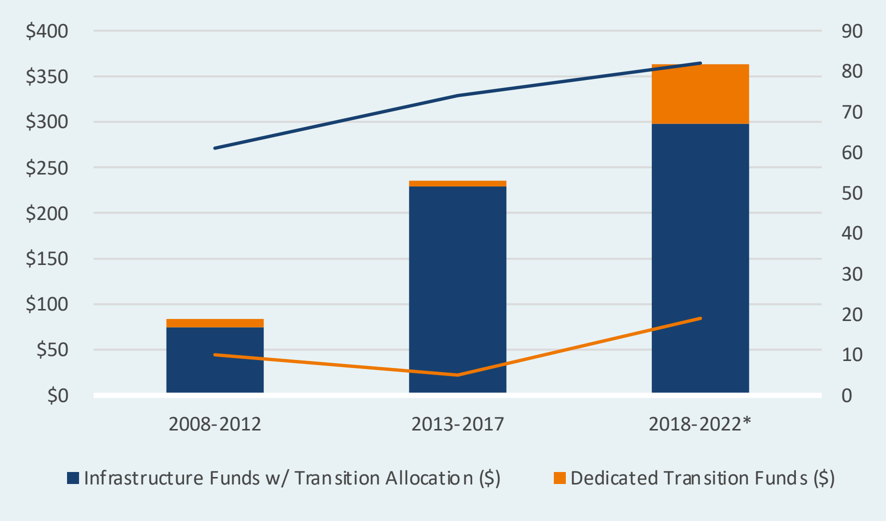
Infrastructure – Energy transition

— Fundraising within energy transition infrastructure has ballooned over the past four years. Capital is coming from both infrastructure managers starting new sector focused strategies, while other are allocating a portion of their general infrastructure strategies to invest in clean energy themes. From 2018 to 2022, $65B was raised for sustainable infrastructure as compared to the prior eight-year period ('08-'17) that raised $6.5 billion. This doesn't account for the 82 general infrastructure funds which broadly plan to invest some portion of their capital in sustainable infrastructure. While the scale of capital needed to meet clean energy goals is vast, we see risk being underpriced and likely disappointing returns in the future for less experienced managers.

— Policy initiatives like the Bipartisan Infrastructure Bill (BIL) (2021) and the Inflation Reduction Act (IRA) (2022) have created an estimated $400 billion in energy and climate funding, most of which is in the form of tax credits aimed at catalyzing private investment in clean energy, transportation and manufacturing. The IRA bill is widely considered to be the most consequential legislation ever passed for the clean energy industry.

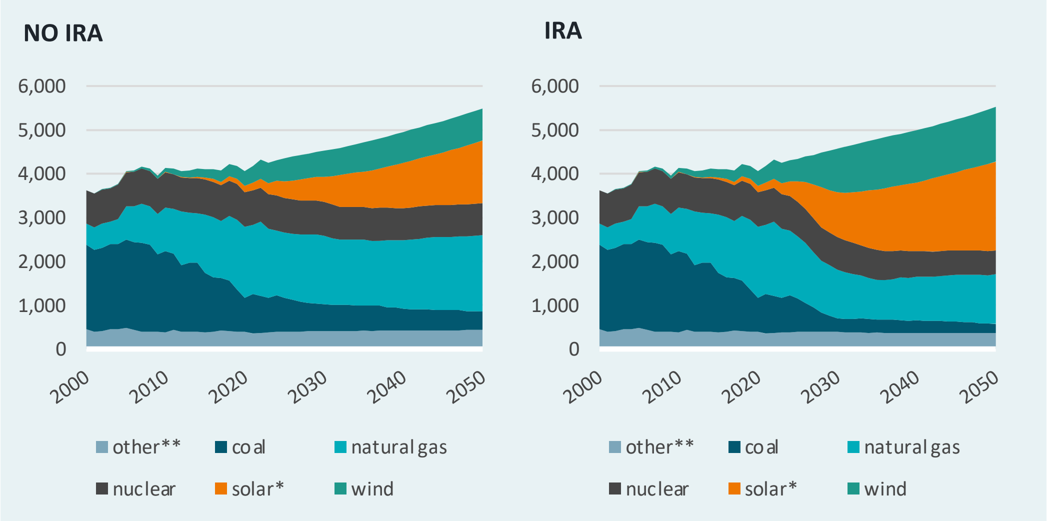
— For the first time in 30 years electricity demand growth is estimated to increase to 2-4% a year, driven by the plug-in of the transportation sector (EV's). Growing energy demand, pared with net zero emissions targets will create large opportunities for renewables and the infrastructure required to deliver those electrons.

FUNDRAISING IN ENERGY TRANSITION ($B)



Source: Pitchbook, as of 12/31/2022

U.S.NET ELECTRICITY GENERATION BY FUEL (BILLION KW-HOURS)



Source: Annual Energy Outlook 2023

Midstream energy/MLPs

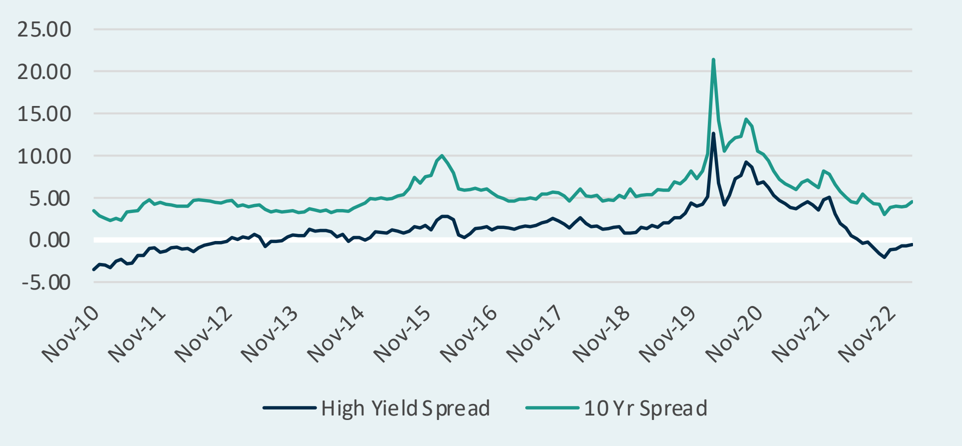
— Midstream energy stocks were up 31.0% in 2022. For the second year in a row, energy midstream stocks, had strong returns on both a relative and absolute return basis. Strong commodity prices led to growing volumes in both gas and oil, leading to higher earnings and at the same time, investor interest in companies that could deliver more near-term cash flows.

— Yields for listed midstream companies now trade slightly below high yield bonds but at a premium to Treasuries. The recent shift lower in relative yields is a function of the dramatic increase in interest rates but does reduce the relative attractiveness of the sectors yield income. We remain concerned about the long-term viability of the asset class and future growth opportunities.

— EV cars are not a fad or strictly the domain of green conscious consumers. They simply are more practical and efficient than ICE vehicles. With roughly 50% of oil demand coming from motor vehicle use, that is a powerful headwind for the suppliers of oil. Even if oil will be with us for decades to come, we struggle to justify a dedicated allocation to a commodity with growth headwinds when there are many other investment opportunities available.

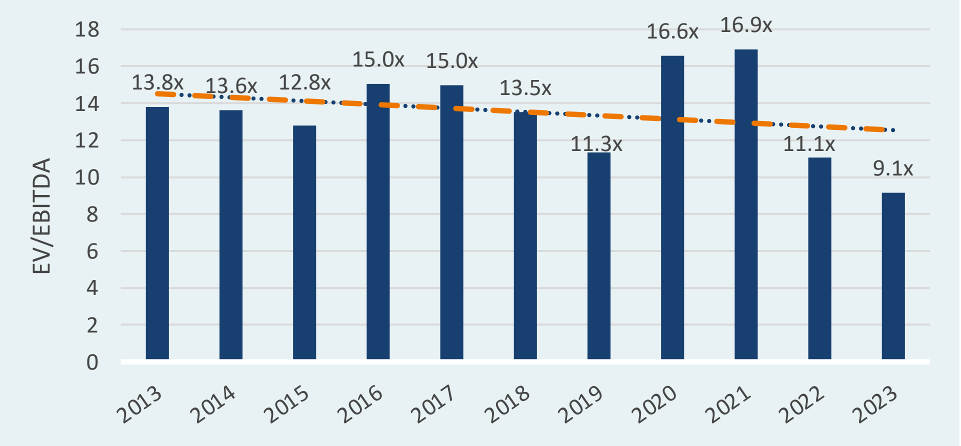
— Natural gas does not face the same obvious demand challenges and, in fact, has strong tailwinds around export in the U.S. While some greener fuels like hydrogen could displace natural gas, that outcome is far from certain. That fact does not change our view though, that the midstream asset class fails to offer a compelling long-term investment thesis.

MLP SPREADS VS HIGH YIELD & TREASURIES



Source: Bloomberg, as of 3/31/2023

MIDSTREAM VALUATIONS (EV/EBITDA)



Source: Bloomberg; Alerian MLP Index, as of 3/31/2023

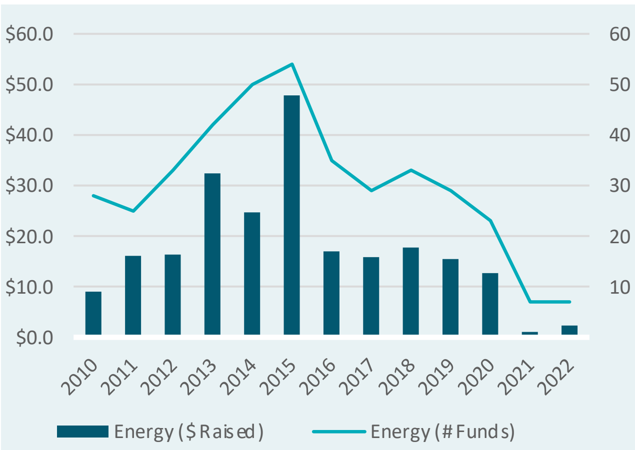
Energy – Oil/gas

— According to Pitchbook figures, fundraising within oil/gas funds remains challenging though we have seen a notable uptick in traditional oil/gas GPs coming back to market for the first time in 5+ years. The spike in commodity prices and subsequent move higher in portfolio valuations has given confidence to the industry that some LPs will revisit allocating to oil and gas upstream funds. We expect that the top 3 or 4 GPs in the sector will find investors though fundraising is slow and could be challenged further if oil prices move lower from here.

— Some good news on the exit front, we have seen a few deals completed in 2023, mostly in the Permian basin. Strategics appear to be testing the M&A market by going after the most attractive assets in the Permian basin. With natural gas prices collapsing back down to $2/MMBtu, liquidity for gas heavy assets is likely to remain elusive. If the oil/gas funds are able to raise new capital, we would not be surprised to see them buying some of these legacy sponsor-backed companies which would create an exit for older funds, though new capital has to wonder who will buy from them down the road.

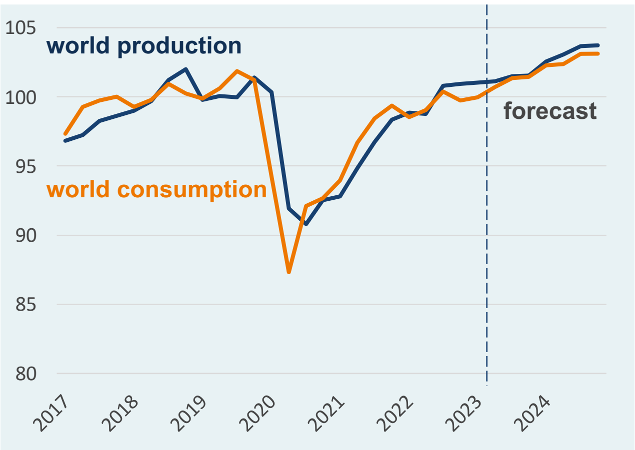
— The problem of liquidity and the transition away from hydrocarbons remain existential threats to the private oil/gas sector. We could see a role for natural gas for decades to come but oil demand appears more in doubt. Electric vehicles are more efficient, require less maintenance and if we can resolve some of the supply chain challenges, will displace combustion engines globally. Investors interested in exposure to oil/gas would be better off in public market securities than illiquid private funds.

FUNDRAISING IN OIL/GAS



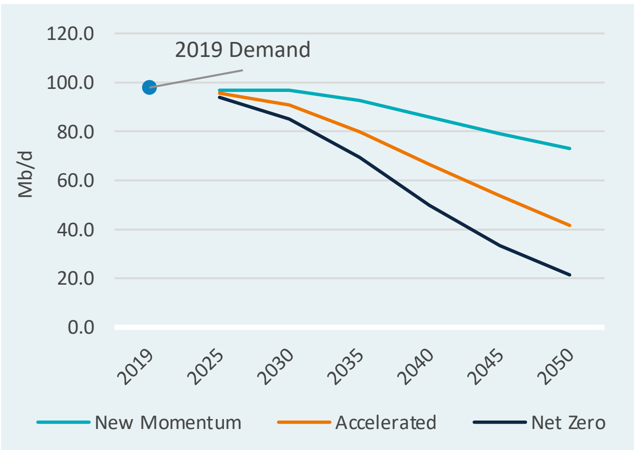
Source: Pitchbook, as of 12/31/2022

WORLD OIL PRODUCTION & CONSUMPTION*



*Source: EIA; *includes all liquid fuels*

GLOBAL OIL DEMAND FORECAST UNDER LOWER CARBON EMISSION SCENARIOS

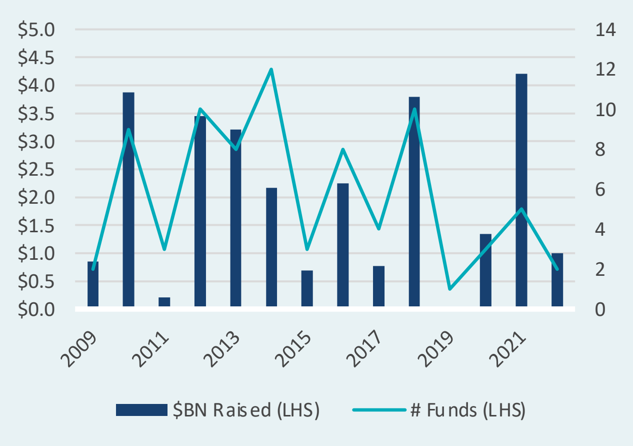


Source: BP Energy Outlook 2023

Metals and mining

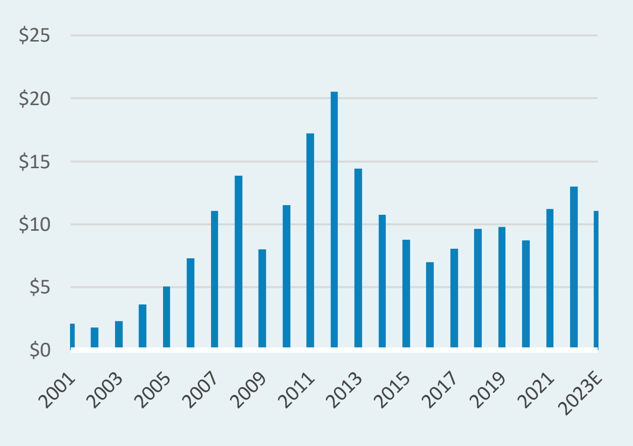
- Fundraising in the private equity mining segment picked up some in 2021 with a couple large funds in market, but subsequently declined in 2022. Raising equity capital in metals and mining has been a challenge since the global financial crisis but that has worsened in the last 5 years. We have seen some investor interest in royalty/streaming funds and in mining lending, where we have deployed client capital, but even that niche market is a small opportunity.
- After a modest recovery from a cyclical low in 2016, non-ferrous mining exploration budgets have been on the upswing, hitting a recent peak in 2022. Budgets are expected to decline in 2023, though the consensus is that more spending will be needed to meet future demand for metals/minerals important to clean energy. Prices moved lower in 2022 for industrial metals and are likely to face near-term headwinds if economic activity slows. Precious metals, on the other hand, have rallied the last several months as the banking crisis fueled the buying of safe-haven assets.
- We are more bullish on base/industrial metals which longer-term will benefit from a shift away from fossil fuels. We are less bullish on bulk and energy-related commodities. Our overall outlook within mining is positive with a notable challenge in finding enough investment opportunities that meet our underwriting criteria.

FUNDRAISING IN MINING



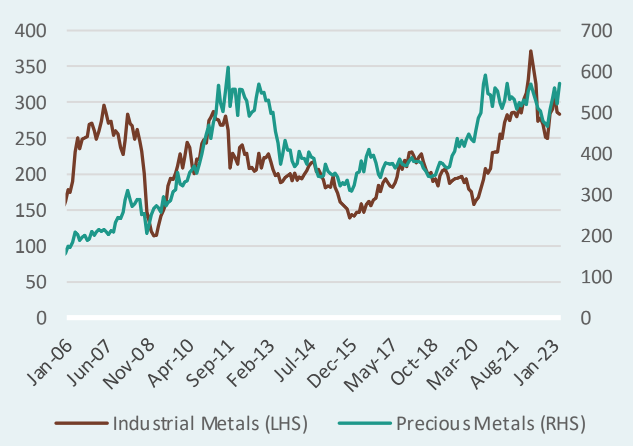
Source: Pitchbook, as of 12/31/2022

CAPITAL EXPENDITURE IN MINING ($B)



Source: S&P Global Market Intelligence; Non-Ferrous budget

METAL PRICES



Source: Bloomberg, as of 3/31/2022

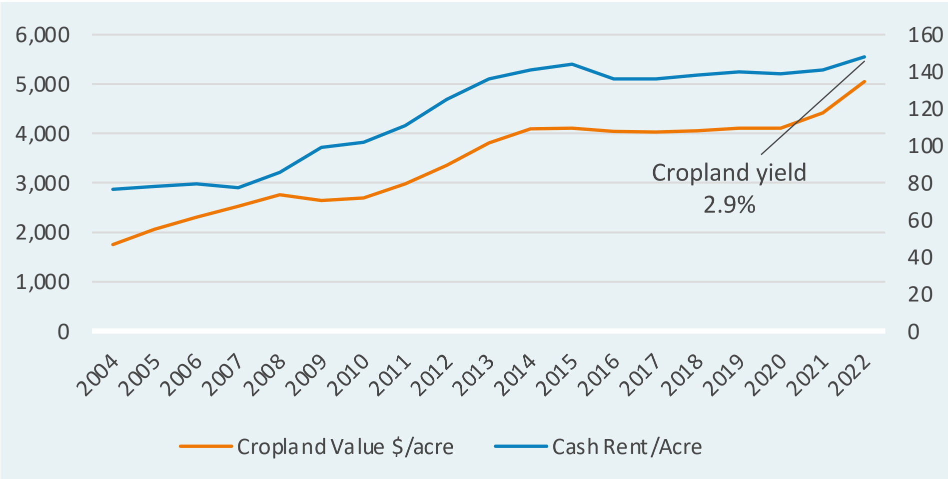
Agriculture

— Cropland values nationally rose in 2022 to $5,050/acre, an increase of more than 14% over the prior years 8.0% rise. This is a notable change since 2015 when farmland values leveled off in a low agriculture price market. Verus has been generally been bearish on farmland investments as income yields have trended around 3.0% and a catalyst for appreciation was lacking. The War in Ukraine and the subsequent global disruption in Ag crop supply chains has put a premium on stable countries with certainty of supply. Elevated crop prices is likely to reverse somewhat in the coming years but there is an improved outlook for Ag investing in the U.S. and certain other OECD countries.

— In the row crop segment, higher crop prices sent land values up double digits in many markets, though most expect elevated corn, wheat and soybean prices to come down. Permanent crops on the other hand, have seen land values come down or stay flat, as nut prices and citrus have declined for varying reasons. Ag investing is notoriously challenging, as the last 10 years have shown, with weather, tariffs, wars and changing consumer habits all playing a role in the asset classes returns. We believe diversifying across crop types and looking for strategies that can invest in post-farmgate assets is the best way to mitigate idiosyncratic events and capture a higher return.

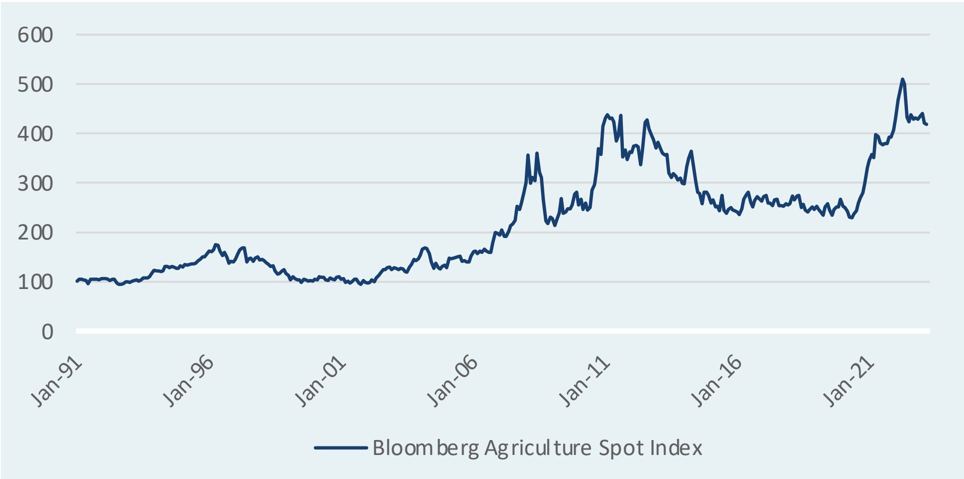
— Following several years of poor returns in Agriculture, row crop assets spiked in value with higher crop prices. While we do not see the asset class as an overly compelling buying opportunity, on a relative basis, the Ag market looks more attractive today than in prior years.

U.S. NATIONAL CROPLAND VALUES VS CASH RENTS



Source: USDA, as of 12/31/2022

BLOOMBERG AGRICULTURE PRICES



Source: Bloomberg, as of 3/31/2023

Appendix

Detailed returns by asset class

Pooled Returns by asset class	1 Year	3 Year	5 Year	10 Year
NCRIEF ODCE	7.5%	9.9%	8.7%	10.1%
Refinitiv Real Estate – Value-Add	8.5%	10.9%	10.1%	11.4%
Pitchbook Real Estate - Value-Add	19.3%	13.6%	12.4%	12.8%
Refinitiv Global Infrastructure	9.4%	10.8%	10.3%	10.7%
Refinitiv Global Natural Resources	25.2%	8.7%	5.1%	3.6%
Pitchbook Oil/Gas	33.7%	11.7%	6.9%	4.9%
Pitchbook Mining	8.6%	4.1%	2.3%	2.9%
NCRIEF Timberland	12.9%	7.5%	5.4%	5.8%
NCRIEF Farmland	9.6%	6.8%	6.4%	8.8%
Public Index (as of 12/31/22)				
Russell 3000	-19.2%	7.1%	8.8%	12.1%
MSCI ACWI	-18.0%	4.5%	5.8%	8.5%
S&P Global Infrastructure	-0.2	1.7%	3.9%	6.5%
S&P Global Natural Resources	10.3%	11.6%	7.3%	4.9%
FTSE NAREIT Global	-23.6%	-5.1%	-0.1%	3.4%
FTSE NAREIT U.S.	-24.9%	-1.0%	3.0%	6.0%

Source: Refinitiv C|A as of September 30,2022; Pitchbook as of September 30, 2022; NCREIF as of December 31, 2022

The role of real assets

	Strategy	GDP sensitivity	Inflation sensitivity	Income orientation	Return enhancing	Risk reducing	Liquidity
Privately-traded real assets	Private real estate core	High	Moderate	High	Moderate	Moderate	Moderate
	Private real estate value added	High	Low/None	Moderate	High	Low/None	Low/None
	Private real estate opportunistic	High	Low/None	Low/None	High	Low/None	Low/None
	Private infrastructure	Moderate	Moderate	High	Moderate	Moderate	Low/None
	Timber	Low/None	Low/None	Low/None	Moderate	High	Low/None
	Farmland / agriculture	Low/None	Moderate	Moderate	High	High	Low/None
Publicly-traded real assets	TIPS	Low/None	Moderate	Low/None	Low/None	High	High
	Commodity futures	Moderate	High	Low/None	Low/None	Moderate	High
	REITs	Moderate	Low/None	Moderate	High	Low/None	High
	MLPs	Moderate	Moderate	High	High	Moderate	High
	Listed infrastructure	Moderate	Moderate	Moderate	High	Low/None	High
	Natural resources equity	Moderate	High	Low/None	High	Low/None	High

Magnitude	Low/None	Moderate	High

Note: the summary above was determined using historical averages and correlations on a relative basis within each category. It is important to note that investments within these asset classes are often heterogeneous and may possess different qualities and sensitivities (see Appendix for further details).

Glossary of terms

Adjusted Funds From Operations (AFFO): A measurement which is helpful in analyzing real estate investment trusts (REITs). The AFFO typically equals the trust's funds from operations (FFO) but is adjusted for ongoing capital expenditures which are necessary for upkeep of the REIT's assets.

Backwardation: Also, sometimes called normal backwardation, is the market condition where the price of a commodities forward or futures contract is trading below the expected spot price at maturity.

Capitalization Rates: The rate of return of a real estate investment, which is calculated by dividing the property's net operating income by the property's purchase price.

Core Real Estate: This category of real estate will include a preponderance of stabilized properties. Core real estate should achieve relatively high income returns and exhibit relatively low volatility. Core real estate funds tend to use less leverage.

Consumer Price Index (CPI): A measure of purchasing power and inflation that takes the average prices of a basket of consumer goods and services, such as food, medical care, and transportation, and compares the same basket of goods in terms of prices to the same period in a previous year. Changes in CPI are used to assess price changes associated with the cost of living.

Contango: When the futures price of a commodity is above the expected future spot price. A futures or forward curve is upward sloping when the market is in contango.

Double Promote: A joint venture private equity structure is considered to have a "double promote" if the sponsor of a project is in fact comprised of two separate parties who each have a profit waterfall agreement or cash flow disbursements.

Dry Powder: Investment reserves raised by investment funds to cover future obligations or to purchase assets in the future.

GDP: The total value of all services and goods produced within a country's borders, for a given time period. This calculation includes both private and public consumption, government expenditures, investments, along with total exports net of total imports.

Internal Rate of Return (IRR): the IRR is the discount rate that equates the present value of cash outflows (investment) with the present value of cash inflows (return of capital). IRR is often referred to as a dollar-weighted rate of return that accounts for the timing of cash inflows and outflows.

LIBOR**:** Is a benchmark rate that some of the world's largest banks charge each other for short-term loans. It stands for London Interbank Offered Rate and serves as the first step in calculating interest rates on various loans throughout the world.

Master Limited Partnerships (MLPs): A limited partnership structure which is publicly traded on an exchange. MLPs combine the tax benefits of a limited partnership with the liquidity of publicly traded securities. To qualify as an MLP, the entity must generate 90% of its income from the production, processing and transportation of oil, natural gas and coal.

Net Operating Income (NOI): A calculation which is used to analyze real estate investments that generate income. NOI is the property's annual income generated by operations after deducting all expenses incurred from those operations. The growth rate in NOI is a common metric used in determining the health of a property.

OPEC: The Organization of Petroleum Exporting Countries (OPEC) is a group consisting of 12 of the world's major oil-exporting nations. OPEC is a cartel that aims to manage the supply of oil in an effort to influence the price of oil on the world market.

Opportunistic Real Estate: An opportunistic fund is one that includes preponderantly non-core assets. The fund as a whole is expected to derive most of its return from property appreciation which may result in volatile returns. These funds may employ a variety of tools such as development, significant leasing risk and potentially high leverage.

Real Estate Investment Trusts (REITs): A REIT is a company that owns and operates commercial real estate properties. REITs can be publicly traded or privately held. There are two main type of REITs: Equity REITs which generate income from the operation of properties, and Mortgage REITs, which invest in mortgages or mortgage securities.

Glossary of terms (continued)

Timber Investment Management Organizations (TIMOs): A management group that invests in timberland assets for institutional investors. TIMOs will purchase, manage and sell various timberland properties on behalf of investors.

Treasury Inflation Protected Securities (TIPS): A treasury bond that is adjusted to eliminate the effects of inflation on interest and principal payments, as measured by the Consumer Price Index (CPI). TIPS are issued in terms of five, ten and twenty years and are auctioned twice per year.

Value-Added Real Estate: A value-added real estate fund often holds a combination of core assets and other assets characterized by less dependable cash flows. These strategies are likely to have moderate lease exposure and employ moderate leverage. Consequentially, these strategies seek significant returns from property appreciation and typically exhibit moderate volatility.

Vacancy Rates: The vacancy rate is calculated as the total number of unoccupied units of a property divided by the total units of the property, at a particular point in time.

Vintage Year: Represents the year the first capital call or portfolio company investment was made. .

Notices & disclosures

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TCERA Asset Allocation Comparison 09-30-23 - Preliminary Numbers

Manager	Category	Market Value	Actual %	Target %	Value at Target	Difference to Target	Comments
	DOMESTIC EQUITY						
PGIM (QMA)	Large Core Enhanced	72,686,381	3.88%	3.00%	56,262,870	16,423,511	
SSGA S&P 500 Sec Lnd Index Fund	Large Core	171,582,499	9.15%	10.00%	187,542,900	(15,960,401)	
Boston Partners	Large Value	75,270,909	4.01%	3.50%	65,640,015	9,630,894	
William Blair	Large Growth	74,144,837	3.95%	3.50%	65,640,015	8,504,822	
SSGA US Ext Sec Lnd	SMID Core Index	65,038,920	3.47%	3.00%	56,262,870	8,776,050	
Leeward	Small Value	31,586,914	1.68%	1.50%	28,131,435	3,455,479	
William Blair	Smid Growth	26,872,483	1.43%	1.50%	28,131,435	(1,258,952)	
	Total	517,182,944	27.58%	26.00%	487,611,540	29,571,405	
	INTERNATIONAL EQUITY						
SGA	International Growth	87,063,184	4.64%	6.00%	112,525,740	(25,462,556)	
PIMCO RAE	International Value	103,506,316	5.52%	4.00%	75,017,160	28,489,156	
SSGA - ACWI Index Fund	International Core	97,117,437	5.18%	6.00%	112,525,740	(15,408,302)	
	Total	287,686,937	15.34%	16.00%	300,068,640	(12,381,703)	
	GLOBAL EQUITY						
Skellig Water Fund (KBI)	Water Related	61,653,697	3.29%	3.00%	56,262,870	5,390,827	
	Total	61,653,697	3.29%	3.00%	56,262,870	5,390,827	
	PRIVATE EQUITY						
Pantheon	Private Equity - F of F	141,423	0.01%				
Stepstone	PE - Secondaries	4,177,501	0.22%				
Ocean Avenue III	Private Equity - F of F	21,098,171	1.12%				
Ocean Avenue IV	Private Equity - F of F	29,377,742	1.57%				Underweight pending new commitments and capital calls, though Verus Direct Investments has added a few new managers. Pantheon and Stepstone in liquidation phase.
Ocean Avenue V	Private Equity - F of F	3,770,106	0.20%				
Pathway Fund 8	Private Equity - F of F	26,156,482	1.39%				
Pathway Fund 9	Private Equity - F of F	24,997,798	1.33%				
Pathway Fund 10	Private Equity - F of F	26,213,988	1.40%				
Direct Investments	Verus Discretionary	1,339,838	0.07%				
	Total	137,273,050	7.32%	12.00%	225,051,480	(87,778,430)	
	FIXED INCOME						
BlackRock	Core Plus	75,583,429	4.03%	6.00%	112,525,740	(36,942,311)	
MacKay Shields	Core Plus	101,010,571	5.39%	5.50%	103,148,595	(2,138,024)	Underweight offset by overweight in Private Credit.
DoubleLine	Core Plus	103,480,100	5.52%	5.50%	103,148,595	331,505	
PGIM	Emerging Market Debt	52,495,105	2.80%	3.00%	56,262,870	(3,767,765)	

TCERA Asset Allocation Comparison 09-30-23 - Preliminary Numbers

Manager	Category	Market Value	Actual %	Target %	Value at Target	Difference to Target	Comments
	Total	332,569,205	17.73%	20.00%	375,085,800	(42,516,595)	
	PRIVATE CREDIT						
Sixth Street DCP (TSSP)	Private Credit	91,890,320	4.90%		-	91,890,320	Overweight offset for Fixed Income
Sixth Street TAO Contingent (TSSP)	Private Credit	32,781,771	1.75%		-	32,781,771	
	Total	124,672,091	6.65%	5.00%	93,771,450	91,890,320	
	REAL ASSETS						
Invesco	Real Estate Debt	71,882,735	3.83%	3.00%	56,262,870	15,619,865	
American Realty Advisors	Value Add Real Estate and Opportunistic Real Estate	79,490,762			-	79,490,762	Individual investments underweight pending Opportunistic RE capital calls. RREEF America II overweight pending rebalancing redemption request pending. SSGA REIT - Holding for other capital calls.
Direct Investments - Real Estate		882,192			-	882,192	
Total Value Add and Opp RE		80,372,954	4.29%	8.00%	150,034,320	(69,661,366)	
IFM	Infrastructure	84,853,982	4.52%	4.00%	75,017,160	9,836,822	
SSGA US REIT	REIT Index Fund	675,117	0.04%	0.00%	-	675,117	
RREEF America II	Core Commingled	150,356,234	8.02%	3.00%	56,262,870	94,093,364	
	Total	388,141,023	20.70%	18.00%	337,577,220	130,936,757	
	OPPORTUNISTIC						
KKR - Mezzanine	Opportunistic	2,543,130	0.14%	n/a	-	2,543,130	Opportunistic outside of Target Allocation. KKR in distribution phase.
	Total	2,543,130	0.14%		-	2,543,130	
	OTHER		0.14%		-	2,543,130	
Cash		23,706,922	1.26%	0.00%	-	23,706,922	Capital Calls and Cash Flow Needs.
	Total	23,706,922	1.26%	0.00%	-	23,706,922	
	Grand Total	**1,875,428,998**	**100.00%**	**100.00%**	**1,875,428,998**		

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	Market Value	% of Portfolio	1 Mo	Fiscal YTD	YTD	Fiscal 2023	Fiscal 2022	Fiscal 2021	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Total Fund	**1,875,115,690**	**100.0**	**-2.3**	**-1.7**	**3.8**	**6.5**	**-4.9**	**23.6**	**8.9**	**5.7**	**5.1**	**5.6**	**5.9**	**6.8**
Policy Index			*-3.3*	*-2.8*	*3.7*	*6.9*	*-5.8*	*21.9*	*8.8*	*4.6*	*5.2*	*5.8*	*6.1*	*7.0*
Total Domestic Equity	**517,166,337**	**27.6**	**-4.4**	**-2.6**	**11.3**	**17.9**	**-13.9**	**44.5**	**20.0**	**9.8**	**8.3**	**10.9**	**10.9**	**10.2**
Russell 3000 Index			*-4.8*	*-3.3*	*12.4*	*19.0*	*-13.9*	*44.2*	*20.5*	*9.4*	*9.1*	*11.3*	*11.0*	*10.2*
SSGA S&P 500 Flagship Fund	171,582,499	9.2	-4.8	-3.3	13.0	19.6	-10.7	40.8	21.6	10.1	9.9	11.9	-	-
S&P 500 Index			*-4.8*	*-3.3*	*13.1*	*19.6*	*-10.6*	*40.8*	*21.6*	*10.2*	*9.9*	*11.9*	-	-
PGIM QS US Core Equity	72,686,183	3.9	-4.5	-2.6	14.3	19.1	-9.0	39.5	22.5	11.4	8.7	11.5	-	-
S&P 500 Index			*-4.8*	*-3.3*	*13.1*	*19.6*	*-10.6*	*40.8*	*21.6*	*10.2*	*9.9*	*11.9*	-	-
William Blair Large Cap Growth	74,143,114	4.0	-4.7	-2.4	22.6	24.8	-	-	28.0	-	-	-	-	-
Russell 1000 Growth Index			*-5.4*	*-3.1*	*25.0*	*27.1*	-	-	*27.7*	-	-	-	-	-
William Blair SMID Cap Growth	26,870,337	1.4	-5.2	-6.1	5.0	20.8	-28.1	42.4	14.6	2.3	4.6	9.9	11.7	-
Russell 2500 Growth Index			*-6.0*	*-6.8*	*5.6*	*18.6*	*-31.8*	*49.6*	*10.6*	*1.0*	*4.0*	*8.4*	*10.3*	-
Boston Partners Large Cap Value	75,263,031	4.0	-2.5	0.6	4.8	11.5	-3.8	49.5	18.0	15.8	7.4	9.3	9.9	10.1
Russell 1000 Value Index			*-3.9*	*-3.2*	*1.8*	*11.5*	*-6.8*	*43.7*	*14.4*	*11.1*	*6.2*	*8.4*	*8.6*	*9.0*
SSGA US Extended Market Index	65,038,920	3.5	-4.8	-3.3	8.9	15.2	-29.8	-	14.6	-	-	-	-	-
Dow Jones U.S. Completion Total Stock Market Index			*-4.9*	*-3.4*	*8.8*	*15.0*	*-30.0*	-	*14.3*	-	-	-	-	-
Leeward Small Cap Value	31,582,253	1.7	-4.8	-2.8	0.2	11.0	-7.4	62.2	10.6	16.8	5.4	7.6	-	-
Russell 2000 Value Index			*-5.2*	*-3.0*	*-0.5*	*6.0*	*-16.3*	*73.3*	*7.8*	*13.3*	*2.6*	*6.2*	-	-
Total International Equity	**287,686,937**	**15.3**	**-3.7**	**-3.7**	**7.0**	**16.1**	**-18.5**	**38.3**	**22.6**	**5.8**	**4.4**	**4.2**	**4.3**	**6.6**
MSCI AC World ex USA (Net)			*-3.2*	*-3.8*	*5.3*	*12.7*	*-19.4*	*35.7*	*20.4*	*3.7*	*2.6*	*3.3*	*4.3*	*7.1*
SSGA MSCI ACWI Ex US Index Fund	97,117,437	5.2	-3.1	-3.8	5.6	12.9	-19.2	35.9	20.6	3.9	2.8	3.5	-	-
MSCI AC World ex USA (Net)			*-3.2*	*-3.8*	*5.3*	*12.7*	*-19.4*	*35.7*	*20.4*	*3.7*	*2.6*	*3.3*	-	-
PIMCO RAE Fundamental Global Ex US Fund	103,506,316	5.5	-2.4	-0.3	10.0	16.3	-15.5	45.3	29.0	11.4	3.3	3.6	-	-
MSCI AC World ex USA Value (Net)			*-1.0*	*-0.1*	*8.2*	*12.2*	*-12.8*	*37.6*	*25.2*	*9.6*	*2.3*	*2.6*	-	-
SGA International Growth	87,063,184	4.6	-5.7	-7.5	5.3	19.3	-21.0	34.3	17.8	2.4	6.5	-	-	-
MSCI AC World ex USA Growth (Net)			*-5.3*	*-7.3*	*2.6*	*13.3*	*-25.8*	*33.7*	*15.8*	*-1.9*	*2.5*	-	-	-

Policy Index (10/1/2021): 26% Russell 3000, 16% MSCI ACWI ex US, 3% MSCI ACWI, 17% Bloomberg US Aggregate, 3% JPM EMBI Global/ JPM GBI EM Index, 13.4% NCREIF-ODCE, 5% Russell 2000, 4.6% MSCI REIT Index, 7% Private Equity Returns, 5% Private Credit Returns. Macquarie Large Cap Growth liquidated April 2022. Doubleline Core Plus and Mellon Capital Cash Account market values are as of 8/31, net of September's cash flows. Due to the lagged nature of Private Market Fund valuations, Private Markets Fund returns have been excluded from monthly updates. All data is preliminary. FY 6/30.

	Market Value	% of Portfolio	1 Mo	Fiscal YTD	YTD	Fiscal 2023	Fiscal 2022	Fiscal 2021	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Total Global Equity	**61,653,697**	**3.3**	**-6.6**	**-6.2**	**4.1**	**19.2**	**-12.2**	**50.4**	**20.3**	**10.5**	**7.3**	**-**	**-**	**-**
MSCI AC World Index (Net)			*-4.1*	*-3.4*	*10.1*	*16.5*	*-15.8*	*39.3*	*20.8*	*6.9*	*6.5*	-	-	-
Skellig Water Fund (aka KBI)	61,653,697	3.3	-6.6	-6.2	4.1	19.2	-12.2	50.4	20.3	10.5	7.3	-	-	-
MSCI AC World Index (Net)			*-4.1*	*-3.4*	*10.1*	*16.5*	*-15.8*	*39.3*	*20.8*	*6.9*	*6.5*	-	-	-
Total Fixed Income	**329,442,920**	**17.6**	**-1.7**	**-2.1**	**1.1**	**1.4**	**-12.7**	**2.8**	**4.0**	**-4.2**	**-0.4**	**0.9**	**3.2**	**3.3**
Blmbg. U.S. Aggregate Index			*-2.5*	*-3.2*	*-1.2*	*-0.9*	*-10.3*	*-0.3*	*0.6*	*-5.2*	*0.1*	*1.1*	*2.5*	*3.1*
Total Domestic Fixed Income	**276,947,815**	**14.8**	**-1.6**	**-2.1**	**0.4**	**-0.4**	**-11.1**	**2.3**	**2.4**	**-4.4**	**0.4**	**1.4**	**-**	**-**
Blmbg. U.S. Aggregate Index			*-2.5*	*-3.2*	*-1.2*	*-0.9*	*-10.3*	*-0.3*	*0.6*	*-5.2*	*0.1*	*1.1*	*2.5*	-
BlackRock Core Plus Fixed Income	75,493,162	4.0	-2.7	-3.3	-1.2	-0.8	-11.1	0.5	0.9	-5.3	0.2	1.2	2.8	3.4
Blmbg. U.S. Aggregate Index			*-2.5*	*-3.2*	*-1.2*	*-0.9*	*-10.3*	*-0.3*	*0.6*	*-5.2*	*0.1*	*1.1*	*2.5*	*3.1*
Doubleline Core Plus	102,907,754	5.5	N/A	-0.6	2.4	0.2	-10.1	2.9	3.8	-3.3	0.4	-	-	-
Blmbg. U.S. Aggregate Index			*-2.5*	*-3.2*	*-1.2*	*-0.9*	*-10.3*	*-0.3*	*0.6*	*-5.2*	*0.1*	-	-	-
MacKay Shields Core Plus	98,546,899	5.3	-2.4	-2.7	-0.4	-0.5	-12.0	3.7	2.0	-4.6	0.5	-	-	-
Blmbg. U.S. Aggregate Index			*-2.5*	*-3.2*	*-1.2*	*-0.9*	*-10.3*	*-0.3*	*0.6*	*-5.2*	*0.1*	-	-	-
Total Emerging Markets Fixed Income	**52,495,105**	**2.8**	**-2.2**	**-2.0**	**4.8**	**12.5**	**-19.4**	**10.3**	**14.4**	**-1.3**	**-**	**-**	**-**	**-**
50% JPM EMBI Global Div/50% JPM GBI EM Global Div			*-3.0*	*-2.7*	*3.0*	*9.4*	*-20.2*	*7.1*	*11.6*	*-3.6*	-	-	-	-
PGIM Emerging Markets Debt	52,495,105	2.8	-2.2	-2.0	4.8	12.5	-19.4	10.3	14.4	-1.3	-	-	-	-
50% JPM EMBI Global Div/50% JPM GBI EM Global Div			*-3.0*	*-2.7*	*3.0*	*9.4*	*-20.2*	*7.1*	*11.6*	*-3.6*	-	-	-	-
Total Real Estate	**304,869,298**	**16.3**	**0.0**	**-0.6**	**-6.2**	**-7.2**	**24.8**	**2.2**	**-7.2**	**5.7**	**5.3**	**7.4**	**4.4**	**7.5**
NCREIF ODCE			*-2.2*	*-2.2*	*-8.2*	*-10.7*	*28.3*	*7.1*	*-12.9*	*6.2*	*4.7*	*7.2*	*4.6*	*7.4*
RREEF America II	151,566,648	8.1	0.0	0.0	-7.5	-11.6	36.1	2.1	-10.3	7.3	6.3	8.1	5.8	-
NCREIF ODCE net 1Q Lag			*-2.9*	*-2.9*	*-11.0*	*-3.9*	*27.3*	*1.5*	*-10.7*	*7.0*	*5.6*	*7.8*	*4.7*	-
American Realty Strategic Value Fund	79,490,762	4.2	0.0	-2.2	-8.0	-1.8	20.2	3.4	-6.6	6.2	-	-	-	-
NCREIF ODCE net 1M Lag			*0.0*	*-2.9*	*-11.0*	*-3.9*	*27.3*	*1.5*	*-10.7*	*7.0*	-	-	-	-
Invesco Commercial Mortgage Income Fund	71,882,735	3.8	0.0	0.0	-1.2	-1.7	-	-	-1.7	-	-	-	-	-
NCREIF ODCE			*-2.2*	*-2.2*	*-8.2*	*-10.7*	-	-	*-12.9*	-	-	-	-	-
SSGA US REIT Index Non-Lending Fund	675,117	0.0	-7.0	-7.4	-2.1	-0.7	-	-	2.6	-	-	-	-	-
Dow Jones U.S. REIT Index			*-7.0*	*-8.3*	*-5.3*	*-4.2*	-	-	*-1.5*	-	-	-	-	-

Policy Index (10/1/2021): 26% Russell 3000, 16% MSCI ACWI ex US, 3% MSCI ACWI, 17% Bloomberg US Aggregate, 3% JPM EMBI Global/ JPM GBI EM Index, 13.4% NCREIF-ODCE, 5% Russell 2000, 4.6% MSCI REIT Index, 7% Private Equity Returns, 5% Private Credit Returns. Macquarie Large Cap Growth liquidated April 2022. Doubleline Core Plus and Mellon Capital Cash Account market values are as of 8/31, net of September's cash flows. Due to the lagged nature of Private Market Fund valuations, Private Markets Fund returns have been excluded from monthly updates. All data is preliminary. FY 6/30.

	Market Value	% of Portfolio	1 Mo	Fiscal YTD	YTD	Fiscal 2023	Fiscal 2022	Fiscal 2021	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Total Infrastructure	**84,853,985**	**4.5**	**1.5**	**0.9**	**6.1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
NCREIF ODCE			*-2.2*	*-2.2*	*-8.2*	-	-	-	-	-	-	-	-	-
IFM Global Infrastructure	84,853,985	4.5	1.5	0.9	6.1	-	-	-	-	-	-	-	-	-
NCREIF ODCE			*-2.2*	*-2.2*	*-8.2*	-	-	-	-	-	-	-	-	-
Total Private Equity	**137,406,859**	**7.3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Private Equity Benchmark			*0.0*	*0.5*	*-1.8*	*-3.4*	*30.9*	*42.4*	*-2.5*	*20.3*	*16.9*	*13.9*	*11.6*	-
Altas Partners Holdings III	234,064	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Ocean Avenue Fund III	21,098,171	1.1	-	-	-	-	-	-	-	-	-	-	-	-
Ocean Avenue Fund IV	29,377,742	1.6	-	-	-	-	-	-	-	-	-	-	-	-
Ocean Avenue Fund V	3,773,516	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Pantheon Ventures	143,861	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pathway Private Equity Fund Investors 8	27,172,856	1.4	-	-	-	-	-	-	-	-	-	-	-	-
Pathway Private Equity Fund Investors 9	25,038,485	1.3	-	-	-	-	-	-	-	-	-	-	-	-
Pathway Private Equity Fund Investors 10	25,101,034	1.3	-	-	-	-	-	-	-	-	-	-	-	-
Stepstone Secondary Opportunities Fund II	4,177,501	0.2	-	-	-	-	-	-	-	-	-	-	-	-
KSL Capital Partners Fund VI	1,254,036	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Audax- Private Equity Fund VII-B	1,289,628	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Total Private Credit	**127,207,466**	**6.8**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Private Credit Benchmark			*0.0*	*3.6*	*8.7*	*2.7*	*7.5*	*28.3*	*10.4*	*10.1*	*8.5*	-	-	-
Sixth Street DCP (frmrly TSSP DCP)	91,890,320	4.9	-	-	-	-	-	-	-	-	-	-	-	-
Total Opportunistic	**35,317,146**	**1.9**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Sixth Street TAO Contingent (frmrly TSSP TAO Contingent)	32,781,771	1.7	-	-	-	-	-	-	-	-	-	-	-	-
KKR Mezzanine Partners I	2,535,375	0.1	-	-	-	-	-	-	-	-	-	-	-	-

Policy Index (10/1/2021): 26% Russell 3000, 16% MSCI ACWI ex US, 3% MSCI ACWI, 17% Bloomberg US Aggregate, 3% JPM EMBI Global/ JPM GBI EM Index, 13.4% NCREIF-ODCE, 5% Russell 2000, 4.6% MSCI REIT Index, 7% Private Equity Returns, 5% Private Credit Returns. Macquarie Large Cap Growth liquidated April 2022. Doubleline Core Plus and Mellon Capital Cash Account market values are as of 8/31, net of September's cash flows. Due to the lagged nature of Private Market Fund valuations, Private Markets Fund returns have been excluded from monthly updates. All data is preliminary. FY 6/30.

TULARE COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

SUMMARY EDUCATION REPORT

NAME OF ATTENDEE: Leanne Malison

CONFERENCE/SEMINAR ATTENDED: DWS Washington Analysis with Frank Kelly

DATES ATTENDED: October 10, 2023

NUMBER OF CONTINUING EDUCATION HOURS OBTAINED: 1

TOPICS OF DISCUSSION: Frank Kelly reviewed the geopolitical ramifications of the war in Israel. He provided background and analysis of the unfolding situation. George Catrambone, DWS Head of U.S. Fixed Income, also addressed effects on the market.

REASON MEETING WAS BENEFICIAL TO RETIREMENT SYSTEM: The information provided was timely and insightful. Getting perspectives from experts is beneficial in staying informed.

RECOMMENDATION REGARDING FUTURE ATTENDANCE: *(I.E., SHOULD WE SEND A REPRESENTATIVE IN THE FUTURE? IF SO, WHO SHOULD ATTEND?)*

Staff and trustees should take advantage of manager webinars of interest.

Leanne Malison
Signature

10/10/23
Date

NOTE: Attachments to this report will be held on file in the Retirement Office for review by interested parties, but will not be photocopied for the Retirement Board.
RETBD\EDUC-SUM.RPT

EDUCATIONAL EVENTS - Board of Retirement

2023

1. **CALAPRS**, Virtual Trustees Roundtable, October 27, 2023. Agenda Pending.

2. **SACRS,** Fall Conference. November 7-10, 2023, Omni Rancho Las Palmas Resort & Spa, Rancho Mirage, CA. Preliminary Agenda in Binder.

3. **Invesco**, Real Estate Global Client Conference, November 14-16, 2023, The Lodge at Torrey Pines, San Diego, CA. Agenda Pending.

Edelstein Gilbert Robson & Smith

Donald B. Gilbert Michael R. Robson Trent E. Smith Jason D. Ikerd

October 5, 2023

TO: State Association of County Retirement Systems

FROM: Edelstein Gilbert Robson & Smith, LLC

RE: Legislative Update – October 2023

The California Legislature closed out its work for the 2023 legislative session on the evening of September 14th, sending approximately 900 bills to the Governor for consideration. The Governor has until October 14th to act on those measures.

While there were several areas of public policymaking that captured the Legislature's attention this year, labor and employment policy primarily dominated the legislative landscape. This was driven by ongoing strikes affecting the entertainment and Southern California lodging industries. Additionally, threatened strikes by healthcare workers, state and local public employee unions, UPS, pending statewide ballot measures, and a referendum to overturn a recently enacted restaurant wage law, the media deemed summer 2023 to be California's "Hot Labor Summer".

The Democrat dominated and labor-friendly Legislature responded with dozens of legislative proposals aimed at assisting its most important constituency: organized labor. With overwhelming 3/4 supermajorities in each house of the Legislature, labor-backed, Democrat-authored labor bills are almost certain to pass. Among the many labor-backed bills that the Governor has acted on are:

> SB 799 (Portantino) Unemployment Insurance for Striking Workers -- VETOED
> This bill would have made striking workers who have been on strike for more than two weeks eligible for unemployment insurance benefits.
>
> SB 616 (Gonzalez) – Paid Sick Leave -- SIGNED
> This bill would extend the annual amount of paid sick leave required to be given to an employee from three days to five days.

The Governor has not yet acted on AB 1 which would allow legislative employees to join a union and collectively bargain for their wages and working conditions.

Legislation of Interest

SB 885 (Committee on Labor, Public Employment and Retirement). This is the annual committee omnibus bill that contains various cleanup provisions for CalSTRS, CalPERS and CERL systems. The amendments to the CERL make non-substantive, technical changes as well as conform provisions on Required Minimum Distributions to federal law under the SECURE ACT 2.0 by referencing the federal law instead of a specific age.

The Governor signed this bill into law.

AB 1020 (Grayson) – CERL Disability Presumptions. This bill would establish several new disability retirement presumptions for various injuries and illnesses in the CERL, similar to provisions that exist in the Labor Code. The bill is sponsored by the California Professional Firefighters. The author and sponsor agreed to technical clarifications proposed by SACRS that were amended into the bill in June. CSAC remains opposed to the bill.

The bill is on the Governor's desk.

AB 1637 (Irwin) - Local Government Websites and Email Addresses. Would, no later than January 1, 2029, require a local agency, as defined, that maintains an internet website for use by the public to ensure that the internet website utilizes a ".gov" top-level domain or a ".ca.gov" second-level domain and would require a local agency that maintains an internet website that is noncompliant with that requirement to redirect that internet website to a domain name that does utilize a ".gov" or "ca.gov" domain. This bill, no later than January 1, 2029, would also require a local agency that maintains public email addresses to ensure that each email address provided to its employees utilizes a ".gov" domain name or a ".ca.gov" domain name. By adding to the duties of local officials, the bill would impose a state-mandated local program.

The bill is on the Governor's desk.

AB 557 (Hart) - Brown Act Emergency Teleconferencing Sunset Extension. This bill would remove the sunset in current law to allow teleconferencing during certain emergencies as well as increase the time period when the Board must renew the findings of an emergency or need for social distancing from 30 days to 45 days.

The bill is on the Governor's desk.

SB 537 (Becker) - Teleconference Flexibilities. This bill would allow expanded teleconference flexibilities for multijurisdictional, cross county legislative bodies if certain requirements are met, along with adding to the list of circumstances where a member is permitted to participate remotely. The bill has been narrowed considerably as it advanced through various policy committees in each house.

The bill was held on the Assembly Floor and may be considered when the Legislature returns in January.

2024 Legislative Preview

The legislative committee is currently working on proposals for consideration at the fall conference.

TCERA Board of Retirement
2023 Trustee Education/Presentation Calendar

Month	**Meeting Date**	**Education/Presentation Topics**
January	January 11 January 25	
February	February 8 February 22	Parliamentary Procedures Education – Counsel 12/31/22 Investment Report – Verus
March	March 8 March 22	 PIMCO RAE SGA
April	April 12 April 26	 Invesco IFM
May	SACRS – May 9-12 May 24	 3/31/23 Investment Report – Verus Strategic Asset Allocation Review - Verus
June	June 14 June 28	 Pathway
July	July 12 July 26	Disability Education – Counsel BlackRock (Rescheduled to 2024) DoubleLine Cryptocurrency and Blockchain Education
August	August 9 August 23	Strategic Planning Session 6/30/23 Investment Report – Verus Investment Manager Fee Review

September	September 13 September 27	 Trigger Fund Education – Verus Boston Partners Leeward
October	October 11 October 25	Preliminary Actuarial Analysis and Presentation of Three-Year Experience Study – Cheiron Joint Meeting with Board of Supervisors Fixed Income/Credit Spread Education – BlackRock Real Asset Market Environment Education - Verus Actuarial Discussion – Part 2 – Cheiron
November	November 1 - due to SACRS SACRS Nov 7-10 November 15 - due to Thanksgiving Holiday	Final Actuarial Valuation Report and Three-Year Experience Study - Cheiron 9/30/23 Investment Report Private Markets Review - Verus Final Actuarial Valuation Report and Three-Year Experience Study – Part 2 (if needed) - Cheiron
December	December 13	Brown Armstrong – Audit Results

Expected 2024 Investment Manager Regular Biennial Presentations:

BlackRock (Rescheduled to February 28, 2024)
QMA (PGIM)
Sixth Street
RREEF
Ocean Avenue
William Blair
KBI
PGIM (EM Debt)
American Realty
MacKay Shields