

**AGENDA**  
1118<sup>th</sup> MEETING OF THE BOARD OF TRUSTEES  
OF THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT  
OCTOBER 11TH, 2023

TIME: 5:00 P.M.

PLACE: Join in person at the Office of the District  
23187 Connecticut Street, Hayward, CA 94545 or  
Join remotely via teleconference: <https://us02web.zoom.us/j/86094737471>  
**see below for additional details.**

TRUSTEES: Victor Aguilar, President, City of San Leandro  
Cathy Roache, Vice-President, County-at-Large  
City of Livermore, vacant  
Tyler Savage, City of Alameda: *from 2315 Lincoln Ave, Alameda, CA*  
Robin López, City of Albany: *from 1000 San Pablo Ave, Albany, CA*  
P. Robert Beatty, City of Berkeley  
Kashef Qaadri, City of Dublin: *from 100 Civic Plaza Dublin, CA*  
Courtney Welch, City of Emeryville: *from 6301 Shellmound St, Emeryville CA*  
George Young, City of Fremont: *from 35679 Dee Place, Fremont CA*  
George Syrop, City of Hayward  
Eric Hentschke, City of Newark  
Jan O. Washburn, City of Oakland  
Hope Salzer, City of Piedmont: *from 76 Cambrian Ave, Piedmont, CA*  
Valerie Arkin, City of Pleasanton: *from 3740 Newton Way, Pleasanton, CA*  
Subru Bhat, City of Union City

1. Call to order.
2. Roll call.
3. President Aguilar invites any member of the public to speak at this time on any issue relevant to the district (each individual is limited to three minutes).
4. Approval of the minutes of the 1117<sup>th</sup> Regular Meeting held September 13<sup>th</sup>, 2023 (**Board action required**).
5. Ad-Hoc Nominating Committee nominates a slate of 2024 District Officers for Board approval (**Board action required**).
6. Election of Board Secretary for the remainder of 2023 (**Board action required**).  
Nominee: Tyler Savage
7. Discussion on remote meeting attendance (Information only).
8. Update from the Ad-Hoc Strategic Planning Committee (Information only).
9. Review of CalPERS June 30<sup>th</sup>, 2022, valuation reports (Information only).
  - a. Staff report
  - b. Actuarial Valuation as of June 30, 2022, for the Miscellaneous Plan of the Alameda County Mosquito Abatement District
  - c. Actuarial Valuation as of June 30, 2022, for the PEPRA Miscellaneous Plan of the Alameda County Mosquito Abatement District

10. Financial Reports as of September 30<sup>th</sup>, 2023: (Information only).

- a. Check Register
- b. Income Statement
- c. Investment, reserves, and cash report
- d. Balance Sheet

11. Presentation of the Monthly Staff Report (Information only).

12. Presentation of the Manager's Report (Information only).

- a. CDPH Weekly Arbovirus Surveillance Bulletin, WNV update
- b. CSDA Capitol Tour visits ACMAD: 9/27/2023
- c. MVCAC Annual Conference: January 22<sup>nd</sup>-24<sup>th</sup>, 2024, Monterey, CA
- d. Reappointment requests (Beatty, Qaadri, Hentschke, Arkin, Aguilar, Bhat)
- e. Required training expiration date:
  - i. AB 1234: Savage (12/23), Arkin (11/27), Bhat (12/17)
  - ii. AB 1825: Aguilar (8/11), Young (1/26), Bhat, (12/2), Roache (11/15)

13. Board President asks for reports on conferences and seminars attended by Trustees.

14. Board President asks for announcements from members of the Board.

15. Board President asks trustees for items to be added to the agenda for the next Board meeting.

16. Adjournment.

ANYONE ATTENDING THE MEETING MAY SPEAK ON ANY AGENDA ITEM AT THEIR REQUEST.

**Please Note: Board Meetings are accessible to people with disabilities and others who need assistance. Individuals who need special assistance or a disability-related modification or accommodation (including auxiliary aids or services) to observe and/or participate in this meeting and access meeting-related materials should contact Ryan Clausnitzer at least 48 hours before the meeting at 510-783-7744 or [acmad@mosquitoes.org](mailto:acmad@mosquitoes.org).**

**IMPORANT NOTICE REGARDING MEETING PARTICIPATION:**

All members of the public seeking to observe and/or to address the local legislative body may participate in the meeting by attending in person at the address listed above, telephonically, or otherwise electronically in the manner described below.

**HOW TO OBSERVE THE MEETING:**

**In Person:** Attend in person at the Office of the District located at 23187 Connecticut Street, Hayward, CA 94545.

**Telephone:** Listen to the meeting live by calling Zoom at **(669) 900-6833** Enter the **Meeting ID# 860 9473 7471** followed by the pound (#) key.

**Computer:** Watch the live streaming of the meeting from a computer by navigating to <https://us02web.zoom.us/j/86094737471>

**Mobile:** Log in through the Zoom mobile app on a smartphone and enter **Meeting ID# 860 9473 7471**

**HOW TO SUBMIT PUBLIC COMMENTS:**

**Before the Meeting:** Please email your comments to [acmad@mosquitoes.org](mailto:acmad@mosquitoes.org), write "Public Comment" in the subject line. In the body of the email, include the agenda item number and title, as well as your comments. If you would like your comment to be read aloud at the meeting (not to exceed three minutes at staff's cadence), prominently write "Read Aloud at Meeting" at the top of the email. All comments received before 12:00 PM the day of the meeting will be included as an

agenda supplement on the District's website under the relevant meeting date and provided to the Trustees at the meeting. Comments received after this time will not be read aloud but will be added to the record after the meeting.

**During the Meeting:** The Board President or designee will announce the opportunity to make public comments. Speakers will be asked to provide their name and city of residence, although providing this is not required for participation. Each speaker will be afforded up to 3 minutes to speak unless another time is specified. Speakers should remain silent and/or will be muted until their opportunity to provide public comment.

**In Person:** Members of the public may raise their hand and wait to be recognized by the Board President or designee.

**Telephone:** Press star (\*)9, which will alert staff that you have a comment to provide.

**Computer or Mobile:** Use the "raise hand" feature to alert staff that you have a comment to provide.

#### **PUBLIC RECORDS:**

Public records that relate to any item on the open session agenda for a meeting are available for public inspection. Those records that are distributed after the agenda posting deadline for the meeting are available for public inspection at the same time they are distributed to all or a majority of the members of the Board. The Board has designated the District's website located at <https://www.mosquitoes.org/board-of-trustees-regular-meetings> as the place for making those public records available for inspection. The documents may also be obtained by emailing [acmad@mosquitoes.org](mailto:acmad@mosquitoes.org).

#### **CEQA NOTICE:**

Unless expressly stated otherwise on the agenda (that an MND or EIR is being considered), discretionary actions taken on agenda items will include a finding by the Board that the action is exempt under CEQA. More information about the CEQA determination can be found in the corresponding staff report.

## MINUTES

### 1117<sup>th</sup> MEETING OF THE BOARD OF TRUSTEES OF THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT

September 13<sup>th</sup>, 2023

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TIME: 5:00 P.M.  
PLACE: Hybrid Meeting of the Board of Trustees  
Physically held at the Office of the District  
23187 Connecticut Street, Hayward, CA 94545 and  
Teleconferencing at: <https://us02web.zoom.us/j/84318587859>  
TRUSTEES: Victor Aguilar, President, City of San Leandro  
Cathy Roache, Vice-President, County-at-Large  
City of Livermore, vacant  
Tyler Savage, City of Alameda: *from 2315 Lincoln Ave, Alameda, CA*  
Robin López, City of Albany: *from 1000 San Pablo Ave, Albany, CA*  
P. Robert Beatty, City of Berkeley: *from 2052 McGee Ave, Berkeley, CA*  
Kashef Qaadri, City of Dublin: *from 100 Civic Plaza, Dublin CA*  
Courtney Welch, City of Emeryville: *from 6301 Shellmound St, Emeryville, CA*  
George Young, City of Fremont: *from 35679 Dee Pl, Fremont, CA*  
George Syrop, City of Hayward  
Eric Hentschke, City of Newark  
Jan O. Washburn, City of Oakland  
Hope Salzer, City of Piedmont: *from 76 Cambrian Ave, Piedmont, CA*  
Valerie Arkin, City of Pleasanton: *from 3740 Newton Way, Pleasanton, CA*  
Subru Bhat, City of Union City

1. Board President Aguilar called the regularly scheduled board meeting to order at 5:01 pm.
2. Trustees Aguilar, Roache, Qaadri, Hentschke, and Bhat were present in-person at the district. Trustees Savage, Beatty, Salzer, and Arkin attended remotely from the publicly posted locations noted above. Trustees Syrop and Washburn attended remotely under the AB 2449 exemption. Trustees López, and Welch were absent. Trustee Young logged remotely from the publicly posted location at 5:54 pm.
3. President Aguilar invited members of the public to speak on any issue relevant to the district. Mechanical Specialist, Mark Wieland, was present for item 5. Vector Biologist, Sarah Lawton, was present to record the minutes. Information & Technology Director, Robert Ferdan, was present remotely for technical support.
4. Approval of the minutes of the 1116<sup>th</sup> meeting held August 9<sup>th</sup>, 2023.  
**Discussion:** None  
**Motion:** Trustee Roache moved to approve the minutes  
**Second:** Trustee Qaadri  
**Vote:** motion carries: Trustee Savage abstains

5. Approve replacement of truck V35, a 2008 Ford Ranger, with a 2023 EV Ford F-150 Lightning PRO, by Mechanical Specialist, Mark Wieland.

**Discussion:** Trustee Bhat asked why we chose Ford instead of another make? (Ford is the only company that has a utility-focused Electric Vehicle (EV). Other options, like Rivian or Tesla, are more luxury and not utility focused.) Trustee Qaadri asked when this EV would be available? (We expect 3-4 months). Trustee Qaadri also asked about the concern that batteries could start fires? (We will remain alert to any recalls or safety warnings.) Trustee Roache says her fleet has a couple EVs and they are working well. Trustee Bhat says his son has an EV Ford Mustang, and it is good so far. (Eventually we feel there will be more EV utility options.) Trustee Arkin is glad to see the purchase of an EV, she also asked what is the battery range? (240-270 miles per charge for the baseline battery pack. Upgraded battery pack is \$10,000 for an extra 100-mile range.) Trustee Savage wants to know the status of the Ranger, is there anything wrong with it? (It is a 2008 model with about 100,000 miles and in decent condition. The last few Rangers we sold; we received over \$10,000 each. The General Manager mentioned usual capital replacement for vehicles is after 12 years, and we are past that. Mark pointed out that he does not replace items solely based on age or miles, for example, the public outreach van is a 2003 model.) Trustee Salzer asked if the district investigated any grants for purchasing an EV? She also feels that purchasing an EV is a really important and positive step for a public agency. (We will look into grant opportunities.) President Aguilar asked if there are any tax incentives for purchasing an EV. (We looked into general incentives but did not find any. However, they are removing dealer price mark-ups). Trustee Hentschke asked if they will be able to charge with our current chargers? (Yes.) Why was 240-volt battery highlighted in the packet? (It was unintentionally part of the bid, which was deleted from the quote because the item was not needed.) Trustee Roache asked if we only have the two chargers? (We have 4.) She also asked if we are worried about the new truck being parked closer to the street and added that while we will have a higher electric bill, it is a good thing we have solar panels. (We have an updated alarm system which notifies the intruder and ACMAD staff immediately.) Trustee Salzer added that maintenance costs are also cheaper with EVs compared to combustion vehicles.

**Motion:** Trustee Arkin moved to approve the replacement

**Second:** Trustee Salzer

**Vote:** motion carries: unanimous

6. Appointment of a nominating committee to identify a candidate for the vacant district Board Secretary position.

**Discussion:** The General Manager explained that Trustee Cox had to step down because his employer meetings were on the same day/time as ACMAD Board meetings. President Aguilar pointed out that Trustee Welch is next on the list based on seniority, which has been the common practice. President Aguilar asked for nominees. Trustee Beatty asked if this decision could wait until January, or do we need to decide now? He also pointed out that if we go off of seniority, that person only has a couple years of experience on the Board and would then be Vice-President the following year. (We do not need to go off seniority, we can nominate anyone. Regardless, the General Manager helps the incoming Trustee learn what needs to be done.) President Aguilar, Trustee Hentschke, and Trustee Qaadri volunteered to be on the nominating committee.

**Motion:** Trustee Roache moved to approve the committee members

**Second:** Trustee Bhat

**Vote:** motion carries: unanimous

7. Appointment of an ad-hoc strategic planning committee
  - a. Staff Report
  - b. ACMAD 2021-2023 Strategic Plan
  - c. ACMAD 2018-2021 Strategic Plan

**Discussion:** Trustee Bhat added that an extra benefit of participating in the strategic planning is that Trustees can contribute to the district's overall goals. President Aguilar asked what the years are for this strategic plan? (2024-2026) Trustee Washburn asked Trustee Beatty if they both participated on the committee last time. Trustee Beatty said yes. Trustee Washburn and Trustee Beatty volunteered to be on the committee. Trustee Washburn also added that this is a great way to interact with district staff. Trustee Arkin asked how many meetings are typical for this committee. Trustee Washburn and Beatty both said it is about 3-4 meetings, which could be done remotely, except for the in-person meeting/holiday dinner in December. Trustee Arkin volunteered to be on the committee. Trustee Salzer volunteered to be on the committee. Trustee Syrop had expressed interest in the past but feels he does not need to be on the committee if Trustee Salzer is on it. Trustee Bhat volunteered to be on the committee.

**Motion:** Trustee Qaadri moved to appoint Trustees: Washburn, Beatty, Arkin, Salzer, and Bhat to the committee

**Second:** Trustee Hentschke

**Vote:** motion carries: unanimous

8. Financial Reports as of July 31<sup>st</sup>, 2023:
  - a. Check Register
  - b. Income Statement
  - c. Investment, reserves, and cash report
  - d. Balance Sheet

**Discussion:** Trustee Qaadri asked about liabilities and capital section. (The General Manager explained some of the items but will have to report back after speaking with Michelle Robles.)

9. Presentation of the Monthly Staff Report.

**Discussion:** Trustee Bhat asked where the dead birds are picked up from? (Residents call to report the dead birds and we pick them up to test them.) Trustee Salzer asked about the three different *Culex* species, is one spreading it more than others? (We are most concerned with *Cx. pipiens*, "House Mosquito," because they bite humans more than other species. *Cx. tarsalis* "Encephalitis Mosquito," are a concern, but prefer to bite birds to humans. However, if abundance is high enough and positive with WNV, we would adult control for *Cx. tarsalis* as well.) She also asked are the *Cx. tarsalis* primarily spreading it through the birds? (Cannot confirm which species are transmitting WNV to birds. Birds fly, so they can spread the virus easily.) President Aguilar asked if the "atmospheric rivers" are affecting the virus this year? (Trustee Washburn mentioned that his local birds have had 3 rounds of offspring this year instead of the usual 1. Trustee Roache mentioned that the fruit fly numbers are up this year as well. The General Manager pointed out that the mosquito abundance this year is also high.) Trustee Roache pointed out that the Agriculture Commissioner's office attended the recent adult control treatment to ensure everything is done properly so that they can in-turn ensure the public if needed.) Trustee Savage asked about the response to the possible human-WNV case, was it the same as if it was not a travel-related case? (Yes, we aired on the side of caution, especially with WNV activity in Alameda. We had already been heavily treating in the area, and had thought of doing adult control, but with so many recent larval treatments and trap results, we decided it would not be warranted.) Trustee Hentschke asked who receives the public

notices that we send out (anyone can sign up to receive our notifications, but we add key stakeholders such as health departments, other mosquito districts, park districts, newspapers, beekeepers, etc.)

10. Presentation of the Manager's Report

- a. Staff Anniversaries
- b. CDPH Weekly Arbovirus Surveillance Bulletin, WNV update
- c. CSDA Capital Tour of ACMAD: September 27<sup>th</sup> @ 9:00 am
- d. Training due: AB 1825: Aguilar, Young

11. Board President asks for reports on conferences and seminars attended by Trustees.  
**Discussion:** Trustee Qaadri attended CSDA meeting and presented a few highlights: They presented good insights on public engagement, discussed DEI initiatives and ways to improve, as well as the best ways to run a meeting. Trustee Salzer asked if Trustee Qaadri could elaborate about public engagement from the CSDA meeting. Trustee Qaadri did not have his notes but mentioned: the benefits of connecting early and often. If an agency is out in community, you already have trust built from face-to-face interactions. Ex: cemetery had a Dia de los Muertos event to bring people in, in a more positive way.

12. Board President asks for announcements from members of the Board.

**Discussion:** Trustee Arkin mentioned the League of Cities conference next week, which President Aguilar and Trustee Qaadri will also be attending. Trustee Arkin also mentioned that she was just hired by Supervisor Miley's Pleasanton office.

13. Board President asks Trustees for items to be added to the agenda for the next Board meeting.

**Discussion:** The General Manager asked if Trustees know that they cannot attend a meeting, to please notify us as soon as possible. While we are following Brown Act Open Meeting laws, it is preferred to attend more meetings in person.

14. Adjournment at 6:32 pm.

**Respectfully submitted,**

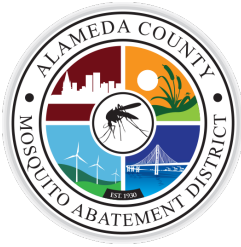
Approved as written and/or corrected  
at the 1118<sup>th</sup> meeting of the Board of  
Trustees held October 11<sup>th</sup>, 2023

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Cathy Roache, Vice President  
BOARD OF TRUSTEES

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Victor Aguilar, President  
BOARD OF TRUSTEES



## Staff Report on CalPERS Actuarial Valuation – June 30, 2022

### Board of Trustees

#### *President*

Victor Aguilar

#### **San Leandro**

#### *Vice-President*

Cathy Roache

#### **County-at-Large**

Tyler Savage

#### **Alameda**

Robin López

#### **Albany**

P. Robert Beatty

#### **Berkeley**

Kashef Qaadri

#### **Dublin**

Courtney Welch

#### **Emeryville**

George Young

#### **Fremont**

George Syrop

#### **Hayward**

*vacant*

#### **Livermore**

Jan O. Washburn

#### **Oakland**

Eric Hentschke

#### **Newark**

Hope Salzer

#### **Piedmont**

Valerie Arkin

#### **Pleasanton**

Subru Bhat

#### **Union City**

#### **Ryan Clausnitzer**

*General Manager*

**Summary:** The 2022 valuation report contains demographic data and financial information through June 30, 2022, to establish the required contributions for employers as well as certain members (e.g., PEPRA employees) for FY 2024-25. CalPERS recently announced a net return of 5.8% on its investments, this will be reflected in the June 30, 2023, valuation report (available August 2024).

### **Highlights of 2022 Valuation Results (report page listed):**

#### **Classic:**

- Page 4: Employer contribution will increase from 13.26% to 13.31%.
- Page 4: The minimum required employer contribution towards the Unfunded Accrued Liability (UAL) for the 2024-25 FY increased by \$61,044.00 from 2023-24 FY's UAL payment.
- Page 6: Plan's Funded Status as of June 30, 2022 – Decreased by 11.3% to 71.3% (this funding status does not reflect the district's pension stabilization fund)
- Page 7: Lists the projected employer contributions for the next six fiscal years.
- Pages 19-20: Provides discount rate sensitivity due to investment return scenarios.
- Pages 24 & 25: Provides the district's participant data and lists the benefit options.

#### **PEPRA:**

- Page 4: Employer contribution increasing from 8.00% to 8.18%.
- Page 4: Member contributions will remain the same – 8.25%.
- Page 4: The minimum required employer contribution towards the UAL for the 2024-25 FY is \$3,821.00, the district did not remit any contributions for the 2023-24 FY.
- Page 6: Plan's Funded Status as of June 30, 2022 – Decreased by 16.5% to 86.3%. (this funding status does not reflect the district's pension stabilization fund)
- Pages 23 & 24: Provides the district's participant data and lists the benefit options.

#### **Attachments:**

- Valuation Report – Classic Plan
- Valuation Report – PEPRA Plan





**California Public Employees' Retirement System  
Actuarial Office**

400 Q Street, Sacramento, CA 95811 | Phone: (916) 795-3000 | Fax: (916) 795-2744  
888 CalPERS (or 888-225-7377) | TTY: (877) 249-7442 | [www.calpers.ca.gov](http://www.calpers.ca.gov)

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July 2023

**Miscellaneous Plan of the Alameda County Mosquito Abatement District (CalPERS ID: 5854416969)  
Annual Valuation Report as of June 30, 2022**

Dear Employer,

Attached to this letter is the June 30, 2022 actuarial valuation report for the rate plan noted above. **Provided in this report is the determination of the minimum required employer contributions for fiscal year (FY) 2024-25.** In addition, the report contains important information regarding the current financial status of the plan as well as projections and risk measures to aid in planning for the future.

Because this plan is in a risk pool, the following valuation report has been separated into two sections:

- Section 1 contains specific information for the plan including the development of the current and projected employer contributions, and
- Section 2 contains the Risk Pool Actuarial Valuation appropriate to the plan as of June 30, 2022.

Section 2 can be found on the CalPERS website ([www.calpers.ca.gov](http://www.calpers.ca.gov)). From the home page, go to "Forms & Publications" and select "View All". In the search box, enter "Risk Pool" and from the results list download the Miscellaneous Risk Pool Actuarial Valuation Report for June 30, 2022.

Actuarial valuations are based on assumptions regarding future plan experience including investment return and payroll growth, eligibility for the types of benefits provided, and longevity among retirees. The CalPERS Board of Administration (board) adopts these assumptions after considering the advice of CalPERS actuarial and investment teams and other professionals. Each actuarial valuation reflects all prior differences between actual and assumed experience and adjusts the contribution requirements as needed. This valuation is based on an investment return assumption of 6.8%, which was adopted by the board in November 2021. Other assumptions used in this report are those recommended in the CalPERS Experience Study and Review of Actuarial Assumptions report from November 2021.

**Required Contributions**

The table below shows the minimum required employer contributions for FY 2024-25 along with estimates of the required contributions for FY 2025-26. Employee contributions other than cost sharing (whether paid by the employer or the employee) are in addition to the results shown below. **The required employer contributions in this report do not reflect any cost sharing arrangement between the agency and the employees.**

Fiscal Year	Employer Normal Cost Rate	Employer Amortization of Unfunded Accrued Liability
2024-25	13.31%	\$360,298
<i>Projected Results</i>		
2025-26	13.3%	\$390,000

The actual investment return for FY 2022-23 was not known at the time this report was prepared. The projections above assume the investment return for that year would be 6.8%. **To the extent the actual investment return for FY 2022-23 differs from 6.8%, the actual contribution requirements for FY 2025-26 will differ from those shown above.** For additional details regarding the assumptions and methods used for these projections, please refer to the "Projected Employer Contributions" in the "Highlights and Executive Summary" section. This section also contains projected required contributions through FY 2029-30.

#### **Changes from Previous Year's Valuations**

There are no significant changes in actuarial assumptions or policies in the 2022 actuarial valuation. There may be changes specific to the plan such as contract amendments and funding changes.

Further descriptions of general changes are included in "Highlights and Executive Summary" and in Appendix A of the Section 2 report in "Actuarial Methods and Assumptions." The effects of any changes on the required contributions are included in "Reconciliation of Required Employer Contributions," also in the Section 2 report.

#### **Questions**

A CalPERS actuary is available to answer questions about this report. Other questions may be directed to the Customer Contact Center at (888)-CalPERS or **(888-225-7377)**.

Sincerely,



SCOTT TERANDO, ASA, EA, MAAA, FCA, CFA  
Chief Actuary, CalPERS



RANDALL DZIUBEK, ASA, MAAA  
Deputy Chief Actuary, Valuation Services, CalPERS



**Actuarial Valuation  
as of June 30, 2022**

**for the  
Miscellaneous Plan  
of the**

**Alameda County Mosquito Abatement District**  
(CalPERS ID: 5854416969)

**Required Contributions  
for Fiscal Year  
July 1, 2024 - June 30, 2025**

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**Section 1 – Plan Specific Information**

**Section 2 – Risk Pool Actuarial Valuation Information**

# Section 1

CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

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**Plan Specific Information  
for the  
Miscellaneous Plan  
of the  
Alameda County Mosquito Abatement  
District**

**(CalPERS ID: 5854416969)  
(Rate Plan ID: 111)**

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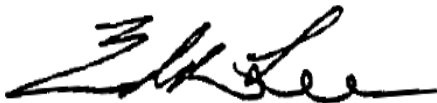
## Actuarial Certification

To the best of our knowledge, this report, comprised of Sections 1 and 2, is complete and accurate and contains sufficient information to disclose, fully and fairly, the funded condition of the Miscellaneous Plan of the Alameda County Mosquito Abatement District and satisfies the actuarial valuation requirements of Government Code section 7504. This valuation is based on the member and financial data as of June 30, 2022 provided by the various CalPERS databases and the benefits under this plan with CalPERS as of the date this report was produced. Section 1 of this report is based on the member and financial data for Alameda County Mosquito Abatement District, while Section 2 is based on the corresponding information for all agencies participating in the Miscellaneous Risk Pool to which the plan belongs.

As set forth in Section 2 of this report, the pool actuaries have certified that, in their opinion, the valuation of the Miscellaneous Risk Pool has been performed in accordance with generally accepted actuarial principles, in accordance with standards of practice prescribed by the Actuarial Standards Board, and that the assumptions and methods are internally consistent and reasonable for the risk pool as of the date of this valuation and as prescribed by the CalPERS Board of Administration according to provisions set forth in the California Public Employees' Retirement Law.

Having relied upon the information set forth in Section 2 of this report and based on the census and benefit provision information for the rate plan, it is my opinion as the plan actuary that the Unfunded Accrued Liability amortization bases as of June 30, 2022 and employer contribution as of July 1, 2024 have been properly and accurately determined in accordance with the principles and standards stated above.

The undersigned is an actuary who satisfies the *Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States* with regard to pensions.



EDDIE W. LEE, ASA, EA, FCA, MAAA  
Senior Actuary, CalPERS

## Highlights and Executive Summary

- **Introduction**
- **Purpose of Section 1**
- **Required Contributions**
- **Additional Discretionary Employer Contributions**
- **Funded Status – Funding Policy Basis**
- **Projected Employer Contributions**
- **Other Pooled Miscellaneous Risk Pool Rate Plans**
- **Cost**
- **Changes Since the Prior Year's Valuation**
- **Subsequent Events**



## Introduction

This report presents the results of the June 30, 2022 actuarial valuation of the Miscellaneous Plan of the Alameda County Mosquito Abatement District of the California Public Employees' Retirement System (CalPERS). This actuarial valuation sets the minimum required contributions for fiscal year (FY) 2024-25.

## Purpose of Section 1

This Section 1 report for the Miscellaneous Plan of the Alameda County Mosquito Abatement District of CalPERS was prepared by the Actuarial Office using data as of June 30, 2022. The purpose of the valuation is to:

- Set forth the assets and accrued liabilities of this rate plan as of June 30, 2022;
- Determine the minimum required employer contributions for this rate plan for FY July 1, 2024 through June 30, 2025;
- Determine the required member contribution rate for FY July 1, 2024 through June 30, 2025 for employees subject to the California Public Employees' Pension Reform Act of 2013 (PEPRA); and
- Provide actuarial information as of June 30, 2022 to the CalPERS Board of Administration (board) and other interested parties.

The pension funding information presented in this report should not be used in financial reports subject to Governmental Accounting Standards Board (GASB) Statement No. 68 for a Cost Sharing Employer Defined Benefit Pension Plan. A separate accounting valuation report for such purposes is available on the CalPERS website ([www.calpers.ca.gov](http://www.calpers.ca.gov)).

The measurements shown in this actuarial valuation may not be applicable for other purposes. The agency should contact the plan actuary before disseminating any portion of this report for any reason that is not explicitly described above.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; changes in actuarial policies; changes in plan provisions or applicable law; and differences between the required contributions determined by the valuation and the actual contributions made by the agency.

### Assessment and Disclosure of Risk

This report includes the following risk disclosures consistent with the guidance of Actuarial Standard of Practice No. 51 and recommended by the California Actuarial Advisory Panel (CAAP) in the Model Disclosure Elements document:

- A "Scenario Test," projecting future results under different investment income returns.
- A "Sensitivity Analysis," showing the impact on current valuation results using alternative discount rates of 5.8% and 7.8%.
- A "Sensitivity Analysis," showing the impact on current valuation results assuming rates of mortality are 10% lower or 10% higher than our current post-retirement mortality assumptions adopted in 2021.
- Plan maturity measures indicating how sensitive a plan may be to the risks noted above.

## Required Contributions

	Fiscal Year
<b>Required Employer Contributions</b>	<b>2024-25</b>
Employer Normal Cost Rate	13.31%
<i>Plus</i>	
Required Payment on Amortization Bases <sup>1</sup>	\$360,298
<i>Paid either as</i>	
1) Monthly Payment	\$30,024.83
<i>Or</i>	
2) Annual Prepayment Option*	\$348,639
<p><i>The total minimum required employer contribution is the sum of the Plan's Employer Normal Cost Rate (expressed as a percentage of payroll and paid as payroll is reported) plus the Employer Unfunded Accrued Liability (UAL) Contribution Amount (billed monthly (1) or prepaid annually (2) in dollars).</i></p> <p><i>* Only the UAL portion of the employer contribution can be prepaid (which must be received in full no later than July 31).</i></p>	

	Fiscal Year	Fiscal Year
	2023-24	2024-25
<b>Development of Normal Cost as a Percentage of Payroll</b>		
Base Total Normal Cost for Formula	18.76%	18.81%
Surcharge for Class 1 Benefits <sup>2</sup>		
a) FAC 1	0.63%	0.64%
b) PRSA	0.79%	0.79%
Phase out of Normal Cost Difference <sup>3</sup>	0.00%	0.00%
Plan's Total Normal Cost	20.18%	20.24%
Offset Due to Employee Contributions	6.92%	6.93%
Employer Normal Cost Rate	13.26%	13.31%

<sup>1</sup> The required payment on amortization bases does not take into account any additional discretionary payment made after April 28, 2023.

<sup>2</sup> Section 2 of this report contains a list of Class 1 benefits and corresponding surcharges.

<sup>3</sup> When a rate plan joins the pool, the difference in normal cost between the pool and the rate plan is phased out over a five-year period in accordance with the CalPERS contribution allocation policy.

## Additional Discretionary Employer Contributions

The minimum required employer contribution towards the Unfunded Accrued Liability (UAL) for this rate plan for FY 2024-25 is \$360,298. CalPERS allows agencies to make additional discretionary payments (ADPs) at any time and in any amount. These optional payments serve to reduce the UAL and future required contributions and can result in significant long-term savings. Agencies can also use ADPs to stabilize annual contributions as a fixed dollar amount, percent of payroll or percent of revenue.

Provided below are select ADP options for consideration. Making such an ADP during FY 2024-25 does not require an ADP be made in any future year, nor does it change the remaining amortization period of any portion of unfunded liability. For information on permanent changes to amortization periods, see the "Amortization Schedule and Alternatives" section of the report.

Agencies considering making an ADP should contact CalPERS for additional information.

### Minimum Required Employer Contribution for Fiscal Year 2024-25

Estimated Normal Cost	Minimum UAL Payment	ADP	Total UAL Contribution	Estimated Total Contribution
\$159,893	\$360,298	\$0	\$360,298	\$520,191

### Alternative Fiscal Year 2024-25 Employer Contributions for Greater UAL Reduction

Funding Horizon	Estimated Normal Cost	Minimum UAL Payment	ADP <sup>1</sup>	Total UAL Contribution	Estimated Total Contribution
20 years	\$159,893	\$360,298	\$62,237	\$422,535	\$582,428
15 years	\$159,893	\$360,298	\$132,625	\$492,923	\$652,816
10 years	\$159,893	\$360,298	\$281,088	\$641,386	\$801,279
5 years	\$159,893	\$360,298	\$742,686	\$1,102,984	\$1,262,877

<sup>1</sup> The ADP amounts are assumed to be made in the middle of the fiscal year. A payment made earlier or later in the fiscal year would have to be less or more than the amount shown to have the same effect on the UAL amortization.

Note that the calculations above are based on the projected UAL as of June 30, 2024 as determined in the June 30, 2022 actuarial valuation. New unfunded liabilities can emerge in future years due to assumption or method changes, changes in plan provisions, and actuarial experience different than assumed. Making an ADP illustrated above for the indicated number of years will not result in a plan that is exactly 100% funded in the indicated number of years. Valuation results will vary from one year to the next and can diverge significantly from projections over a period of several years.

## Funded Status – Funding Policy Basis

The table below provides information on the current funded status of the plan under the funding policy. The funded status for this purpose is based on the market value of assets relative to the funding target produced by the entry age actuarial cost method and actuarial assumptions adopted by the board. The actuarial cost method allocates the total expected cost of a member's projected benefit (**Present Value of Benefits**) to individual years of service (the **Normal Cost**). The value of the projected benefit that is not allocated to future service is referred to as the **Accrued Liability** and is the plan's funding target on the valuation date. The **Unfunded Accrued Liability (UAL)** equals the funding target minus the assets. The UAL is an absolute measure of funded status and can be viewed as employer debt. The **funded ratio** equals the assets divided by the funding target. The funded ratio is a relative measure of the funded status and allows for comparisons between plans of different sizes.

	June 30, 2021	June 30, 2022
1. Present Value of Benefits	\$17,487,363	\$18,259,709
2. Entry Age Accrued Liability	15,484,380	16,275,206
3. Market Value of Assets (MVA)	12,793,951	11,605,164
4. Unfunded Accrued Liability (UAL) [(2) – (3)]	\$2,690,429	\$4,670,042
5. Funded Ratio [(3) / (2)]	82.6%	71.3%

A funded ratio of 100% (UAL of \$0) implies that the funding of the plan is on target and that future contributions equal to the normal cost of the active plan members will be sufficient to fully fund all retirement benefits if future experience matches the actuarial assumptions. A funded ratio of less than 100% (positive UAL) implies that in addition to normal costs, payments toward the UAL will be required. Plans with a funded ratio greater than 100% have a negative UAL (or surplus) but are required under current law to continue contributing the normal cost in most cases, preserving the surplus for future contingencies.

Calculations for the funding target reflect the expected long-term investment return of 6.8%. If it were known on the valuation date that future investment returns will average something greater/less than the expected return, calculated normal costs and accrued liabilities provided in this report would be less/greater than the results shown. Therefore, for example, if actual average future returns are less than the expected return, calculated normal costs and UAL contributions will not be sufficient to fully fund all retirement benefits. Under this scenario, required future normal cost contributions will need to increase from those provided in this report, and the plan will develop unfunded liabilities that will also add to required future contributions. For illustrative purposes, funded statuses based on a 1% lower and higher average future investment return (discount rate) are as follows:

	1% Lower Average Return	Current Assumption	1% Higher Average Return
Discount Rate	5.8%	6.8%	7.8%
1. Entry Age Accrued Liability	\$18,361,975	\$16,275,206	\$14,538,041
2. Market Value of Assets (MVA)	11,605,164	11,605,164	11,605,164
3. Unfunded Accrued Liability (UAL) [(1) – (2)]	\$6,756,811	\$4,670,042	\$2,932,877
4. Funded Ratio [(2) / (1)]	63.2%	71.3%	79.8%

The "Risk Analysis" section of the report provides additional information regarding the sensitivity of valuation results to the expected investment return and other factors. Also provided in that section are measures of funded status that are appropriate for assessing the sufficiency of plan assets to cover estimated termination liabilities.

## Projected Employer Contributions

The table below shows the required and projected employer contributions (before cost sharing) for the next six fiscal years. The projection assumes that all actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur during the projection period. In particular, the investment return beginning with FY 2022-23 is assumed to be 6.80% per year, net of investment and administrative expenses. Future contribution requirements may differ significantly from those shown below. The actual long-term cost of the plan will depend on the actual benefits and expenses paid and the actual investment experience of the fund.

	Required Contribution	Projected Future Employer Contributions (Assumes 6.80% Return for Fiscal Year 2022-23 and Beyond)				
Fiscal Year	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	Rate Plan 111 Results					
Normal Cost %	13.31%	13.3%	13.3%	13.3%	13.3%	13.3%
UAL Payment	\$360,298	\$390,000	\$419,000	\$442,000	\$497,000	\$507,000

For ongoing plans, investment gains and losses are amortized using a 5-year ramp up. For more information, please see "Amortization of the Unfunded Actuarial Accrued Liability" under "Actuarial Methods" in Appendix A of the Section 2 Report. This method phases in the impact of the change in UAL over a 5-year period in order to reduce employer cost volatility from year to year. As a result of this methodology, dramatic changes in the required employer contributions in any one year are less likely. However, required contributions can change gradually and significantly over the next five years. In years when there is a large investment loss, the relatively small amortization payments during the ramp up period could result in contributions that are less than interest on the UAL (i.e. negative amortization) while the contribution impact of the increase in the UAL is phased in.

For projected contributions under alternate investment return scenarios, please see the "Future Investment Return Scenarios" in the "Risk Analysis" section. Our online pension plan projection tool, Pension Outlook, is available in the Employers section of the CalPERS website. Pension Outlook can help plan and budget pension costs under various scenarios.

## Other Pooled Miscellaneous Risk Pool Rate Plans

All of the results presented in this Section 1 report, except those shown on this page, correspond to rate plan 111. In many cases, employers have additional rate plans within the same risk pool. For cost analysis and budgeting it is useful to consider contributions for these rate plans as a whole rather than individually. The estimated contribution amounts and rates for all of the employer's rate plans in the Miscellaneous Risk Pool are shown below and assume that the total employer payroll within the Miscellaneous Risk Pool will grow according to the overall payroll growth assumption of 2.80% per year for three years. In a refinement since the prior year's report, Classic members who are projected to terminate employment are assumed to be replaced by PEPRAs members.

	<b>Fiscal Year</b>	<b>Fiscal Year</b>
	<b>2023-24</b>	<b>2024-25</b>
<b>Estimated Combined Employer Contributions for all Pooled Miscellaneous Rate Plans</b>		
Projected Payroll for the Contribution Year	\$2,181,248	\$2,260,466
Estimated Employer Normal Cost	\$245,480	\$246,533
Required Payment on Amortization Bases	\$297,212	\$364,247
Estimated Total Employer Contributions	\$542,692	\$610,780
Estimated Total Employer Contribution Rate (illustrative only)	24.88%	27.02%

## Cost

### Actuarial Determination of Plan Cost

Contributions to fund the plan are comprised of two components:

- Normal Cost, expressed as a percentage of total active payroll
- Amortization of the Unfunded Accrued Liability (UAL), expressed as a dollar amount

For fiscal years prior to 2015-16, the Amortization of UAL component was expressed as a percentage of total active payroll. Starting with FY 2015-16, the Amortization of UAL component was expressed as a dollar amount and invoiced on a monthly basis. There is an option to prepay this amount during July of each fiscal year.

The Normal Cost component is expressed as a percentage of active payroll with employer and employee contributions payable as part of the regular payroll reporting process.

The determination of both components requires complex actuarial calculations. The calculations are based on a set of actuarial assumptions which can be divided into two categories:

- Demographic assumptions (e.g., mortality rates, retirement rates, employment termination rates, disability rates)
- Economic assumptions (e.g., future investment earnings, inflation, salary growth rates)

These assumptions reflect CalPERS' best estimate of future experience of the plan and are long term in nature. We recognize that all assumptions will not be realized in any given year. For example, the investment earnings at CalPERS have averaged 6.9% over the 20 years ending June 30, 2022, yet individual fiscal year returns have ranged from -23.6% to +21.3%. In addition, CalPERS reviews all actuarial assumptions by conducting in-depth experience studies every four years, with the most recent experience study completed in 2021.

## Changes Since the Prior Year's Valuation

### Benefits

The standard actuarial practice at CalPERS is to recognize mandated legislative benefit changes in the first annual valuation following the effective date of the legislation. Voluntary benefit changes by plan amendment are generally included in the first valuation that is prepared after the amendment becomes effective, even if the valuation date is prior to the effective date of the amendment.

This valuation generally reflects plan amendments effective before the date of the report. Please refer to the "Plan's Major Benefit Options" in this report and Appendix B of the Section 2 Report for a summary of the plan provisions used in this valuation.

In 2022, SB 1168 increased the standard retiree lump sum death benefit from \$500 to \$2,000 for any death occurring on or after July 1, 2023. For pooled plans this is a Class 3 benefit and there is no normal cost surcharge. The impact on the unfunded liability is included in the pool's (gain)/loss.

### Actuarial Methods and Assumptions

There are no significant changes to the actuarial methods or assumptions for the June 30, 2022 actuarial valuation.

## Subsequent Events

This actuarial valuation report reflects fund investment return through June 30, 2022 and statutory/regulatory changes and board actions through January 2023.

During the time period between the valuation date and the publication of this report, inflation has been significantly higher than the expected inflation of 2.3% per annum. Since inflation influences cost-of-living increases for retirees and beneficiaries and active member pay increases, higher inflation is likely to put at least some upward pressure on contribution requirements and downward pressure on the funded status in the June 30, 2023 valuation. The actual impact of higher inflation on future valuation results will depend on, among other factors, how long higher inflation persists. At this time, we continue to believe the long-term inflation assumption of 2.3% is appropriate.

To the best of our knowledge, there have been no other subsequent events that could materially affect current or future certifications rendered in this report.



## **Assets and Liabilities**

- **Breakdown of Entry Age Accrued Liability**
- **Allocation of Plan's Share of Pool's Experience/Assumption Change**
- **Development of Plan's Share of Pool's Market Value of Assets**
- **Schedule of Amortization Bases**
- **Amortization Schedule and Alternatives**
- **Employer Contribution History**
- **Funding History**

## Breakdown of Entry Age Accrued Liability

Active Members	\$6,025,335
Transferred Members	639,071
Separated Members	345,264
Members and Beneficiaries Receiving Payments	<u>9,265,536</u>
Total	\$16,275,206

## Allocation of Plan's Share of Pool's Experience/Assumption Change

It is the policy of CalPERS to ensure equity within the risk pools by allocating the pool's experience gains/losses and assumption changes in a manner that treats each employer equitably and maintains benefit security for the members of the System while minimizing substantial variations in employer contributions. The Pool's experience gains/losses and impact of assumption/method changes is allocated to the plan as follows:

1. Plan's Accrued Liability	\$16,275,206
2. Projected UAL Balance at 6/30/2022	2,616,659
3. Other UAL Adjustments (Golden Handshake, Prior Service Purchase, etc.)	0
4. Adjusted UAL Balance at 6/30/2022 for Asset Share	2,616,659
5. Pool's Accrued Liability <sup>1</sup>	22,021,735,002
6. Sum of Pool's Individual Plan UAL Balances at 6/30/2022 <sup>1</sup>	2,453,954,297
7. Pool's 2021-22 Investment (Gain)/Loss <sup>1</sup>	2,614,071,182
8. Pool's 2021-22 Non-Investment (Gain)/Loss <sup>1</sup>	309,490,972
9. Plan's Share of Pool's Investment (Gain)/Loss: $[(1) - (4)] \div [(5) - (6)] \times (7)$	1,824,653
10. Plan's Share of Pool's Non-Investment (Gain)/Loss: $(1) \div (5) \times (8)$	228,730
11. Plan's New (Gain)/Loss as of 6/30/2022: $(9) + (10)$	2,053,383
12. Increase in Pool's Accrued Liability due to Change in Assumptions <sup>1</sup>	0
13. Plan's Share of Pool's Change in Assumptions: $(1) \div (5) \times (12)$	0
14. Increase in Pool's Accrued Liability due to Funding Risk Mitigation <sup>1</sup>	0
15. Plan's Share of Pool's Change due to Funding Risk Mitigation: $(1) \div (5) \times (14)$	0
16. Offset due to Funding Risk Mitigation	0
17. Plan's Investment (Gain)/Loss: $(9) - (16)$	1,824,653

<sup>1</sup> Does not include plans that transferred to Pool on the valuation date.

## Development of the Plan's Share of Pool's Market Value of Assets

18. Plan's UAL: $(2) + (3) + (11) + (13) + (15)$	\$4,670,042
19. Plan's Share of Pool's MVA: $(1) - (18)$	\$11,605,164

## Schedule of Amortization Bases

Below is the schedule of the plan's amortization bases. Note that there is a two-year lag between the valuation date and the start of the contribution year.

- The assets, liabilities, and funded status of the plan are measured as of the valuation date: June 30, 2022.
- The required employer contributions determined by the valuation are for the fiscal year beginning two years after the valuation date: FY 2024-25.

This two-year lag is necessary due to the amount of time needed to extract and test the membership and financial data, and the need to provide public agencies with their required employer contribution well in advance of the start of the fiscal year.

The Unfunded Accrued Liability (UAL) is used to determine the employer contribution and therefore must be rolled forward two years from the valuation date to the first day of the fiscal year for which the contribution is being determined. The UAL is rolled forward each year by subtracting the expected payment on the UAL for the fiscal year and adjusting for interest. The expected payment for the first fiscal year is determined by the actuarial valuation two years ago and the contribution for the second year is from the actuarial valuation one year ago. Additional discretionary payments are reflected in the Expected Payments column in the fiscal year they were made by the agency.

Reason for Base	Date Est.	Ramp Level 2024-25	Ramp Shape	Escalation Rate	Amort. Period	Balance 6/30/22	Expected Payment 2022-23	Balance 6/30/23	Expected Payment 2023-24	Balance 6/30/24	Minimum Required Payment 2024-25
Investment (Gain)/Loss	6/30/13	100%	Up/Down	2.80%	21	1,400,217	100,707	1,391,357	100,988	1,381,604	103,816
Non-Investment (Gain)/Loss	6/30/13	100%	Up/Down	2.80%	21	(13,463)	(968)	(13,378)	(971)	(13,284)	(998)
Share of Pre-2013 Pool UAL	6/30/13	No Ramp		2.80%	13	690,456	62,397	672,923	62,915	653,663	64,676
Assumption Change	6/30/14	100%	Up/Down	2.80%	12	603,334	64,660	577,538	65,376	549,248	67,207
Investment (Gain)/Loss	6/30/14	100%	Up/Down	2.80%	22	(1,091,726)	(76,257)	(1,087,156)	(76,404)	(1,082,124)	(78,543)
Non-Investment (Gain)/Loss	6/30/14	100%	Up/Down	2.80%	22	1,174	82	1,169	82	1,164	84
Investment (Gain)/Loss	6/30/15	100%	Up/Down	2.80%	23	682,043	46,357	680,515	46,408	678,830	47,707
Non-Investment (Gain)/Loss	6/30/15	100%	Up/Down	2.80%	23	(54,734)	(3,720)	(54,612)	(3,724)	(54,477)	(3,829)
Assumption Change	6/30/16	100%	Up/Down	2.80%	14	241,193	22,979	233,847	23,190	225,783	23,840
Investment (Gain)/Loss	6/30/16	100%	Up/Down	2.80%	24	840,528	55,688	840,134	55,704	839,696	57,263
Non-Investment (Gain)/Loss	6/30/16	100%	Up/Down	2.80%	24	(103,017)	(6,825)	(102,969)	(6,827)	(102,916)	(7,018)
Assumption Change	6/30/17	100%	Up/Down	2.80%	15	282,088	20,797	279,778	26,212	271,714	26,946
Investment (Gain)/Loss	6/30/17	100%	Up/Down	2.80%	25	(444,023)	(23,269)	(450,169)	(29,071)	(450,737)	(29,885)
Non-Investment (Gain)/Loss	6/30/17	100%	Up/Down	2.80%	25	(22,340)	(1,171)	(22,649)	(1,463)	(22,677)	(1,504)
Assumption Change	6/30/18	100%	Up/Down	2.80%	16	463,361	25,276	468,748	33,942	465,546	43,616
Investment (Gain)/Loss	6/30/18	100%	Up/Down	2.80%	26	(134,999)	(5,315)	(138,686)	(7,076)	(140,804)	(9,093)
Method Change	6/30/18	100%	Up/Down	2.80%	16	127,703	6,966	129,188	9,355	128,305	12,021
Non-Investment (Gain)/Loss	6/30/18	100%	Up/Down	2.80%	26	65,954	2,597	67,755	3,457	68,790	4,442
Investment (Gain)/Loss	6/30/19	80%	Up Only	0.00%	17	61,006	2,552	62,517	3,759	62,883	5,012
Non-Investment (Gain)/Loss	6/30/19	No Ramp		0.00%	17	60,094	5,632	58,360	5,533	56,610	5,533

## Schedule of Amortization Bases (continued)

Reason for Base	Date Est.	Ramp Level 2024-25	Ramp Shape	Escalation Rate	Amort. Period	Balance 6/30/22	Expected Payment 2022-23	Balance 6/30/23	Expected Payment 2023-24	Balance 6/30/24	Minimum Required Payment 2024-25
Investment (Gain)/Loss	6/30/20	60%	Up Only	0.00%	18	286,171	6,269	299,152	12,297	306,786	18,446
Non-Investment (Gain)/Loss	6/30/20	No Ramp		0.00%	18	52,023	4,756	50,646	4,671	49,263	4,671
Assumption Change	6/30/21	No Ramp		0.00%	19	57,787	(9,695)	71,736	6,451	69,947	6,451
Net Investment (Gain)	6/30/21	40%	Up Only	0.00%	19	(1,357,777)	0	(1,450,106)	(31,170)	(1,516,501)	(62,339)
Non-Investment (Gain)/Loss	6/30/21	No Ramp		0.00%	19	(66,864)	0	(71,411)	(6,422)	(69,630)	(6,421)
Risk Mitigation	6/30/21	No Ramp		0.00%	0	403,699	(9,849)	441,329	456,087	0	0
Risk Mitigation Offset	6/30/21	No Ramp		0.00%	0	(413,229)	0	(441,329)	(456,087)	0	0
Investment (Gain)/Loss	6/30/22	20%	Up Only	0.00%	20	1,824,653	0	1,948,729	0	2,081,243	44,736
Non-Investment (Gain)/Loss	6/30/22	No Ramp		0.00%	20	228,730	0	244,284	0	260,895	23,461
<b>Total</b>						<b>4,670,042</b>	<b>290,646</b>	<b>4,687,240</b>	<b>297,212</b>	<b>4,698,820</b>	<b>360,298</b>

The (gain)/loss bases are the plan's allocated share of the risk pool's (gain)/loss for the fiscal year as disclosed in "Allocation of Plan's Share of Pool's Experience/Assumption Change" earlier in this section. These (gain)/loss bases will be amortized in accordance with the CalPERS amortization policy in effect at the time the base was established.

## Amortization Schedule and Alternatives

The amortization schedule on the previous page(s) shows the minimum contributions required according to the CalPERS amortization policy. Many agencies have expressed a desire for a more stable pattern of payments or have indicated interest in paying off the unfunded accrued liabilities more quickly than required. As such, we have provided alternative amortization schedules to help analyze the current amortization schedule and illustrate the potential savings of accelerating unfunded liability payments.

Shown on the following page are future year amortization payments based on 1) the current amortization schedule reflecting the individual bases and remaining periods shown on the previous page, and 2) alternative "fresh start" amortization schedules using two sample periods that would both result in interest savings relative to the current amortization schedule. To initiate a fresh start, please contact the plan actuary.

The Current Amortization Schedule typically contains both positive and negative bases. Positive bases result from plan changes, assumption changes, method changes or plan experience that increase unfunded liability. Negative bases result from plan changes, assumption changes, method changes, or plan experience that decrease unfunded liability. The combination of positive and negative bases within an amortization schedule can result in unusual or problematic circumstances in future years, such as:

- When a negative payment would be required on a positive unfunded actuarial liability; or
- When the payment would completely amortize the total unfunded liability in a very short time period, and results in a large change in the employer contribution requirement.

In any year when one of the above scenarios occurs, the actuary will consider corrective action such as replacing the existing unfunded liability bases with a single "fresh start" base and amortizing it over an appropriate period.

The Current Amortization Schedule on the following page may appear to show that, based on the current amortization bases, one of the above scenarios will occur at some point in the future. It is impossible to know today whether such a scenario will in fact arise since there will be additional bases added to the amortization schedule in each future year. Should such a scenario arise in any future year, the actuary will take appropriate action based on guidelines in the CalPERS amortization policy.

## Amortization Schedule and Alternatives (continued)

Date	<u>Current Amortization Schedule</u>		<u>Alternate Schedules</u>			
	Balance	Payment	15 Year Amortization		10 Year Amortization	
			Balance	Payment	Balance	Payment
6/30/2024	4,698,820	360,298	4,698,820	492,923	4,698,820	641,386
6/30/2025	4,645,991	390,243	4,508,933	492,924	4,355,505	641,386
6/30/2026	4,558,621	419,193	4,306,133	492,923	3,988,845	641,386
6/30/2027	4,435,397	442,250	4,089,543	492,924	3,597,252	641,386
6/30/2028	4,279,963	496,741	3,858,224	492,923	3,179,031	641,386
6/30/2029	4,057,649	506,767	3,611,176	492,923	2,732,371	641,387
6/30/2030	3,809,857	517,081	3,347,329	492,923	2,255,337	641,387
6/30/2031	3,534,554	527,681	3,065,541	492,924	1,745,864	641,386
6/30/2032	3,229,577	521,808	2,764,590	492,924	1,201,748	641,386
6/30/2033	2,909,927	515,311	2,443,174	492,923	620,632	641,386
6/30/2034	2,575,261	501,860	2,099,903	492,923		
6/30/2035	2,231,734	480,059	1,733,290	492,924		
6/30/2036	1,887,378	441,250	1,341,746	492,924		
6/30/2037	1,559,713	326,641	923,577	492,923		
6/30/2038	1,328,208	300,574	476,973	492,923		
6/30/2039	1,107,901	280,120				
6/30/2040	893,751	266,777				
6/30/2041	678,827	225,686				
6/30/2042	491,754	185,033				
6/30/2043	333,974	320,416				
6/30/2044	25,554	26,409				
6/30/2045						
6/30/2046						
6/30/2047						
6/30/2048						
6/30/2049						
<b>Total</b>		<b>8,052,198</b>		<b>7,393,851</b>		<b>6,413,862</b>
<b>Interest Paid</b>		<b>3,353,378</b>		<b>2,695,031</b>		<b>1,715,042</b>
<b>Estimated Savings</b>				<b>658,347</b>		<b>1,638,336</b>

## Employer Contribution History

The table below provides a recent history of the required and discretionary employer contributions for the plan. The required amounts are based on the actuarial valuation from two years prior without subsequent adjustments, if any. Additional discretionary payments before July 1, 2019 or after April 28, 2023 are not included.

Fiscal Year	Employer Normal Cost	Unfunded Liability Payment (\$)	Additional Discretionary Payments
2016 - 17	9.558%	\$101,476	N/A
2017 - 18	9.599%	127,933	N/A
2018 - 19	10.152%	151,625	N/A
2019 - 20	10.868%	192,789	0
2020 - 21	11.746%	223,400	0
2021 - 22	11.60%	267,426	0
2022 - 23	11.61%	310,190	0
2023 - 24	13.26%	297,212	
2024 - 25	13.31%	360,298	

## Funding History

The table below shows the recent history of the actuarial accrued liability, share of the pool's market value of assets, unfunded accrued liability, funded ratio, and annual covered payroll.

Valuation Date	Accrued Liability (AL)	Share of Pool's Market Value of Assets (MVA)	Unfunded Accrued Liability (UAL)	Funded Ratio	Annual Covered Payroll
06/30/2013	\$10,241,401	\$8,323,145	\$1,918,256	81.3%	\$1,249,694
06/30/2014	11,279,511	9,569,301	1,710,210	84.8%	1,363,267
06/30/2015	11,663,490	9,392,360	2,271,130	80.5%	897,921
06/30/2016	12,080,425	9,177,513	2,902,912	76.0%	986,978
06/30/2017	12,861,499	9,978,719	2,882,780	77.6%	955,435
06/30/2018	13,785,793	10,392,461	3,393,332	75.4%	1,100,635
06/30/2019	13,968,713	10,373,669	3,595,044	74.3%	1,139,768
06/30/2020	14,550,670	10,598,648	3,952,022	72.8%	1,195,979
06/30/2021	15,484,380	12,793,951	2,690,429	82.6%	1,242,135
06/30/2022	16,275,206	11,605,164	4,670,042	71.3%	1,294,404

## **Risk Analysis**

- **Future Investment Return Scenarios**
- **Discount Rate Sensitivity**
- **Mortality Rate Sensitivity**
- **Maturity Measures**
- **Maturity Measures History**
- **Funded Status – Termination Basis**



## Future Investment Return Scenarios

Analysis using the investment return scenarios from the Asset Liability Management process completed in 2021 was performed to determine the effects of various future investment returns on required employer contributions. The projections below reflect the impact of the CalPERS Funding Risk Mitigation policy. The projections also assume that all other actuarial assumptions will be realized and that no further changes in assumptions, contributions, benefits, or funding will occur.

The first table shows projected contribution requirements if the fund were to earn either 3.0% or 10.8% annually. These alternate investment returns were chosen because 90% of long-term average returns are expected to fall between them over the 20-year period ending June 30, 2042.

Assumed Annual Return FY 2022-23 through 2041-42	Projected Employer Contributions				
	2025-26	2026-27	2027-28	2028-29	2029-30
<b>3.0% (5<sup>th</sup> percentile)</b>					
Normal Cost Rate	13.3%	13.3%	13.3%	13.3%	13.3%
UAL Contribution	\$401,000	\$452,000	\$508,000	\$607,000	\$673,000
<b>10.8% (95<sup>th</sup> percentile)</b>					
Normal Cost Rate	13.6%	13.8%	14.1%	14.4%	14.6%
UAL Contribution	\$380,000	\$389,000	\$381,000	\$391,000	\$343,000

Required contributions outside of this range are also possible. In particular, whereas it is unlikely that investment returns will average less than 3.0% or greater than 10.8% over a 20-year period, the likelihood of a single investment return less than 3.0% or greater than 10.8% in any given year is much greater. The following analysis illustrates the effect of an extreme, single year investment return.

The portfolio has an expected volatility (or standard deviation) of 12.0% per year. Accordingly, in any given year there is a 16% probability that the annual return will be -5.2% or less and a 2.5% probability that the annual return will be -17.2% or less. These returns represent one and two standard deviations below the expected return of 6.8%.

The following table shows the effect of a one or two standard deviation investment loss in FY 2022-23 on the FY 2025-26 contribution requirements. Note that a single-year investment gain or loss decreases or increases the required UAL contribution amount incrementally for each of the next five years, not just one, due to the 5-year ramp in the amortization policy. However, the contribution requirements beyond the first year are also impacted by investment returns beyond the first year. Historically, significant downturns in the market are often followed by higher than average returns. Such investment gains would offset the impact of these single year negative returns in years beyond FY 2025-26.

Assumed Annual Return for Fiscal Year 2022-23	Required Employer Contributions	Projected Employer Contributions
	2024-25	2025-26
<b>(17.2)% (2 standard deviation loss)</b>		
Normal Cost Rate	13.31%	13.3%
UAL Contribution	\$360,298	\$458,000
<b>(5.2)% (1 standard deviation loss)</b>		
Normal Cost Rate	13.31%	13.3%
UAL Contribution	\$360,298	\$424,000

- Without investment gains (returns higher than 6.8%) in FY 2023-24 or later, projected contributions rates would continue to rise over the next four years due to the continued phase-in of the impact of the illustrated investment loss in FY 2022-23.
- The Pension Outlook Tool can be used to model projected contributions for these scenarios beyond FY 2025-26 as well as to model other investment return scenarios.

## Discount Rate Sensitivity

The discount rate assumption is calculated as the sum of the assumed real rate of return and the assumed annual price inflation, currently 4.5% and 2.3%, respectively. Changing either the price inflation assumption or the real rate of return assumption will change the discount rate. The sensitivity of the valuation results to the discount rate assumption depends on which component of the discount rate is changed. Shown below are various valuation results as of June 30, 2022 assuming alternate discount rates by changing the two components independently. Results are shown using the current discount rate of 6.8% as well as alternate discount rates of 5.8% and 7.8%. The rates of 5.8% and 7.8% were selected since they illustrate the impact of a 1.0% increase or decrease to the 6.8% assumption.

### Sensitivity to the Real Rate of Return Assumption

As of June 30, 2022	1% Lower Real Return Rate	Current Assumptions	1% Higher Real Return Rate
<b>Discount Rate</b>	<b>5.8%</b>	<b>6.8%</b>	<b>7.8%</b>
Price Inflation	2.3%	2.3%	2.3%
<b>Real Rate of Return</b>	<b>3.5%</b>	<b>4.5%</b>	<b>5.5%</b>
a) Total Normal Cost	25.47%	20.24%	16.26%
b) Accrued Liability	\$18,361,975	\$16,275,206	\$14,538,041
c) Market Value of Assets	\$11,605,164	\$11,605,164	\$11,605,164
d) Unfunded Liability/(Surplus) [(b) - (c)]	\$6,756,811	\$4,670,042	\$2,932,877
e) Funded Ratio	63.2%	71.3%	79.8%

### Sensitivity to the Price Inflation Assumption

As of June 30, 2022	1% Lower Price Inflation	Current Assumptions	1% Higher Price Inflation
<b>Discount Rate</b>	<b>5.8%</b>	<b>6.8%</b>	<b>7.8%</b>
<b>Price Inflation</b>	<b>1.3%</b>	<b>2.3%</b>	<b>3.3%</b>
Real Rate of Return	4.5%	4.5%	4.5%
a) Total Normal Cost	21.25%	20.24%	18.46%
b) Accrued Liability	\$16,782,109	\$16,275,206	\$15,033,930
c) Market Value of Assets	\$11,605,164	\$11,605,164	\$11,605,164
d) Unfunded Liability/(Surplus) [(b) - (c)]	\$5,176,945	\$4,670,042	\$3,428,766
e) Funded Ratio	69.2%	71.3%	77.2%

## Mortality Rate Sensitivity

The following table looks at the change in the June 30, 2022 plan costs and funded status under two different longevity scenarios, namely assuming post-retirement rates of mortality are 10% lower or 10% higher than our current mortality assumptions adopted in 2021. This type of analysis highlights the impact on the plan of a change in the mortality assumption.

As of June 30, 2022	10% Lower Mortality Rates	Current Assumptions	10% Higher Mortality Rates
a) Total Normal Cost	20.59%	20.24%	19.92%
b) Accrued Liability	\$16,626,033	\$16,275,206	\$15,953,335
c) Market Value of Assets	\$11,605,164	\$11,605,164	\$11,605,164
d) Unfunded Liability/(Surplus) [(b) - (c)]	\$5,020,869	\$4,670,042	\$4,348,171
e) Funded Ratio	69.8%	71.3%	72.7%

## Maturity Measures

As pension plans mature they become more sensitive to risks. Understanding plan maturity and how it affects the ability of a pension plan sponsor to tolerate risk is important in understanding how the pension plan is impacted by investment return volatility, other economic variables, and changes in longevity or other demographic assumptions.

Since it is the employer that bears the risk, it is appropriate to perform this analysis on a pension plan level considering all rate plans. The following measures are for one rate plan only. One way to look at the maturity level of CalPERS and its plans is to look at the ratio of a plan's retiree liability to its total liability. A pension plan in its infancy will have a very low ratio of retiree liability to total liability. As the plan matures, the ratio starts increasing. A mature plan will often have a ratio above 60%-65%.

<b>Ratio of Retiree Accrued Liability to Total Accrued Liability</b>	<b>June 30, 2021</b>	<b>June 30, 2022</b>
1. Retired Accrued Liability	\$9,194,324	\$9,265,536
2. Total Accrued Liability	15,484,380	16,275,206
3. Ratio of Retiree AL to Total AL [(1) / (2)]	0.59	0.57

Another measure of maturity level of CalPERS and its plans is to look at the ratio of actives to retirees, also called the support ratio. A pension plan in its infancy will have a very high ratio of active to retired members. As the plan matures and members retire, the ratio declines. A mature plan will often have a ratio near or below one.

To calculate the support ratio for the rate plan, retirees and beneficiaries receiving a continuance are each counted as one, even though they may have only worked a portion of their careers as an active member of this rate plan. For this reason, the support ratio, while intuitive, maybe less informative than the ratio of retiree liability to total accrued liability above.

For comparison, the support ratio for all CalPERS public agency plans as of June 30, 2021, was 0.78 and was calculated consistently with how it is for the individual rate plan. Note that to calculate the support ratio for all public agency plans, a retiree with service from more than one CalPERS agency is counted as a retiree more than once.

<b>Support Ratio</b>	<b>June 30, 2021</b>	<b>June 30, 2022</b>
1. Number of Actives	10	10
2. Number of Retirees	20	20
3. Support Ratio [(1) / (2)]	0.50	0.50

## Maturity Measures (continued)

The actuarial calculations supplied in this communication are based on various assumptions about long-term demographic and economic behavior. Unless these assumptions (e.g., terminations, deaths, disabilities, retirements, salary growth, investment return) are exactly realized each year, there will be differences on a year-to-year basis. The year-to-year differences between actual experience and the assumptions are called actuarial gains and losses and serve to lower or raise required employer contributions from one year to the next. Therefore, employer contributions will inevitably fluctuate, especially due to the ups and downs of investment returns.

### Asset Volatility Ratio

Shown in the table below is the asset volatility ratio (AVR), which is the ratio of market value of assets to payroll. Plans that have higher AVR experience more volatile employer contributions (as a percentage of payroll) due to investment return. For example, a plan with AVR of 8 may experience twice the contribution volatility due to investment return volatility than a plan with AVR of 4. It should be noted that this ratio is a measure of the current situation. It increases over time but generally tends to stabilize as a plan matures.

### Liability Volatility Ratio

Also shown in the table below is the liability volatility ratio (LVR), which is the ratio of accrued liability to payroll. Plans that have a higher LVR experience more volatile employer contributions (as a percentage of payroll) due to changes in liability. For example, a plan with LVR of 8 is expected to have twice the contribution volatility of a plan with LVR of 4. It should be noted that this ratio indicates a longer-term potential for contribution volatility, since the AVR, described above, will tend to move closer to the LVR as the funded ratio approaches 100%.

Contribution Volatility	June 30, 2021	June 30, 2022
1. Market Value of Assets	\$12,793,951	\$11,605,164
2. Payroll	1,242,135	1,294,404
3. Asset Volatility Ratio (AVR) [(1) / (2)]	10.3	9.0
4. Accrued Liability	\$15,484,380	\$16,275,206
5. Liability Volatility Ratio (LVR) [(4) / (2)]	12.5	12.6

## Maturity Measures History

Valuation Date	Ratio of Retiree Accrued Liability to Total Accrued Liability	Support Ratio	Asset Volatility Ratio	Liability Volatility Ratio
06/30/2017	0.70	0.45	10.4	13.5
06/30/2018	0.66	0.50	9.4	12.5
06/30/2019	0.65	0.53	9.1	12.3
06/30/2020	0.62	0.53	8.9	12.2
06/30/2021	0.59	0.50	10.3	12.5
06/30/2022	0.57	0.50	9.0	12.6

## Funded Status – Termination Basis

The funded status measured on a termination basis is an estimate of the financial position of the plan had the contract with CalPERS been terminated as of June 30, 2022. The accrued liability on a termination basis (termination liability) is calculated differently compared to the plan’s ongoing funding liability. For the termination liability calculation, both compensation and service are frozen as of the valuation date and no future pay increases or service accruals are assumed. This measure of funded status is not appropriate for assessing the need for future employer contributions in the case of an ongoing plan, that is, for an employer that continues to provide CalPERS retirement benefits to active employees. Unlike the actuarial cost method used for ongoing plans, the termination liability is the present value of the benefits earned through the valuation date.

A more conservative investment policy and asset allocation strategy was adopted by the board for the Terminated Agency Pool. The Terminated Agency Pool has limited funding sources since no future employer contributions will be made. Therefore, expected benefit payments are secured by risk-free assets and benefit security for members is increased while limiting the funding risk. However, this asset allocation has a lower expected rate of return than the PERF and consequently, a lower discount rate is assumed. The lower discount rate for the Terminated Agency Pool results in higher liabilities for terminated plans.

The effective termination discount rate will depend on actual market rates of return for risk-free securities on the date of termination. As market discount rates are variable, the table below shows a range for the hypothetical termination liability based on the lowest and highest interest rates observed during an approximate 19-month period from 12 months before the valuation date to seven months after.

Market Value of Assets (MVA)	Discount Rate: 1.75% Price Inflation: 2.50%		Discount Rate: 4.50% Price Inflation: 2.75%		Unfunded Termination Liability	
	Termination Liability <sup>1,2</sup>	Funded Ratio	Termination Liability <sup>1,2</sup>	Funded Ratio		
\$11,605,164	\$31,972,627	36.3%	\$20,367,463	\$21,049,686	55.1%	\$9,444,522

<sup>1</sup> The termination liabilities calculated above include a 5% contingency load. The contingency load and other actuarial assumptions can be found in Appendix A of the Section 2 report.

<sup>2</sup> The discount rate used for termination valuations is a weighted average of the 10-year and 30-year U.S. Treasury yields where the weights are based on matching asset and liability durations as of the termination date. The discount rates used in the table are based on 20-year Treasury bonds, rounded to the nearest quarter percentage point, which is a good proxy for most plans. The 20-year Treasury yield was 3.38% on June 30, 2022, the valuation date.

In order to terminate the plan, first contact our Pension Contract Services unit to initiate a Resolution of Intent to Terminate. The completed Resolution will allow the plan actuary to provide a preliminary termination valuation with a more up-to-date estimate of the plan liabilities. Before beginning this process, please consult with the plan actuary.

## Participant Data

The table below shows a summary of the plan's member data upon which this valuation is based:

	June 30, 2021	June 30, 2022
<b>Active Members</b>		
Counts	10	10
Average Attained Age	50.5	51.5
Average Entry Age to Rate Plan	33.9	33.9
Average Years of Credited Service	15.4	16.4
Average Annual Covered Pay	\$124,214	\$129,440
Annual Covered Payroll	\$1,242,135	\$1,294,404
Present Value of Future Payroll	\$10,036,027	\$9,944,687
<b>Transferred Members</b>	3	3
<b>Separated Members</b>	4	4
<b>Retired Members and Beneficiaries*</b>		
Counts	20	20
Average Annual Benefits	\$38,019	\$39,259
Total Annual Benefits	\$760,388	\$785,186

Counts of members included in the valuation are counts of the records processed by the valuation. Multiple records may exist for those who have service in more than one valuation group. This does not result in double counting of liabilities.

\* Values include community property settlements.

## List of Class 1 Benefit Provisions

This plan has the additional Class 1 Benefit Provisions:

- One Year Final Compensation (FAC 1)
- Post-Retirement Survivor Allowance (PRSA)

## Plan's Major Benefit Options

Shown below is a summary of the major optional benefits for which the agency has contracted. A description of principal standard and optional plan provisions is in Section 2.

Member Category	Benefit Group		
	Misc	Misc	Misc
<b>Demographics</b>			
Actives	Yes	No	No
Transfers/Separated	Yes	No	No
Receiving	Yes	Yes	Yes
<b>Benefit Provision</b>			
Benefit Formula	2% @ 55		
Social Security Coverage	No		
Full/Modified	Full		
Employee Contribution Rate	7.00%		
Final Average Compensation Period	One Year		
Sick Leave Credit	Yes		
Non-Industrial Disability	Standard		
Industrial Disability	No		
Pre-Retirement Death Benefits			
Optional Settlement 2	Yes		
1959 Survivor Benefit Level	Level 3		
Special	No		
Alternate (firefighters)	No		
Post-Retirement Death Benefits			
Lump Sum	\$2000	\$2000	\$2000
Survivor Allowance (PRSA)	Yes	Yes	Yes
COLA	2%	2%	2%

## Section 2

CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

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### **Risk Pool Actuarial Valuation Information**

**Section 2 may be found on the  
CalPERS website ([www.calpers.ca.gov](http://www.calpers.ca.gov))  
in the Forms and Publications section**





**California Public Employees' Retirement System  
Actuarial Office**

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888 CalPERS (or 888-225-7377) | TTY: (877) 249-7442 | [www.calpers.ca.gov](http://www.calpers.ca.gov)

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July 2023

**PEPRA Miscellaneous Plan of the Alameda County Mosquito Abatement District (CalPERS ID: 5854416969)  
Annual Valuation Report as of June 30, 2022**

Dear Employer,

Attached to this letter is the June 30, 2022 actuarial valuation report for the rate plan noted above. **Provided in this report is the determination of the minimum required employer contributions for fiscal year (FY) 2024-25.** In addition, the report contains important information regarding the current financial status of the plan as well as projections and risk measures to aid in planning for the future.

Because this plan is in a risk pool, the following valuation report has been separated into two sections:

- Section 1 contains specific information for the plan including the development of the current and projected employer contributions, and
- Section 2 contains the Risk Pool Actuarial Valuation appropriate to the plan as of June 30, 2022.

Section 2 can be found on the CalPERS website ([www.calpers.ca.gov](http://www.calpers.ca.gov)). From the home page, go to "Forms & Publications" and select "View All". In the search box, enter "Risk Pool" and from the results list download the Miscellaneous Risk Pool Actuarial Valuation Report for June 30, 2022.

Actuarial valuations are based on assumptions regarding future plan experience including investment return and payroll growth, eligibility for the types of benefits provided, and longevity among retirees. The CalPERS Board of Administration (board) adopts these assumptions after considering the advice of CalPERS actuarial and investment teams and other professionals. Each actuarial valuation reflects all prior differences between actual and assumed experience and adjusts the contribution requirements as needed. This valuation is based on an investment return assumption of 6.8%, which was adopted by the board in November 2021. Other assumptions used in this report are those recommended in the CalPERS Experience Study and Review of Actuarial Assumptions report from November 2021.

**Required Contributions**

The table below shows the minimum required employer contributions and the PEPRA member contribution rate for FY 2024-25 along with estimates of the required contributions for FY 2025-26. Employee contributions other than cost sharing (whether paid by the employer or the employee) are in addition to the results shown below. **The required employer contributions in this report do not reflect any cost sharing arrangement between the agency and the employees.**

Fiscal Year	Employer Normal Cost Rate	Employer Amortization of Unfunded Accrued Liability	PEPRA Member Contribution Rate
2024-25	8.18%	\$3,949	8.25%
<i>Projected Results</i>			
2025-26	8.2%	\$6,700	TBD

The actual investment return for FY 2022-23 was not known at the time this report was prepared. The projections above assume the investment return for that year would be 6.8%. **To the extent the actual investment return for FY 2022-23 differs from 6.8%, the actual contribution requirements for FY 2025-26 will differ from those shown above.** For additional details regarding the assumptions and methods used for these projections, please refer to the "Projected Employer Contributions" in the "Highlights and Executive Summary" section. This section also contains projected required contributions through FY 2029-30.

#### **Changes from Previous Year's Valuations**

There are no significant changes in actuarial assumptions or policies in the 2022 actuarial valuation. There may be changes specific to the plan such as contract amendments and funding changes.

Further descriptions of general changes are included in "Highlights and Executive Summary" and in Appendix A of the Section 2 report in "Actuarial Methods and Assumptions." The effects of any changes on the required contributions are included in "Reconciliation of Required Employer Contributions," also in the Section 2 report.

#### **Questions**

A CalPERS actuary is available to answer questions about this report. Other questions may be directed to the Customer Contact Center at (888)-CalPERS or **(888-225-7377)**.

Sincerely,



SCOTT TERANDO, ASA, EA, MAAA, FCA, CFA  
Chief Actuary, CalPERS



RANDALL DZIUBEK, ASA, MAAA  
Deputy Chief Actuary, Valuation Services, CalPERS



**Actuarial Valuation  
as of June 30, 2022**

**for the  
PEPRA Miscellaneous Plan  
of the**

**Alameda County Mosquito Abatement District**  
(CalPERS ID: 5854416969)

**Required Contributions  
for Fiscal Year  
July 1, 2024 - June 30, 2025**

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**Section 1 – Plan Specific Information**

**Section 2 – Risk Pool Actuarial Valuation Information**

# Section 1

CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

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**Plan Specific Information  
for the  
PEPRA Miscellaneous Plan  
of the  
Alameda County Mosquito Abatement  
District**

**(CalPERS ID: 5854416969)  
(Rate Plan ID: 26060)**

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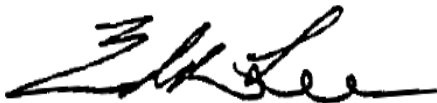
## Actuarial Certification

To the best of our knowledge, this report, comprised of Sections 1 and 2, is complete and accurate and contains sufficient information to disclose, fully and fairly, the funded condition of the PEPRA Miscellaneous Plan of the Alameda County Mosquito Abatement District and satisfies the actuarial valuation requirements of Government Code section 7504. This valuation is based on the member and financial data as of June 30, 2022 provided by the various CalPERS databases and the benefits under this plan with CalPERS as of the date this report was produced. Section 1 of this report is based on the member and financial data for Alameda County Mosquito Abatement District, while Section 2 is based on the corresponding information for all agencies participating in the Miscellaneous Risk Pool to which the plan belongs.

As set forth in Section 2 of this report, the pool actuaries have certified that, in their opinion, the valuation of the Miscellaneous Risk Pool has been performed in accordance with generally accepted actuarial principles, in accordance with standards of practice prescribed by the Actuarial Standards Board, and that the assumptions and methods are internally consistent and reasonable for the risk pool as of the date of this valuation and as prescribed by the CalPERS Board of Administration according to provisions set forth in the California Public Employees' Retirement Law.

Having relied upon the information set forth in Section 2 of this report and based on the census and benefit provision information for the rate plan, it is my opinion as the plan actuary that the Unfunded Accrued Liability amortization bases as of June 30, 2022 and employer contribution as of July 1, 2024 have been properly and accurately determined in accordance with the principles and standards stated above.

The undersigned is an actuary who satisfies the *Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States* with regard to pensions.



EDDIE W. LEE, ASA, EA, FCA, MAAA  
Senior Actuary, CalPERS

## Highlights and Executive Summary

- **Introduction**
- **Purpose of Section 1**
- **Required Contributions**
- **Additional Discretionary Employer Contributions**
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- **Other Pooled Miscellaneous Risk Pool Rate Plans**
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## Introduction

This report presents the results of the June 30, 2022 actuarial valuation of the PEPRA Miscellaneous Plan of the Alameda County Mosquito Abatement District of the California Public Employees' Retirement System (CalPERS). This actuarial valuation sets the minimum required contributions for fiscal year (FY) 2024-25.

## Purpose of Section 1

This Section 1 report for the PEPRA Miscellaneous Plan of the Alameda County Mosquito Abatement District of CalPERS was prepared by the Actuarial Office using data as of June 30, 2022. The purpose of the valuation is to:

- Set forth the assets and accrued liabilities of this rate plan as of June 30, 2022;
- Determine the minimum required employer contributions for this rate plan for FY July 1, 2024 through June 30, 2025;
- Determine the required member contribution rate for FY July 1, 2024 through June 30, 2025 for employees subject to the California Public Employees' Pension Reform Act of 2013 (PEPRA); and
- Provide actuarial information as of June 30, 2022 to the CalPERS Board of Administration (board) and other interested parties.

The pension funding information presented in this report should not be used in financial reports subject to Governmental Accounting Standards Board (GASB) Statement No. 68 for a Cost Sharing Employer Defined Benefit Pension Plan. A separate accounting valuation report for such purposes is available on the CalPERS website ([www.calpers.ca.gov](http://www.calpers.ca.gov)).

The measurements shown in this actuarial valuation may not be applicable for other purposes. The agency should contact the plan actuary before disseminating any portion of this report for any reason that is not explicitly described above.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; changes in actuarial policies; changes in plan provisions or applicable law; and differences between the required contributions determined by the valuation and the actual contributions made by the agency.

### Assessment and Disclosure of Risk

This report includes the following risk disclosures consistent with the guidance of Actuarial Standard of Practice No. 51 and recommended by the California Actuarial Advisory Panel (CAAP) in the Model Disclosure Elements document:

- A "Scenario Test," projecting future results under different investment income returns.
- A "Sensitivity Analysis," showing the impact on current valuation results using alternative discount rates of 5.8% and 7.8%.
- A "Sensitivity Analysis," showing the impact on current valuation results assuming rates of mortality are 10% lower or 10% higher than our current post-retirement mortality assumptions adopted in 2021.
- Plan maturity measures indicating how sensitive a plan may be to the risks noted above.

## Required Contributions

	Fiscal Year 2024-25
<b>Required Employer Contributions</b>	
Employer Normal Cost Rate	8.18%
<i>Plus</i>	
Required Payment on Amortization Bases <sup>1</sup>	\$3,949
<i>Paid either as</i>	
1) Monthly Payment	\$329.08
<i>Or</i>	
2) Annual Prepayment Option*	\$3,821
<b>Required PEPRA Member Contribution Rate</b>	<b>8.25%</b>
<i>The total minimum required employer contribution is the sum of the Plan's Employer Normal Cost Rate (expressed as a percentage of payroll and paid as payroll is reported) plus the Employer Unfunded Accrued Liability (UAL) Contribution Amount (billed monthly (1) or prepaid annually (2) in dollars).</i>	
<i>* Only the UAL portion of the employer contribution can be prepaid (which must be received in full no later than July 31).</i>	
<i>For additional detail regarding the determination of the required contribution rate for PEPRA members, see "PEPRA Member Contribution Rates" section.</i>	

	Fiscal Year 2023-24	Fiscal Year 2024-25
<b>Development of Normal Cost as a Percentage of Payroll</b>		
Base Total Normal Cost for Formula	15.43%	15.62%
Surcharge for Class 1 Benefits <sup>2</sup>		
a) PRSA	0.82%	0.81%
Phase out of Normal Cost Difference <sup>3</sup>	0.00%	0.00%
Plan's Total Normal Cost	16.25%	16.43%
Offset Due to Employee Contributions	8.25%	8.25%
Employer Normal Cost Rate	8.00%	8.18%

<sup>1</sup> The required payment on amortization bases does not take into account any additional discretionary payment made after April 28, 2023.

<sup>2</sup> Section 2 of this report contains a list of Class 1 benefits and corresponding surcharges.

<sup>3</sup> When a rate plan joins the pool, the difference in normal cost between the pool and the rate plan is phased out over a five-year period in accordance with the CalPERS contribution allocation policy.

## Additional Discretionary Employer Contributions

The minimum required employer contribution towards the Unfunded Accrued Liability (UAL) for this rate plan for FY 2024-25 is \$3,949. CalPERS allows agencies to make additional discretionary payments (ADPs) at any time and in any amount. These optional payments serve to reduce the UAL and future required contributions and can result in significant long-term savings. Agencies can also use ADPs to stabilize annual contributions as a fixed dollar amount, percent of payroll or percent of revenue.

Provided below are select ADP options for consideration. Making such an ADP during FY 2024-25 does not require an ADP be made in any future year, nor does it change the remaining amortization period of any portion of unfunded liability. For information on permanent changes to amortization periods, see the "Amortization Schedule and Alternatives" section of the report.

Agencies considering making an ADP should contact CalPERS for additional information.

### Minimum Required Employer Contribution for Fiscal Year 2024-25

Estimated Normal Cost	Minimum UAL Payment	ADP	Total UAL Contribution	Estimated Total Contribution
\$86,640	\$3,949	\$0	\$3,949	\$90,589

The minimum required contribution above is less than interest on the UAL. With no ADP the UAL is projected to increase over the following year. If the minimum UAL payment were split between interest and principal, the principal portion would be negative. This situation is referred to as **negative amortization**. If only the minimum required contribution is made, contributions are not expected to exceed interest on the UAL until FY **2027-28**, as shown in the "Amortization Schedule and Alternatives" section of the report (see columns labeled "Current Amortization Schedule").

### Fiscal Year 2024-25 Employer Contribution Necessary to Avoid Negative Amortization

Estimated Normal Cost	Minimum UAL Payment	ADP <sup>1</sup>	Total UAL Contribution	Estimated Total Contribution
\$86,640	\$3,949	\$5,316	\$9,265	\$95,905

### Alternative Fiscal Year 2024-25 Employer Contributions for Greater UAL Reduction

Funding Horizon	Estimated Normal Cost	Minimum UAL Payment	ADP <sup>1</sup>	Total UAL Contribution	Estimated Total Contribution
20 years	\$86,640	\$3,949	\$8,713	\$12,662	\$99,302
15 years	\$86,640	\$3,949	\$10,822	\$14,771	\$101,411
10 years	\$86,640	\$3,949	\$15,271	\$19,220	\$105,860
5 years	\$86,640	\$3,949	\$29,104	\$33,053	\$119,693

<sup>1</sup> The ADP amounts are assumed to be made in the middle of the fiscal year. A payment made earlier or later in the fiscal year would have to be less or more than the amount shown to have the same effect on the UAL amortization.

Note that the calculations above are based on the projected UAL as of June 30, 2024 as determined in the June 30, 2022 actuarial valuation. New unfunded liabilities can emerge in future years due to assumption or method changes, changes in plan provisions, and actuarial experience different than assumed. Making an ADP illustrated above for the indicated number of years will not result in a plan that is exactly 100% funded in the indicated number of years. Valuation results will vary from one year to the next and can diverge significantly from projections over a period of several years.

## Funded Status – Funding Policy Basis

The table below provides information on the current funded status of the plan under the funding policy. The funded status for this purpose is based on the market value of assets relative to the funding target produced by the entry age actuarial cost method and actuarial assumptions adopted by the board. The actuarial cost method allocates the total expected cost of a member's projected benefit (**Present Value of Benefits**) to individual years of service (the **Normal Cost**). The value of the projected benefit that is not allocated to future service is referred to as the **Accrued Liability** and is the plan's funding target on the valuation date. The **Unfunded Accrued Liability (UAL)** equals the funding target minus the assets. The UAL is an absolute measure of funded status and can be viewed as employer debt. The **funded ratio** equals the assets divided by the funding target. The funded ratio is a relative measure of the funded status and allows for comparisons between plans of different sizes.

	June 30, 2021	June 30, 2022
1. Present Value of Benefits	\$2,038,792	\$2,290,474
2. Entry Age Accrued Liability	671,213	840,882
3. Market Value of Assets (MVA)	689,712	725,716
4. Unfunded Accrued Liability (UAL) [(2) – (3)]	(\$18,499)	\$115,166
5. Funded Ratio [(3) / (2)]	102.8%	86.3%

A funded ratio of 100% (UAL of \$0) implies that the funding of the plan is on target and that future contributions equal to the normal cost of the active plan members will be sufficient to fully fund all retirement benefits if future experience matches the actuarial assumptions. A funded ratio of less than 100% (positive UAL) implies that in addition to normal costs, payments toward the UAL will be required. Plans with a funded ratio greater than 100% have a negative UAL (or surplus) but are required under current law to continue contributing the normal cost in most cases, preserving the surplus for future contingencies.

Calculations for the funding target reflect the expected long-term investment return of 6.8%. If it were known on the valuation date that future investment returns will average something greater/less than the expected return, calculated normal costs and accrued liabilities provided in this report would be less/greater than the results shown. Therefore, for example, if actual average future returns are less than the expected return, calculated normal costs and UAL contributions will not be sufficient to fully fund all retirement benefits. Under this scenario, required future normal cost contributions will need to increase from those provided in this report, and the plan will develop unfunded liabilities that will also add to required future contributions. For illustrative purposes, funded statuses based on a 1% lower and higher average future investment return (discount rate) are as follows:

	1% Lower Average Return	Current Assumption	1% Higher Average Return
Discount Rate	5.8%	6.8%	7.8%
1. Entry Age Accrued Liability	\$1,074,100	\$840,882	\$662,810
2. Market Value of Assets (MVA)	725,716	725,716	725,716
3. Unfunded Accrued Liability (UAL) [(1) – (2)]	\$348,384	\$115,166	(\$62,906)
4. Funded Ratio [(2) / (1)]	67.6%	86.3%	109.5%

The "Risk Analysis" section of the report provides additional information regarding the sensitivity of valuation results to the expected investment return and other factors. Also provided in that section are measures of funded status that are appropriate for assessing the sufficiency of plan assets to cover estimated termination liabilities.

## Projected Employer Contributions

The table below shows the required and projected employer contributions (before cost sharing) for the next six fiscal years. The projection assumes that all actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur during the projection period. In particular, the investment return beginning with FY 2022-23 is assumed to be 6.80% per year, net of investment and administrative expenses. Future contribution requirements may differ significantly from those shown below. The actual long-term cost of the plan will depend on the actual benefits and expenses paid and the actual investment experience of the fund.

	Required Contribution	Projected Future Employer Contributions (Assumes 6.80% Return for Fiscal Year 2022-23 and Beyond)				
Fiscal Year	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	Rate Plan 26060 Results					
Normal Cost %	8.18%	8.2%	8.2%	8.2%	8.2%	8.2%
UAL Payment	\$3,949	\$6,700	\$9,400	\$12,000	\$15,000	\$15,000

For ongoing plans, investment gains and losses are amortized using a 5-year ramp up. For more information, please see "Amortization of the Unfunded Actuarial Accrued Liability" under "Actuarial Methods" in Appendix A of the Section 2 Report. This method phases in the impact of the change in UAL over a 5-year period in order to reduce employer cost volatility from year to year. As a result of this methodology, dramatic changes in the required employer contributions in any one year are less likely. However, required contributions can change gradually and significantly over the next five years. In years when there is a large investment loss, the relatively small amortization payments during the ramp up period could result in contributions that are less than interest on the UAL (i.e. negative amortization) while the contribution impact of the increase in the UAL is phased in.

**The required contribution for FY 2024-25 is less than interest on the UAL**, a situation referred to as **negative amortization**, as explained in the "Additional Discretionary Employer Contributions" section earlier in this report. If only the minimum required contribution is made, contributions are not expected to exceed interest on the UAL until FY 2027-28, as shown in the "Amortization Schedule and Alternatives" section of the report (see columns labelled "Current Amortization Schedule").

For projected contributions under alternate investment return scenarios, please see the "Future Investment Return Scenarios" in the "Risk Analysis" section. Our online pension plan projection tool, Pension Outlook, is available in the Employers section of the CalPERS website. Pension Outlook can help plan and budget pension costs under various scenarios.

## Other Pooled Miscellaneous Risk Pool Rate Plans

All of the results presented in this Section 1 report, except those shown on this page, correspond to rate plan 26060. In many cases, employers have additional rate plans within the same risk pool. For cost analysis and budgeting it is useful to consider contributions for these rate plans as a whole rather than individually. The estimated contribution amounts and rates for all of the employer's rate plans in the Miscellaneous Risk Pool are shown below and assume that the total employer payroll within the Miscellaneous Risk Pool will grow according to the overall payroll growth assumption of 2.80% per year for three years. In a refinement since the prior year's report, Classic members who are projected to terminate employment are assumed to be replaced by PEPRA members.

	<b>Fiscal Year</b>	<b>Fiscal Year</b>
	<b>2023-24</b>	<b>2024-25</b>
<b>Estimated Combined Employer Contributions for all Pooled Miscellaneous Rate Plans</b>		
Projected Payroll for the Contribution Year	\$2,181,248	\$2,260,466
Estimated Employer Normal Cost	\$245,480	\$246,533
Required Payment on Amortization Bases	\$297,212	\$364,247
Estimated Total Employer Contributions	\$542,692	\$610,780
Estimated Total Employer Contribution Rate (illustrative only)	24.88%	27.02%

## Cost

### Actuarial Determination of Plan Cost

Contributions to fund the plan are comprised of two components:

- Normal Cost, expressed as a percentage of total active payroll
- Amortization of the Unfunded Accrued Liability (UAL), expressed as a dollar amount

For fiscal years prior to 2015-16, the Amortization of UAL component was expressed as a percentage of total active payroll. Starting with FY 2015-16, the Amortization of UAL component was expressed as a dollar amount and invoiced on a monthly basis. There is an option to prepay this amount during July of each fiscal year.

The Normal Cost component is expressed as a percentage of active payroll with employer and employee contributions payable as part of the regular payroll reporting process.

The determination of both components requires complex actuarial calculations. The calculations are based on a set of actuarial assumptions which can be divided into two categories:

- Demographic assumptions (e.g., mortality rates, retirement rates, employment termination rates, disability rates)
- Economic assumptions (e.g., future investment earnings, inflation, salary growth rates)

These assumptions reflect CalPERS' best estimate of future experience of the plan and are long term in nature. We recognize that all assumptions will not be realized in any given year. For example, the investment earnings at CalPERS have averaged 6.9% over the 20 years ending June 30, 2022, yet individual fiscal year returns have ranged from -23.6% to +21.3%. In addition, CalPERS reviews all actuarial assumptions by conducting in-depth experience studies every four years, with the most recent experience study completed in 2021.

## Changes Since the Prior Year's Valuation

### Benefits

The standard actuarial practice at CalPERS is to recognize mandated legislative benefit changes in the first annual valuation following the effective date of the legislation. Voluntary benefit changes by plan amendment are generally included in the first valuation that is prepared after the amendment becomes effective, even if the valuation date is prior to the effective date of the amendment.

This valuation generally reflects plan amendments effective before the date of the report. Please refer to the "Plan's Major Benefit Options" in this report and Appendix B of the Section 2 Report for a summary of the plan provisions used in this valuation.

In 2022, SB 1168 increased the standard retiree lump sum death benefit from \$500 to \$2,000 for any death occurring on or after July 1, 2023. For pooled plans this is a Class 3 benefit and there is no normal cost surcharge. The impact on the unfunded liability is included in the pool's (gain)/loss.

### Actuarial Methods and Assumptions

There are no significant changes to the actuarial methods or assumptions for the June 30, 2022 actuarial valuation.

## Subsequent Events

This actuarial valuation report reflects fund investment return through June 30, 2022 and statutory/regulatory changes and board actions through January 2023.

During the time period between the valuation date and the publication of this report, inflation has been significantly higher than the expected inflation of 2.3% per annum. Since inflation influences cost-of-living increases for retirees and beneficiaries and active member pay increases, higher inflation is likely to put at least some upward pressure on contribution requirements and downward pressure on the funded status in the June 30, 2023 valuation. The actual impact of higher inflation on future valuation results will depend on, among other factors, how long higher inflation persists. At this time, we continue to believe the long-term inflation assumption of 2.3% is appropriate.

To the best of our knowledge, there have been no other subsequent events that could materially affect current or future certifications rendered in this report.



## **Assets and Liabilities**

- **Breakdown of Entry Age Accrued Liability**
- **Allocation of Plan's Share of Pool's Experience/Assumption Change**
- **Development of Plan's Share of Pool's Market Value of Assets**
- **Schedule of Amortization Bases**
- **Amortization Schedule and Alternatives**
- **Employer Contribution History**
- **Funding History**

## Breakdown of Entry Age Accrued Liability

Active Members	\$834,491
Transferred Members	0
Separated Members	6,391
Members and Beneficiaries Receiving Payments	0
Total	\$840,882

## Allocation of Plan's Share of Pool's Experience/Assumption Change

It is the policy of CalPERS to ensure equity within the risk pools by allocating the pool's experience gains/losses and assumption changes in a manner that treats each employer equitably and maintains benefit security for the members of the System while minimizing substantial variations in employer contributions. The Pool's experience gains/losses and impact of assumption/method changes is allocated to the plan as follows:

1. Plan's Accrued Liability	\$840,882
2. Projected UAL Balance at 6/30/2022	(10,371)
3. Other UAL Adjustments (Golden Handshake, Prior Service Purchase, etc.)	0
4. Adjusted UAL Balance at 6/30/2022 for Asset Share	(10,371)
5. Pool's Accrued Liability <sup>1</sup>	22,021,735,002
6. Sum of Pool's Individual Plan UAL Balances at 6/30/2022 <sup>1</sup>	2,453,954,297
7. Pool's 2021-22 Investment (Gain)/Loss <sup>1</sup>	2,614,071,182
8. Pool's 2021-22 Non-Investment (Gain)/Loss <sup>1</sup>	309,490,972
9. Plan's Share of Pool's Investment (Gain)/Loss: $[(1) - (4)] \div [(5) - (6)] \times (7)$	113,719
10. Plan's Share of Pool's Non-Investment (Gain)/Loss: $(1) \div (5) \times (8)$	11,818
11. Plan's New (Gain)/Loss as of 6/30/2022: $(9) + (10)$	125,537
12. Increase in Pool's Accrued Liability due to Change in Assumptions <sup>1</sup>	0
13. Plan's Share of Pool's Change in Assumptions: $(1) \div (5) \times (12)$	0
14. Increase in Pool's Accrued Liability due to Funding Risk Mitigation <sup>1</sup>	0
15. Plan's Share of Pool's Change due to Funding Risk Mitigation: $(1) \div (5) \times (14)$	0
16. Offset due to Funding Risk Mitigation	0
17. Plan's Investment (Gain)/Loss: $(9) - (16)$	113,719
18. Partial Fresh Start Base: $(2) + (17)$	103,348

<sup>1</sup> Does not include plans that transferred to Pool on the valuation date.

## Development of the Plan's Share of Pool's Market Value of Assets

19. Plan's UAL: $(2) + (3) + (11) + (13) + (15)$	\$115,166
20. Plan's Share of Pool's MVA: $(1) - (19)$	\$725,716

## Schedule of Amortization Bases

Below is the schedule of the plan's amortization bases. Note that there is a two-year lag between the valuation date and the start of the contribution year.

- The assets, liabilities, and funded status of the plan are measured as of the valuation date: June 30, 2022.
- The required employer contributions determined by the valuation are for the fiscal year beginning two years after the valuation date: FY 2024-25.

This two-year lag is necessary due to the amount of time needed to extract and test the membership and financial data, and the need to provide public agencies with their required employer contribution well in advance of the start of the fiscal year.

The Unfunded Accrued Liability (UAL) is used to determine the employer contribution and therefore must be rolled forward two years from the valuation date to the first day of the fiscal year for which the contribution is being determined. The UAL is rolled forward each year by subtracting the expected payment on the UAL for the fiscal year and adjusting for interest. The expected payment for the first fiscal year is determined by the actuarial valuation two years ago and the contribution for the second year is from the actuarial valuation one year ago. Additional discretionary payments are reflected in the Expected Payments column in the fiscal year they were made by the agency.

Reason for Base	Date Est.	Ramp Level 2024-25	Ramp Shape	Escalation Rate	Amort. Period	Balance 6/30/22	Expected Payment 2022-23	Balance 6/30/23	Expected Payment 2023-24	Balance 6/30/24	Minimum Required Payment 2024-25
Non-Investment (Gain)/Loss	6/30/22	No Ramp		0.00%	20	11,818	0	12,622	0	13,480	1,212
Partial Fresh Start	6/30/22	20%	Up Only	0.00%	20	103,348	(8,558)	119,220	0	127,327	2,737
<b>Total</b>						<b>115,166</b>	<b>(8,558)</b>	<b>131,842</b>	<b>0</b>	<b>140,807</b>	<b>3,949</b>

The (gain)/loss bases are the plan's allocated share of the risk pool's (gain)/loss for the fiscal year as disclosed in "Allocation of Plan's Share of Pool's Experience/Assumption Change" earlier in this section. These (gain)/loss bases will be amortized in accordance with the CalPERS amortization policy in effect at the time the base was established.

The partial fresh start base established June 30, 2022 is the sum of the UAL balance from the June 30, 2021 valuation (projected to June 30, 2022) and the June 30, 2022 investment loss, as shown on the previous page.

## Amortization Schedule and Alternatives

The amortization schedule on the previous page(s) shows the minimum contributions required according to the CalPERS amortization policy. Many agencies have expressed a desire for a more stable pattern of payments or have indicated interest in paying off the unfunded accrued liabilities more quickly than required. As such, we have provided alternative amortization schedules to help analyze the current amortization schedule and illustrate the potential savings of accelerating unfunded liability payments.

Shown on the following page are future year amortization payments based on 1) the current amortization schedule reflecting the individual bases and remaining periods shown on the previous page, and 2) alternative "fresh start" amortization schedules using two sample periods that would both result in interest savings relative to the current amortization schedule. To initiate a fresh start, please contact the plan actuary.

The Current Amortization Schedule typically contains both positive and negative bases. Positive bases result from plan changes, assumption changes, method changes or plan experience that increase unfunded liability. Negative bases result from plan changes, assumption changes, method changes, or plan experience that decrease unfunded liability. The combination of positive and negative bases within an amortization schedule can result in unusual or problematic circumstances in future years, such as:

- When a negative payment would be required on a positive unfunded actuarial liability; or
- When the payment would completely amortize the total unfunded liability in a very short time period, and results in a large change in the employer contribution requirement.

In any year when one of the above scenarios occurs, the actuary will consider corrective action such as replacing the existing unfunded liability bases with a single "fresh start" base and amortizing it over an appropriate period.

The Current Amortization Schedule on the following page may appear to show that, based on the current amortization bases, one of the above scenarios will occur at some point in the future. It is impossible to know today whether such a scenario will in fact arise since there will be additional bases added to the amortization schedule in each future year. Should such a scenario arise in any future year, the actuary will take appropriate action based on guidelines in the CalPERS amortization policy.

## Amortization Schedule and Alternatives (continued)

Date	<u>Current Amortization Schedule</u>		<u>Alternate Schedules</u>			
	Balance	Payment	20 Year Amortization		15 Year Amortization	
			Balance	Payment	Balance	Payment
6/30/2024	140,807	3,949	140,807	12,662	140,807	14,771
6/30/2025	146,301	6,686	137,296	12,662	135,117	14,771
6/30/2026	149,340	9,423	133,547	12,662	129,040	14,771
6/30/2027	149,757	12,159	129,543	12,662	122,550	14,771
6/30/2028	147,375	14,896	125,266	12,662	115,618	14,771
6/30/2029	142,002	14,896	120,699	12,662	108,215	14,771
6/30/2030	136,264	14,896	115,821	12,662	100,309	14,771
6/30/2031	130,136	14,896	110,611	12,662	91,865	14,771
6/30/2032	123,591	14,896	105,047	12,662	82,847	14,772
6/30/2033	116,601	14,896	99,105	12,662	73,215	14,772
6/30/2034	109,136	14,897	92,759	12,662	62,928	14,771
6/30/2035	101,162	14,897	85,981	12,661	51,942	14,772
6/30/2036	92,646	14,897	78,743	12,661	40,208	14,771
6/30/2037	83,551	14,897	71,013	12,662	27,677	14,772
6/30/2038	73,837	14,897	62,756	12,661	14,293	14,771
6/30/2039	63,463	14,897	53,939	12,661		
6/30/2040	52,384	14,898	44,522	12,661		
6/30/2041	40,550	14,897	34,465	12,662		
6/30/2042	27,912	14,897	23,723	12,661		
6/30/2043	14,415	14,897	12,252	12,662		
6/30/2044						
6/30/2045						
6/30/2046						
6/30/2047						
6/30/2048						
6/30/2049						
<b>Total</b>		<b>270,564</b>		<b>253,234</b>		<b>221,569</b>
<b>Interest Paid</b>		<b>129,757</b>		<b>112,427</b>		<b>80,762</b>
<b>Estimated Savings</b>				<b>17,330</b>		<b>48,995</b>

## Employer Contribution History

The table below provides a recent history of the required and discretionary employer contributions for the plan. The required amounts are based on the actuarial valuation from two years prior without subsequent adjustments, if any. Additional discretionary payments before July 1, 2019 or after April 28, 2023 are not included.

Fiscal Year	Employer Normal Cost	Unfunded Liability Payment (\$)	Additional Discretionary Payments
2016 - 17	6.930%	\$141	N/A
2017 - 18	6.908%	360	N/A
2018 - 19	7.266%	568	N/A
2019 - 20	7.072%	929	0
2020 - 21	7.874%	1,650	0
2021 - 22	7.73%	2,637	0
2022 - 23	7.76%	3,489	0
2023 - 24	8.00%	0	
2024 - 25	8.18%	3,949	

## Funding History

The table below shows the recent history of the actuarial accrued liability, share of the pool's market value of assets, unfunded accrued liability, funded ratio, and annual covered payroll.

Valuation Date	Accrued Liability (AL)	Share of Pool's Market Value of Assets (MVA)	Unfunded Accrued Liability (UAL)	Funded Ratio	Annual Covered Payroll
06/30/2014	\$658	\$687	(\$29)	104.5%	\$61,347
06/30/2015	19,399	18,192	1,207	93.8%	212,227
06/30/2016	83,763	76,035	7,728	90.8%	516,269
06/30/2017	185,212	177,972	7,240	96.1%	574,230
06/30/2018	286,462	264,212	22,250	92.2%	577,005
06/30/2019	423,383	387,581	35,802	91.5%	666,618
06/30/2020	466,918	413,726	53,192	88.6%	692,790
06/30/2021	671,213	689,712	(18,499)	102.8%	765,689
06/30/2022	840,882	725,716	115,166	86.3%	786,340

## **Risk Analysis**

- **Future Investment Return Scenarios**
- **Discount Rate Sensitivity**
- **Mortality Rate Sensitivity**
- **Maturity Measures**
- **Maturity Measures History**
- **Funded Status – Termination Basis**

## Future Investment Return Scenarios

Analysis using the investment return scenarios from the Asset Liability Management process completed in 2021 was performed to determine the effects of various future investment returns on required employer contributions. The projections below reflect the impact of the CalPERS Funding Risk Mitigation policy. The projections also assume that all other actuarial assumptions will be realized and that no further changes in assumptions, contributions, benefits, or funding will occur.

The first table shows projected contribution requirements if the fund were to earn either 3.0% or 10.8% annually. These alternate investment returns were chosen because 90% of long-term average returns are expected to fall between them over the 20-year period ending June 30, 2042.

Assumed Annual Return FY 2022-23 through 2041-42	Projected Employer Contributions				
	2025-26	2026-27	2027-28	2028-29	2029-30
<b>3.0% (5<sup>th</sup> percentile)</b>					
Normal Cost Rate	8.2%	8.2%	8.2%	8.2%	8.2%
UAL Contribution	\$7,400	\$11,000	\$16,000	\$22,000	\$25,000
<b>10.8% (95<sup>th</sup> percentile)</b>					
Normal Cost Rate	8.4%	8.6%	8.8%	9.0%	8.7%
UAL Contribution	\$6,100	\$7,600	\$8,500	\$8,500	\$0

Required contributions outside of this range are also possible. In particular, whereas it is unlikely that investment returns will average less than 3.0% or greater than 10.8% over a 20-year period, the likelihood of a single investment return less than 3.0% or greater than 10.8% in any given year is much greater. The following analysis illustrates the effect of an extreme, single year investment return.

The portfolio has an expected volatility (or standard deviation) of 12.0% per year. Accordingly, in any given year there is a 16% probability that the annual return will be -5.2% or less and a 2.5% probability that the annual return will be -17.2% or less. These returns represent one and two standard deviations below the expected return of 6.8%.

The following table shows the effect of a one or two standard deviation investment loss in FY 2022-23 on the FY 2025-26 contribution requirements. Note that a single-year investment gain or loss decreases or increases the required UAL contribution amount incrementally for each of the next five years, not just one, due to the 5-year ramp in the amortization policy. However, the contribution requirements beyond the first year are also impacted by investment returns beyond the first year. Historically, significant downturns in the market are often followed by higher than average returns. Such investment gains would offset the impact of these single year negative returns in years beyond FY 2025-26.

Assumed Annual Return for Fiscal Year 2022-23	Required Employer Contributions	Projected Employer Contributions
	2024-25	2025-26
<b>(17.2)% (2 standard deviation loss)</b>		
Normal Cost Rate	8.18%	8.2%
UAL Contribution	\$3,949	\$11,000
<b>(5.2)% (1 standard deviation loss)</b>		
Normal Cost Rate	8.18%	8.2%
UAL Contribution	\$3,949	\$8,800

- Without investment gains (returns higher than 6.8%) in FY 2023-24 or later, projected contributions rates would continue to rise over the next four years due to the continued phase-in of the impact of the illustrated investment loss in FY 2022-23.
- The Pension Outlook Tool can be used to model projected contributions for these scenarios beyond FY 2025-26 as well as to model other investment return scenarios.



## Discount Rate Sensitivity

The discount rate assumption is calculated as the sum of the assumed real rate of return and the assumed annual price inflation, currently 4.5% and 2.3%, respectively. Changing either the price inflation assumption or the real rate of return assumption will change the discount rate. The sensitivity of the valuation results to the discount rate assumption depends on which component of the discount rate is changed. Shown below are various valuation results as of June 30, 2022 assuming alternate discount rates by changing the two components independently. Results are shown using the current discount rate of 6.8% as well as alternate discount rates of 5.8% and 7.8%. The rates of 5.8% and 7.8% were selected since they illustrate the impact of a 1.0% increase or decrease to the 6.8% assumption.

### Sensitivity to the Real Rate of Return Assumption

As of June 30, 2022	1% Lower Real Return Rate	Current Assumptions	1% Higher Real Return Rate
<b>Discount Rate</b>	<b>5.8%</b>	<b>6.8%</b>	<b>7.8%</b>
Price Inflation	2.3%	2.3%	2.3%
<b>Real Rate of Return</b>	<b>3.5%</b>	<b>4.5%</b>	<b>5.5%</b>
a) Total Normal Cost	20.55%	16.43%	13.30%
b) Accrued Liability	\$1,074,100	\$840,882	\$662,810
c) Market Value of Assets	\$725,716	\$725,716	\$725,716
d) Unfunded Liability/(Surplus) [(b) - (c)]	\$348,384	\$115,166	(\$62,906)
e) Funded Ratio	67.6%	86.3%	109.5%

### Sensitivity to the Price Inflation Assumption

As of June 30, 2022	1% Lower Price Inflation	Current Assumptions	1% Higher Price Inflation
<b>Discount Rate</b>	<b>5.8%</b>	<b>6.8%</b>	<b>7.8%</b>
<b>Price Inflation</b>	<b>1.3%</b>	<b>2.3%</b>	<b>3.3%</b>
Real Rate of Return	4.5%	4.5%	4.5%
a) Total Normal Cost	17.34%	16.43%	14.93%
b) Accrued Liability	\$886,607	\$840,882	\$757,667
c) Market Value of Assets	\$725,716	\$725,716	\$725,716
d) Unfunded Liability/(Surplus) [(b) - (c)]	\$160,891	\$115,166	\$31,951
e) Funded Ratio	81.9%	86.3%	95.8%

## Mortality Rate Sensitivity

The following table looks at the change in the June 30, 2022 plan costs and funded status under two different longevity scenarios, namely assuming post-retirement rates of mortality are 10% lower or 10% higher than our current mortality assumptions adopted in 2021. This type of analysis highlights the impact on the plan of a change in the mortality assumption.

As of June 30, 2022	10% Lower Mortality Rates	Current Assumptions	10% Higher Mortality Rates
a) Total Normal Cost	16.72%	16.43%	16.17%
b) Accrued Liability	\$855,019	\$840,882	\$827,762
c) Market Value of Assets	\$725,716	\$725,716	\$725,716
d) Unfunded Liability/(Surplus) [(b) - (c)]	\$129,303	\$115,166	\$102,046
e) Funded Ratio	84.9%	86.3%	87.7%

## Maturity Measures

As pension plans mature they become more sensitive to risks. Understanding plan maturity and how it affects the ability of a pension plan sponsor to tolerate risk is important in understanding how the pension plan is impacted by investment return volatility, other economic variables, and changes in longevity or other demographic assumptions.

Since it is the employer that bears the risk, it is appropriate to perform this analysis on a pension plan level considering all rate plans. The following measures are for one rate plan only. One way to look at the maturity level of CalPERS and its plans is to look at the ratio of a plan's retiree liability to its total liability. A pension plan in its infancy will have a very low ratio of retiree liability to total liability. As the plan matures, the ratio starts increasing. A mature plan will often have a ratio above 60%-65%.

<b>Ratio of Retiree Accrued Liability to Total Accrued Liability</b>	<b>June 30, 2021</b>	<b>June 30, 2022</b>
1. Retired Accrued Liability	\$0	\$0
2. Total Accrued Liability	671,213	840,882
3. Ratio of Retiree AL to Total AL [(1) / (2)]	0.00	0.00

Another measure of maturity level of CalPERS and its plans is to look at the ratio of actives to retirees, also called the support ratio. A pension plan in its infancy will have a very high ratio of active to retired members. As the plan matures and members retire, the ratio declines. A mature plan will often have a ratio near or below one.

To calculate the support ratio for the rate plan, retirees and beneficiaries receiving a continuance are each counted as one, even though they may have only worked a portion of their careers as an active member of this rate plan. For this reason, the support ratio, while intuitive, maybe less informative than the ratio of retiree liability to total accrued liability above.

For comparison, the support ratio for all CalPERS public agency plans as of June 30, 2021, was 0.78 and was calculated consistently with how it is for the individual rate plan. Note that to calculate the support ratio for all public agency plans, a retiree with service from more than one CalPERS agency is counted as a retiree more than once.

<b>Support Ratio</b>	<b>June 30, 2021</b>	<b>June 30, 2022</b>
1. Number of Actives	8	8
2. Number of Retirees	0	0
3. Support Ratio [(1) / (2)]	N/A	N/A

## Maturity Measures (continued)

The actuarial calculations supplied in this communication are based on various assumptions about long-term demographic and economic behavior. Unless these assumptions (e.g., terminations, deaths, disabilities, retirements, salary growth, investment return) are exactly realized each year, there will be differences on a year-to-year basis. The year-to-year differences between actual experience and the assumptions are called actuarial gains and losses and serve to lower or raise required employer contributions from one year to the next. Therefore, employer contributions will inevitably fluctuate, especially due to the ups and downs of investment returns.

### Asset Volatility Ratio

Shown in the table below is the asset volatility ratio (AVR), which is the ratio of market value of assets to payroll. Plans that have higher AVR experience more volatile employer contributions (as a percentage of payroll) due to investment return. For example, a plan with AVR of 8 may experience twice the contribution volatility due to investment return volatility than a plan with AVR of 4. It should be noted that this ratio is a measure of the current situation. It increases over time but generally tends to stabilize as a plan matures.

### Liability Volatility Ratio

Also shown in the table below is the liability volatility ratio (LVR), which is the ratio of accrued liability to payroll. Plans that have a higher LVR experience more volatile employer contributions (as a percentage of payroll) due to changes in liability. For example, a plan with LVR of 8 is expected to have twice the contribution volatility of a plan with LVR of 4. It should be noted that this ratio indicates a longer-term potential for contribution volatility, since the AVR, described above, will tend to move closer to the LVR as the funded ratio approaches 100%.

Contribution Volatility	June 30, 2021	June 30, 2022
1. Market Value of Assets	\$689,712	\$725,716
2. Payroll	765,689	786,340
3. Asset Volatility Ratio (AVR) [(1) / (2)]	0.9	0.9
4. Accrued Liability	\$671,213	\$840,882
5. Liability Volatility Ratio (LVR) [(4) / (2)]	0.9	1.1

## Maturity Measures History

Valuation Date	Ratio of Retiree Accrued Liability to Total Accrued Liability	Support Ratio	Asset Volatility Ratio	Liability Volatility Ratio
06/30/2017	0.00	N/A	0.3	0.3
06/30/2018	0.00	N/A	0.5	0.5
06/30/2019	0.00	N/A	0.6	0.6
06/30/2020	0.00	N/A	0.6	0.7
06/30/2021	0.00	N/A	0.9	0.9
06/30/2022	0.00	N/A	0.9	1.1

## Funded Status – Termination Basis

The funded status measured on a termination basis is an estimate of the financial position of the plan had the contract with CalPERS been terminated as of June 30, 2022. The accrued liability on a termination basis (termination liability) is calculated differently compared to the plan’s ongoing funding liability. For the termination liability calculation, both compensation and service are frozen as of the valuation date and no future pay increases or service accruals are assumed. This measure of funded status is not appropriate for assessing the need for future employer contributions in the case of an ongoing plan, that is, for an employer that continues to provide CalPERS retirement benefits to active employees. Unlike the actuarial cost method used for ongoing plans, the termination liability is the present value of the benefits earned through the valuation date.

A more conservative investment policy and asset allocation strategy was adopted by the board for the Terminated Agency Pool. The Terminated Agency Pool has limited funding sources since no future employer contributions will be made. Therefore, expected benefit payments are secured by risk-free assets and benefit security for members is increased while limiting the funding risk. However, this asset allocation has a lower expected rate of return than the PERF and consequently, a lower discount rate is assumed. The lower discount rate for the Terminated Agency Pool results in higher liabilities for terminated plans.

The effective termination discount rate will depend on actual market rates of return for risk-free securities on the date of termination. As market discount rates are variable, the table below shows a range for the hypothetical termination liability based on the lowest and highest interest rates observed during an approximate 19-month period from 12 months before the valuation date to seven months after.

Market Value of Assets (MVA)	Discount Rate: 1.75% Price Inflation: 2.50%		Discount Rate: 4.50% Price Inflation: 2.75%		Unfunded Termination Liability
	Termination Liability <sup>1,2</sup>	Funded Ratio	Termination Liability <sup>1,2</sup>	Funded Ratio	
\$725,716	\$1,816,340	40.0%	\$1,090,624	\$772,109	94.0%

<sup>1</sup> The termination liabilities calculated above include a 5% contingency load. The contingency load and other actuarial assumptions can be found in Appendix A of the Section 2 report.

<sup>2</sup> The discount rate used for termination valuations is a weighted average of the 10-year and 30-year U.S. Treasury yields where the weights are based on matching asset and liability durations as of the termination date. The discount rates used in the table are based on 20-year Treasury bonds, rounded to the nearest quarter percentage point, which is a good proxy for most plans. The 20-year Treasury yield was 3.38% on June 30, 2022, the valuation date.

In order to terminate the plan, first contact our Pension Contract Services unit to initiate a Resolution of Intent to Terminate. The completed Resolution will allow the plan actuary to provide a preliminary termination valuation with a more up-to-date estimate of the plan liabilities. Before beginning this process, please consult with the plan actuary.

## Participant Data

The table below shows a summary of the plan's member data upon which this valuation is based:

	June 30, 2021	June 30, 2022
<b>Active Members</b>		
Counts	8	8
Average Attained Age	36.0	37.0
Average Entry Age to Rate Plan	31.4	31.4
Average Years of Credited Service	4.7	5.7
Average Annual Covered Pay	\$95,711	\$98,293
Annual Covered Payroll	\$765,689	\$786,340
Present Value of Future Payroll	\$9,521,170	\$9,856,040
<b>Transferred Members</b>	0	0
<b>Separated Members</b>	1	1
<b>Retired Members and Beneficiaries*</b>		
Counts	0	0
Average Annual Benefits	\$0	\$0
Total Annual Benefits	\$0	\$0

Counts of members included in the valuation are counts of the records processed by the valuation. Multiple records may exist for those who have service in more than one valuation group. This does not result in double counting of liabilities.

\* Values include community property settlements.

## List of Class 1 Benefit Provisions

This plan has the additional Class 1 Benefit Provisions:

- Post-Retirement Survivor Allowance (PRSA)

## Plan's Major Benefit Options

Shown below is a summary of the major optional benefits for which the agency has contracted. A description of principal standard and optional plan provisions is in Section 2.

Member Category	Benefit Group	
	Misc	
<b>Demographics</b>		
Actives	Yes	
Transfers/Separated	Yes	
Receiving	No	
<b>Benefit Provision</b>		
Benefit Formula	2% @ 62	
Social Security Coverage	No	
Full/Modified	Full	
Employee Contribution Rate	8.25%	
Final Average Compensation Period	Three Year	
Sick Leave Credit	Yes	
Non-Industrial Disability	Standard	
Industrial Disability	No	
Pre-Retirement Death Benefits		
Optional Settlement 2	Yes	
1959 Survivor Benefit Level	Level 3	
Special	No	
Alternate (firefighters)	No	
Post-Retirement Death Benefits		
Lump Sum	\$2000	
Survivor Allowance (PRSA)	Yes	
COLA	2%	

## PEPRA Member Contribution Rates

The California Public Employees' Pension Reform Act of 2013 (PEPRA) established new benefit formulas, final compensation period, and contribution requirements for "new" employees (generally those first hired into a CalPERS-covered position on or after January 1, 2013). In accordance with Government Code Section 7522.30(b), "new members ... shall have an initial contribution rate of at least 50% of the normal cost rate." The normal cost for the plan is dependent on the benefit levels, actuarial assumptions, and demographics of the risk pool, particularly members' entry age. Should the total normal cost rate change by more than 1% from the base total normal cost rate, the new member rate shall be 50% of the new normal cost rate rounded to the nearest quarter percent.

The table below shows the determination of the PEPRA member contribution rates effective July 1, 2024, based on 50% of the total normal cost rate as of the June 30, 2022 valuation.

Rate Plan Identifier	Benefit Group Name	Basis for Current Rate		Rates Effective July 1, 2024			
		Total Normal Cost	Member Rate	Total Normal Cost	Change	Change Needed	Member Rate
26060	Miscellaneous PEPRA Level	16.25%	8.25%	16.43%	0.18%	No	8.25%

## Section 2

CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

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### **Risk Pool Actuarial Valuation Information**

**Section 2 may be found on the  
CalPERS website ([www.calpers.ca.gov](http://www.calpers.ca.gov))  
in the Forms and Publications section**



Alameda County Mosquito Abatement Dist.  
**Check Register**  
 For the Period From Sep 1, 2023 to Sep 15, 2023

Filter Criteria includes: Report order is by Date.

<b>Check #</b>	<b>Date</b>	<b>Payee</b>	<b>Amount</b>
4145	9/13/23	Adapco	6,659.41
4146	9/13/23	Airgas	1,798.51
4147	9/13/23	AT&T	86.43
4148	9/13/23	Bay Alarm	251.39
4149	9/13/23	Bay Area MVCAC Regional Training Fund	935.00
4150	9/13/23	California Department of Public Health	117.00
4151	9/13/23	Cintas	733.06
4152	9/13/23	Coverall North America, Inc.	495.00
4153	9/13/23	Demsey, Filliger,& Associates, Inc.	500.00
4154	9/13/23	Grainger	91.64
4155	9/13/23	KIS	553.32
4156	9/13/23	PFM Asset Management LLC	1,795.55
4157	9/13/23	PG&E	58.21
4158	9/13/23	UMPQUA Bank Commerical Card OPS	35,678.24
4159	9/13/23	Voya Institutional Trust Company	183.00
ACH	9/13/23	Alameda County Mosquito Abatement Dist (Payroll)	89,736.01
ACH	9/13/23	CalPERS Retirement	17,988.08
ACH	9/13/23	CalPERS 457	3,803.61
ACH	9/13/23	Visalia Times Delta	2,675.00
<b>Total Expenditures - September 15, 2023</b>			<b>164,138.46</b>

Alameda County Mosquito Abatement Dist.  
**Check Register**  
For the Period From Sep 16, 2023 to Sep 30, 2023

Filter Criteria includes: Report order is by Date.

<b>Check #</b>	<b>Date</b>	<b>Payee</b>	<b>Amount</b>
4160	9/27/23	Airgas	1,613.02
4161	9/27/23	Cintas	225.36
4162	9/27/23	Delta Dental	4,746.80
4163	9/27/23	Grainger	1,362.47
4164	9/27/23	Hentschke, Eric Armin	100.00
4165	9/27/23	PG&E	26.28
4166	9/27/23	Pitney Bowes	503.50
4167	9/27/23	Verizon	336.28
4168	9/27/23	Voya Institutional Trust Company	183.00
4169	9/27/23	VSP	626.02
4170	9/27/23	WEX Bank	538.65
4171	9/27/23	Young, George	100.00
ACH	9/27/23	Alameda County Mosquito Abatement Dist (Payroll)	90,913.46
ACH	9/27/23	Aguilar, Victor	100.00
ACH	9/27/23	Arkin, Valerie	100.00
ACH	9/27/23	Beatty, Robert .P	100.00
ACH	9/27/23	Bhat, Subrahmanya Y	100.00
ACH	9/27/23	CalPERS Health	41,238.48
ACH	9/27/23	CalPERS Retirement	17,988.08
ACH	9/27/23	CalPERS 457	3,803.61
ACH	9/27/23	Qaadri, Kashef	100.00
ACH	9/27/23	Roache, Cathy J Pinkerton.	100.00
ACH	9/27/23	Salzer, Hope	100.00
ACH	9/27/23	Savage, Tyler	100.00
ACH	9/27/23	Syrop, George	100.00
ACH	9/27/23	Washburn, Jan	100.00
<b>Total Expenditures - September 30, 2023</b>			<b>165,305.01</b>

**Alameda County Mosquito Abatement District**  
**Income Statement**  
September 30, 2023. (3 of 12 mth, 25%)

<b>REVENUES</b>	Actual 2021/22	Actual 2022/23	Current Month	Year to Date 2023/24	Budget 2023/24	Actual vs Budget
<b>Total Revenue</b>	\$ 5,386,808.18	\$ 5,584,751.51	\$ 150,496.88	\$ 484,757.84	\$ 5,008,804.00	10%

<b>EXPENDITURES</b>	Actual 2021/22	Actual 2022/23 <sup>1</sup>	Current Month <sup>2</sup>	Year to Date 2023/24	Budget 2023/24	Actual vs Budget
Salaries	\$ 2,129,077.24	\$ 2,309,118.48	\$ 200,489.54	\$ 599,424.00	\$2,462,469	24%
CalPERS Retirement	\$ 471,085.19	\$ 525,486.67	\$ 21,249.84	\$ 351,304.63	\$553,955	63%
Medicare & Social Security	\$ 30,025.60	\$ 33,691.96	\$ 2,859.47	\$ 8,453.96	\$40,292	21%
Fringe Benefits	\$ 484,487.10	\$ 604,257.75	\$ 46,611.30	\$ 145,684.38	\$605,491	24%
<b>Total Salaries, Retirement, &amp; Benefits</b>	<b>\$ 3,114,675.13</b>	<b>\$ 3,472,554.86</b>	<b>\$ 271,210.15</b>	<b>\$ 1,104,866.97</b>	<b>\$3,662,207</b>	<b>30%</b>
Clothing and personal supplies (purchased)	\$ 7,881.80	\$ 7,517.57	\$ 209.12	\$ 399.12	\$9,000	4%
Laundry service and supplies (rented)	\$ 10,417.41	\$ 12,853.29	\$ 958.42	\$ 2,785.10	\$13,000	21%
Utilities	\$ 18,134.35	\$ 19,415.68	\$ 1,361.72	\$ 1,816.36	\$23,700	8%
Communications-IT	\$ 74,950.03	\$ 97,711.30	\$ 6,633.17	\$ 11,871.32	\$104,000	11%
Maintenance: structures & improvements	\$ 26,671.36	\$ 18,062.12	\$ 70.63	\$ 5,829.90	\$30,000	19%
Maintenance of equipment	\$ 25,354.56	\$ 36,209.89	\$ 364.38	\$ 2,013.52	\$30,000	7%
Transportation, travel, training, & board	\$ 120,418.29	\$ 133,124.33	\$ 11,866.56	\$ 28,280.96	\$127,990	22%
Professional services	\$ 97,726.00	\$ 93,114.84	\$ 2,295.55	\$ 28,119.90	\$122,950	23%
Memberships, dues, & subscriptions	\$ 25,103.23	\$ 24,593.62	\$ 160.00	\$ 12,007.94	\$27,000	44%
Insurance - (VCJPA, UAS)	\$ 160,932.64	\$ 177,962.64	\$ -	\$ 209,342.00	\$211,959	99%
Community education	\$ 26,225.45	\$ 28,193.67	\$ 2,741.00	\$ 5,489.80	\$53,000	10%
Operations	\$ 182,575.57	\$ 120,638.42	\$ 8,573.34	\$ 73,334.31	\$261,500	28%
Household expenses	\$ 25,388.02	\$ 18,517.21	\$ 954.19	\$ 3,904.95	\$21,350	18%
Office expenses	\$ 7,002.84	\$ 7,247.77	\$ 891.11	\$ 1,667.61	\$13,000	13%
Laboratory supplies	\$ 82,354.03	\$ 106,783.12	\$ 15,794.22	\$ 34,853.07	\$140,000	25%
Small tools and instruments	\$ 1,963.31	\$ 2,119.69	\$ 339.71	\$ 393.78	\$3,000	13%
<b>Total Staff Budget</b>	<b>\$ 893,098.89</b>	<b>\$ 904,065.16</b>	<b>\$ 53,213.12</b>	<b>\$ 422,109.64</b>	<b>\$1,191,449</b>	<b>35%</b>
<b>Total Operating Expenditures</b>	<b>\$ 4,007,774.02</b>	<b>\$ 4,376,620.02</b>	<b>\$ 324,423.27</b>	<b>\$ 1,526,976.61</b>	<b>\$4,853,656</b>	<b>31%</b>

1 - As of June 30, 2023. Unaudited.

2 - Total Operating Expenditures in current month may not match the check register due to accounts receivable, petty cash transactions, and transactions related to the last fiscal year.

**Alameda County Mosquito Abatement District  
Investment, Reserves, and Cash Balance Report  
September 30, 2023. (3 of 12 mth, 25%)**

Account #	Investment Accounts	Beginning Balance	Deposits	Withdrawals	Earnings <sup>1</sup>	Ending Balance
1004	LAIF	\$ 107,343.54	\$ -	\$ -	\$ -	\$ 107,343.54
1005	OPEB Fund	\$ 4,646,236.92	\$ -	\$ -	\$ (158,722.34)	\$ 4,487,514.58
1006	VCJPA Member Contingency <sup>2</sup>	\$ 352,689.00	\$ -	\$ -	\$ -	\$ 352,689.00
1011	CAMP: Capital Reserve Fund	\$ 435,788.28	\$ -	\$ -	\$ 1,987.21	\$ 437,775.49
1012	PARS: Pension Stabilization <sup>3</sup>	\$ 2,164,114.55	\$ 269,350.00	\$ -	\$ (27,302.67)	\$ 2,406,161.88
1013	California CLASS: Public Health Emergency Fund	\$ 526,220.89	\$ -	\$ -	\$ 2,368.68	\$ 528,589.57
1014	California CLASS: Operational Fund <sup>4</sup>	\$ 2,158,276.05	\$ 43,103.00	\$ (329,443.47)	\$ 9,438.86	\$ 1,881,374.44
1015	California CLASS: Repair and Replace Fund	\$ 3,231,940.43	\$ -	\$ -	\$ 14,547.92	\$ 3,246,488.35
1016	California CLASS: Operating Reserve Fund	\$ 2,039,113.29	\$ -	\$ -	\$ 9,178.65	\$ 2,048,291.94
<b>Total</b>		<b>\$ 15,661,722.95</b>	<b>\$ 312,453.00</b>	<b>\$ (329,443.47)</b>	<b>\$ (148,503.69)</b>	<b>\$ 15,496,228.79</b>

Account #	Cash Accounts	Beginning Balance	Deposits	Activity	Ending Balance
1001	Bank of America (Payroll Account) *	\$ 147,746.46			\$ 147,055.13
1003	County Account	\$ 743,266.43	\$ -	\$ 149,706.93	\$ 892,973.36
1017	Five Star Bank (Transfer Account) *	\$ 382,333.69	\$ -	\$ -	\$ 213,254.11
1018	Petty Cash	\$ 351.46	\$ -	\$ (95.50)	\$ 255.96
<b>Total</b>		<b>\$ 1,273,698.04</b>	<b>\$ -</b>	<b>\$ 149,611.43</b>	<b>\$ 1,253,538.56</b>

1 - Earnings are booked as unrealized gains/losses. These earnings would not be recognized as "realized" gains/losses until the accounts are liquidated.

2 - VCJPA Member Contingency balance is as of June 30, 2023.

3- PARS - Pension Stabilization balance is as of August 31, 2023.

4- \$329,443.47 transferred from CA:CLASS Operational Fund to Five Star Bank for September expenditures.

\* - Ending balance differs from beginning balance due to checks clearing the account.

Alameda County Mosquito Abatement  
Balance Sheet Comparison  
September

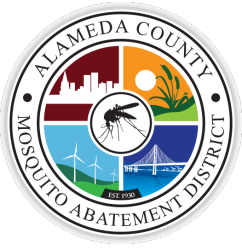
ASSETS	9/30/2023	9/30/2022	9/30/2021
Current Assets			
Bank of America payroll	\$ 147,054.70	\$ 155,852.73	\$ 97,937.43
Bank of the West <sup>1</sup>	-	440,563.93	346,991.32
County	892,973.36	785,311.28	738,012.59
Cash with LAIF	107,343.54	1,374,406.42	2,431,540.40
VCJPA- Member Contingency	352,689.00	341,986.00	373,765.00
CAMP - Repair and Replace <sup>2</sup>	-	2,629,663.90	1,355,441.05
CAMP - Public Health Emergency <sup>3</sup>	-	-	526,288.40
CAMP - Operating Reserve <sup>4</sup>	-	1,960,125.37	1,944,580.40
CAMP - Capital Reserve Fund	437,775.49	371,733.09	30,001.05
PARS	2,406,161.88	1,960,914.19	1,835,670.11
Five Star Bank	194,630.73	-	-
California CLASS: Public Health Emergency Fund	528,589.57	529,964.16	-
California CLASS: Operational Fund	1,881,374.44	-	-
California CLASS: Repair and Replace Fund	3,246,488.35	-	-
California CLASS: Operating Reserve Fund	2,048,291.94	-	-
Accounts Receivable	-	-	13,414.82
Petty cash	255.96	364.11	321.04
<b>Total Current Assets</b>	<b>12,243,628.96</b>	<b>10,550,885.18</b>	<b>9,693,963.61</b>
Property and Equipment			
Acc Dep - equipment	(1,709,382.00)	(1,709,382.00)	(1,594,225.00)
Acc Dep - stru & improv	(2,723,997.00)	(2,723,997.00)	(2,604,632.00)
Construction in progress	36,210.31	-	-
Equipment	1,901,614.99	1,830,175.69	1,769,859.00
Structure/improvement	4,760,618.00	4,760,618.00	4,760,618.00
Land	61,406.00	61,406.00	61,406.00
Total Property and Equipment	2,326,470.30	2,218,820.69	2,393,026.00
Other Assets			
Net OPEB Asset	1,199,826.00	1,225,311.00	2,522,763.00
Total Other Assets	1,199,826.00	1,225,311.00	2,522,763.00
<b>Total Assets</b>	<b>\$ 15,769,925.26</b>	<b>\$ 13,995,016.87</b>	<b>\$ 14,609,752.61</b>
<b>LIABILITIES AND CAPITAL</b>			
Current Liabilities			
Accounts payable	\$ 98,949.23	\$ 126,158.53	\$ 121,419.60
Acc payroll/vacation	210,892.93	201,023.94	208,228.89
Def inflow - 75	1,046,869.00	1,046,869.00	1,254,695.00
Def inflow pen defer GASB 68	1,941,395.00	1,941,395.00	208,602.00
Defer outflow pen cont GASB 68	(822,206.00)	(822,206.00)	(936,411.00)
Net pension liability GASB 68	2,034,280.00	2,034,280.00	3,603,091.00
Total Current Liabilities	\$ 4,510,180.16	\$ 4,527,520.47	\$ 4,459,625.49
<b>Total Liabilities</b>	<b>4,510,180.16</b>	<b>4,527,520.47</b>	<b>4,459,625.49</b>
Capital			
Designated fund balances	3,019,347.55	3,044,832.55	4,412,645.55
Investment in general fixed as	9,156,438.57	7,642,845.18	6,677,881.96
Net Income	(916,041.02)	(1,220,181.33)	(940,400.39)
Total Capital	11,259,745.10	9,467,496.40	10,150,127.12
<b>Total Liabilities &amp; Capital</b>	<b>\$ 15,769,925.26</b>	<b>\$ 13,995,016.87</b>	<b>\$ 14,609,752.61</b>

1 - Bank of the West account was closed June 2023.

2 - CAMP: Repair and Replace Fund was closed February 2023.

3 - CAMP: Public Health Emergency Fund was closed September 2022.

4 - CAMP: Operating Reserve Fund was closed February 2023.



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## MONTHLY STAFF REPORT –1118

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*General Manager*

### OPERATIONS REPORT

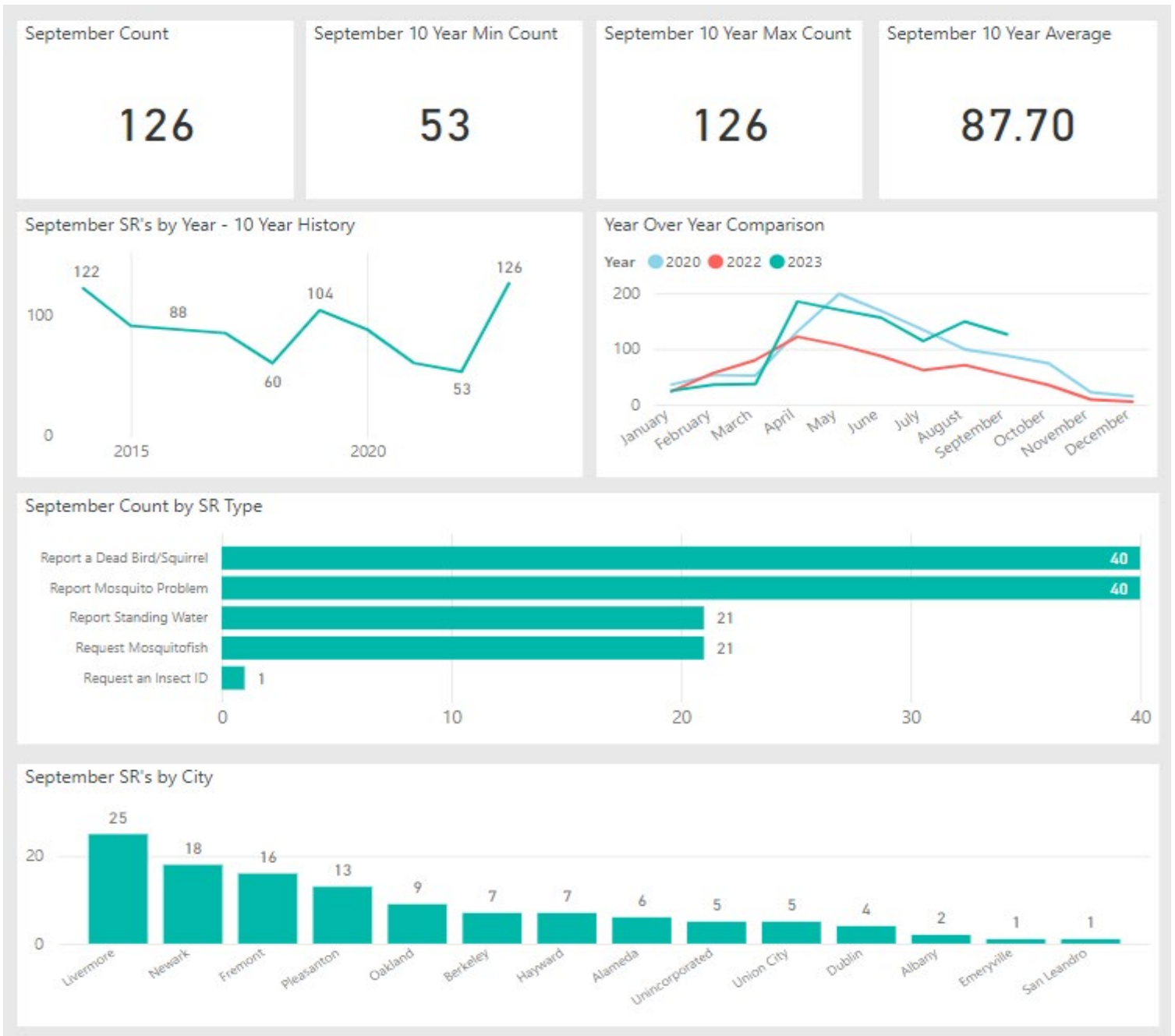
In September, significant detections of West Nile virus (WNV) in both birds and mosquitoes continued throughout Alameda County. Operations staff continued to treat larval sources for *Culex spp.* mosquitoes county-wide with a team-focus on areas with WNV detections. Two pieces of operations equipment that had seen minimal use in years, were brought on-line to help limit the numbers of potential WNV vectoring adult mosquitoes in the Livermore region. Six applications were conducted to control adult mosquitoes: three with a truck mounted “London Fogger” ULV (ultra-low volume), and three with a ULV backpack sprayer. Over one thousand acres were treated during these operations. For perspective, more adult mosquito control efforts and more acres were treated in the month than had been in the last several decades in our county. All but one of these treatments occurred in the night-time hours, when mosquito species of concern were active. As this is not a routine process for ACMAD, a great deal of time went into safety preparations, testing of equipment, recalibration, and planning. The truck mounted ULV covers wider areas, and the backpack provides more localized focus. Ops staff and the Mechanical Specialist were joined prior to two of the truck operations by staff from the County Agricultural Commission’s office to conduct pesticide use monitoring inspections. Based on sentinel adult mosquitoes placed in the spray areas and post spray adult mosquito trapping by the ACMAD lab, these operations were able to reduce the numbers of adult mosquitoes in the spray areas. ACMAD has a long history of a larval control-based program, however, the use of adult mosquito control methods will always be considered as tools to prevent mosquito borne illness when warranted. This equipment will continue to be maintained, calibrated, trained on, and tested as it has been for many years.

Requests for service received from the public in September were above the ten-year average for the month. Weather conditions and WNV in the news likely contributed to the increase. Requests to “report standing water” and requests for mosquito fish remained steady. The two main number drivers for the month were requests to “report a dead bird” and to “report a mosquito problem”. Forty-six dead birds were reported. These dead birds play a vital role in our WNV program. The ACMAD lab tests these birds, along with adult mosquitoes, to determine if they are infected with WNV. This allows operations staff to respond quickly to the collection sites and to inspect and treat for mosquito species of concern. Over half of the “report a mosquito problem” requests for service were attributable to *Aedes dorsalis* in the cities of Newark and Fremont, mainly from communities close to tidal-marsh sources. Even small numbers of this aggressive, day-biting mosquito are very noticeable. Operations staff are already preparing for an October high tide event to extensively treat larvae of this mosquito and prevent emergence of adults.

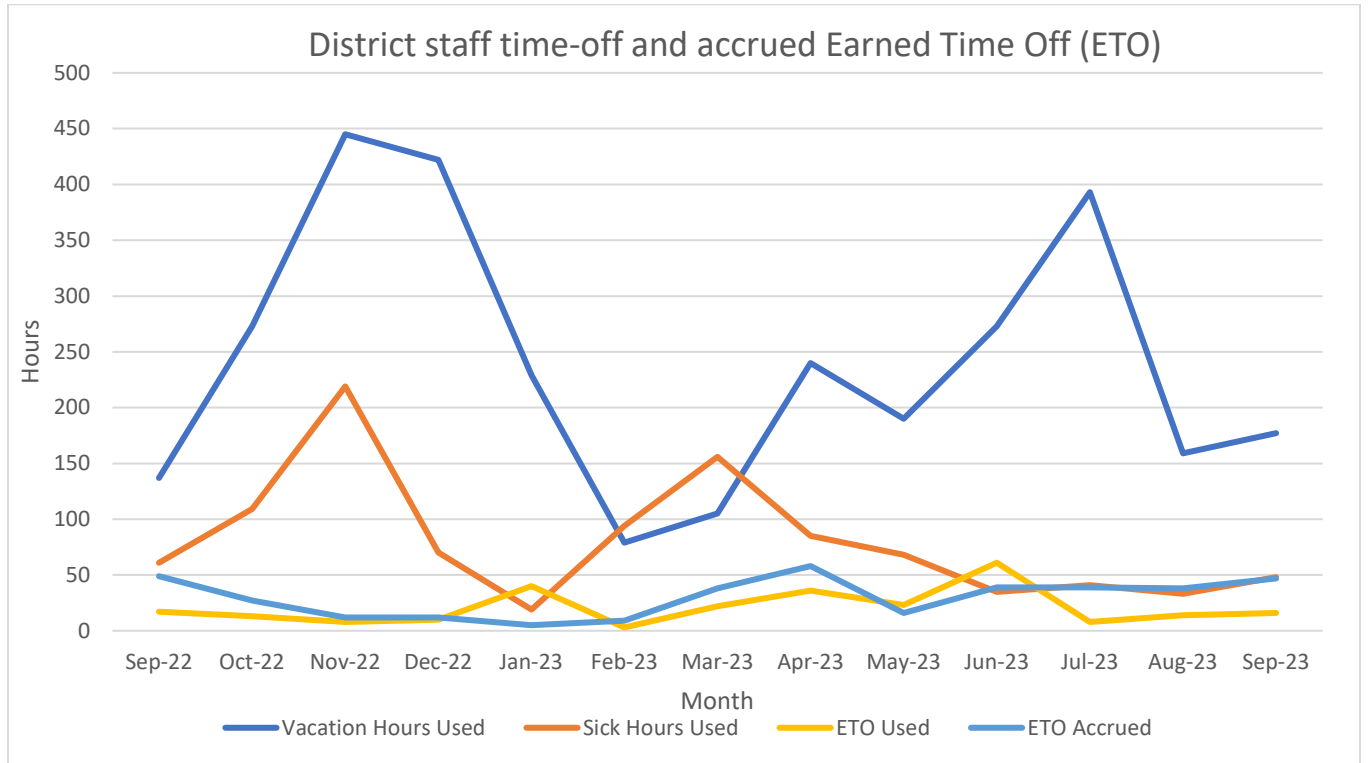
*Field Operations Supervisor*

*Joseph Huston*

## Service Requests September 2023

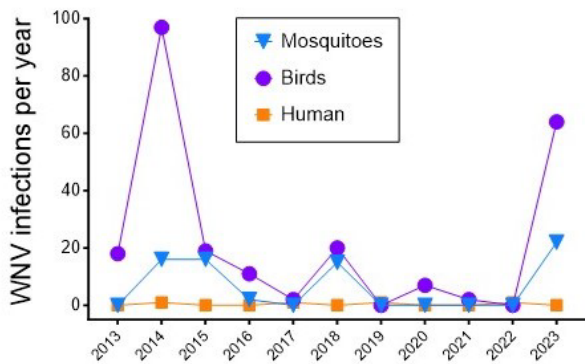


**Activity Report**

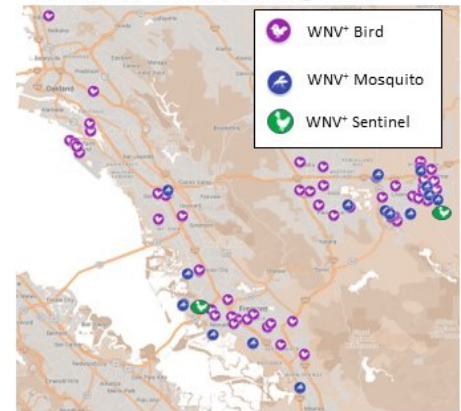


**WNV Activity**

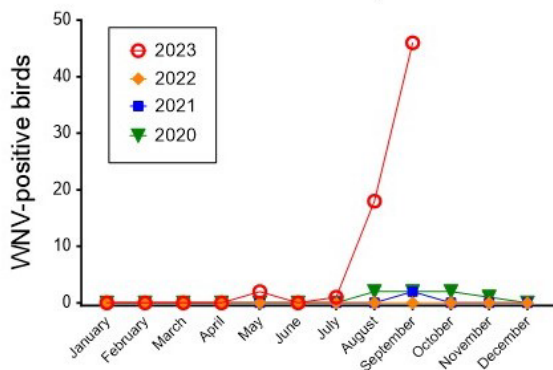
WNV infections detected in Alameda County 2013 – 2023



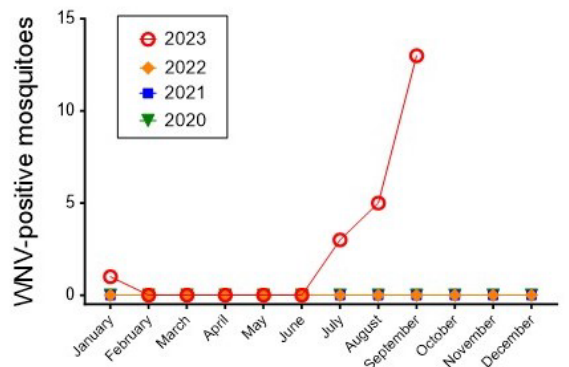
Locations of WNV-infected mosquitoes and birds in Alameda County during 2023



WNV-infected birds collected in Alameda County



WNV-infected mosquitoes collected in Alameda County





## A. LAB

### Summary

- *Arboviruses in mosquitoes.* 12 traps that were collected during September contained mosquitoes that were infected with West Nile virus (WNV). The WNV-positive traps were from the following cities: Fremont (2), Livermore (8), Pleasanton (1), and San Lorenzo (1). Please see the figures above for WNV Activity.
- *Arboviruses in birds.* 46 birds tested positive for WNV this month from the following cities: Albany (1), Alameda (2), Dublin (1), Fremont (7), Hayward (1), Livermore (24), Newark (2), Pleasanton (4), San Lorenzo (2), Union City (2). Please see the WNV Activity figures above for locations. Saint Louis encephalitis virus (SLEV) and Western equine encephalitis virus (WEEV) have not been detected in birds from Alameda County this year. However, SLEV was detected this month in the City of Napa (Figure 1, orange ellipse in Napa County).
- *Native mosquitoes.* A total of 415 encephalitis virus survey (EVS) traps were placed during September, catching 9,484 adult female mosquitoes (22.9 mosquitoes per trap). Over two-thirds of the EVS traps were placed in response to WNV detections in birds or mosquitoes.
- Both sentinel chicken flocks (Livermore and Union City) seroconverted for WNV during September, indicating that mosquitoes infected with WNV were present in the immediate area where the coops were located (please see WNV Activity Figures above).
- *Human cases.* Although one human case was reported for the county during 2023, it was not attributed to Alameda County by Alameda County Public Health Department (ACPHD).
- Invasive *Aedes* mosquitoes have not been detected in Alameda County during 2023.

### Arbovirus Monitoring

- 12 traps this month contained mosquitoes that were infected with WNV. These traps were from the following cities, with the number of WNV-positive pools in parentheses: Fremont (2), Livermore (8), Pleasanton (1), and San Lorenzo (1). So far this year, 22 mosquito pools have tested positive for WNV.
- 46 birds tested positive for WNV this month. There were collected from the following cities with the number of WNV-infected birds in parentheses: Albany (1), Alameda (2), Dublin (1), Fremont (7), Hayward (1), Livermore (24), Newark (2), Pleasanton (4), San Lorenzo (2), Union City (2). 64 birds have tested positive for WNV so far this year.
- This year has produced the highest number of WNV-positive birds since 2014, and more WNV-positive mosquito collections since arbovirus testing became available to vector control districts in 2005. However, relative to the neighboring counties, WNV activities for Alameda County remains relatively low (Figure 1)
- SLEV and WEEV have not been detected in Alameda County for nearly two decades. However, SLEV has been detected in two nearby counties, Napa and San Joaquin (Figure 1)
- One human WNV case was reported to us by ACPHD, but due to travel outside of the state to an area with high WNV activity, it was not attributed to Alameda County.
- Test results from the blood samples collected from the sentinel chicken flocks in Livermore and Union City showed they were exposed to WNV during September, or earlier. SLEV and WEEV have not been detected in sentinel chickens this year.

### Native Mosquito Abundance

- In California, the main transmitters of WNV, SLEV, and WEEV are: *Culex pipiens* (typically in urban settings), *Culex tarsalis* (associated with marsh and peri-urban areas), and *Culex erythrorhox* (occurs exclusively in marsh but adults can disperse into nearby communities).
- This month, 415 EVS traps collected 9,484 female mosquitoes (22.9 mosquitoes per trap; Figure 2). Two thirds of the EVS traps this month were placed in response to WNV-positive mosquitoes or birds that were detected in the warmer or drier regions of the county. Thus, while the number of mosquitoes per trap were 62% lower this month relative to the prior, the lab work efforts this month occurred predominantly in regions where mosquito abundance is low. Nonetheless, adult mosquito abundance for September remained higher than 2021 and 2022 (Figure 2). Higher numbers of *Culex tarsalis* and *Culex erythrorhox* in marsh habitats drove the higher overall abundance in the county (Figure 3, top panels and Figure 4). *Culex pipiens* remained low, while *Aedes dorsalis* was intermittently high (Figure 3, lower panels and Figure 4) and corresponded to high tidal waters from the San Francisco Bay inundating marsh habitats.
- *Anopheles* mosquito abundance in the county remains higher than prior years (Figure 4), but was much lower than what is occurring in nearby counties (not shown).

- Most mosquitoes in the western part of the county were *Culex tarsalis*, *Culex erythorothorax*, and *Aedes dorsalis* (Figure 5A, 5B). Mosquito abundance in the eastern region of the county was higher than the prior month, but lower overall relative to the bayside region of the county (Figure 5C). Two EVS traps did not collect any mosquitoes (0.5% of all EVS traps for the month; Figure 5A, insert).
- The BG-Counter trap near Sea Breeze Park captured 2,167 adult mosquitoes during the month (6-fold fewer mosquitoes than the prior month), most of which were likely *Culex tarsalis* and *Culex erythrothorax*.

## LAB FIGURES

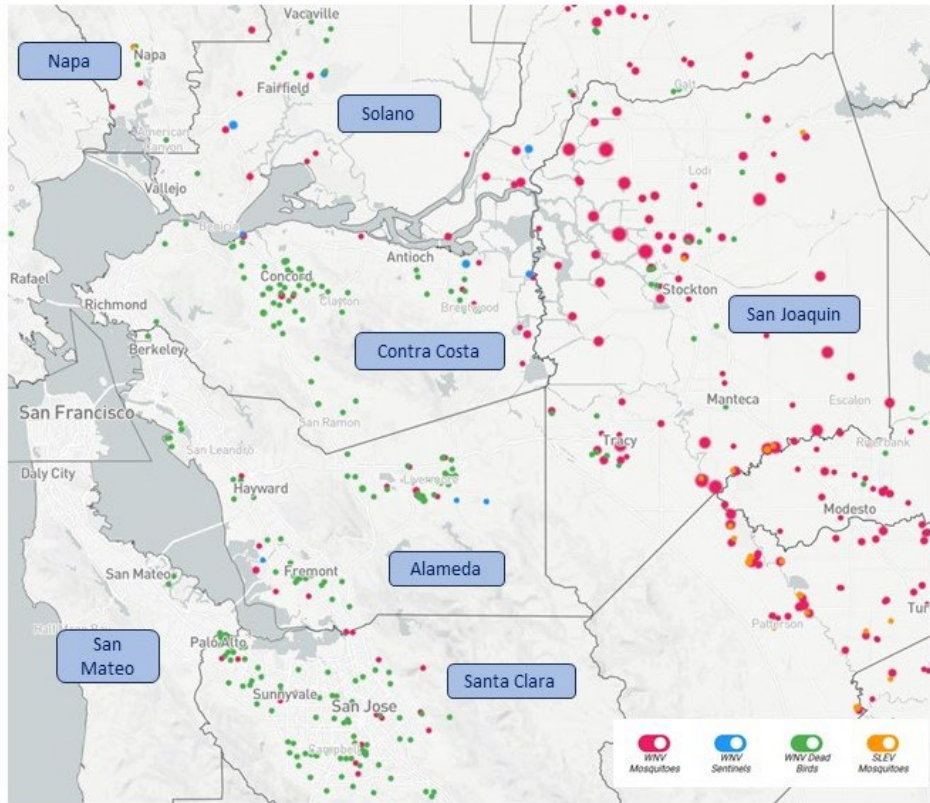


Figure 1. The location of WNV and SLEV detections in birds, mosquitoes and sentinel chickens for 2023.

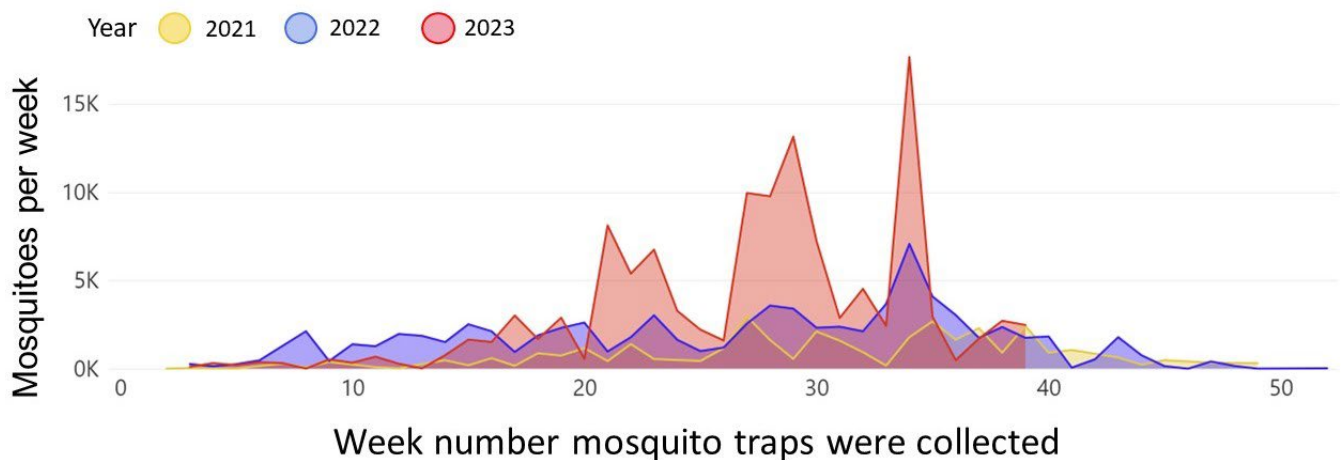


Figure 2. Mosquitoes captured in EVS CO<sub>2</sub> traps from 2021 – 2023. A total of 9,484 adult female mosquitoes were captured in CO<sub>2</sub>-baited traps during the month and identified to species. Week 24 of 2021 was excluded from the graph because the high anomalous abundance that week skewed the y-axis.

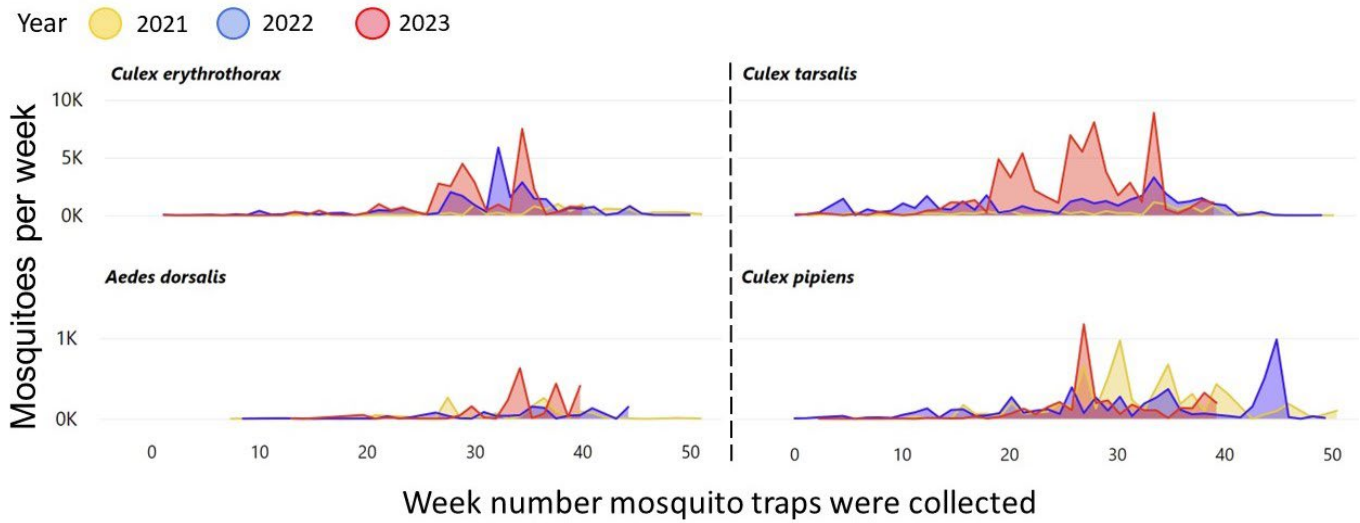


Figure 3. Weekly abundance of important mosquito species during 2021, 2022 and 2023.

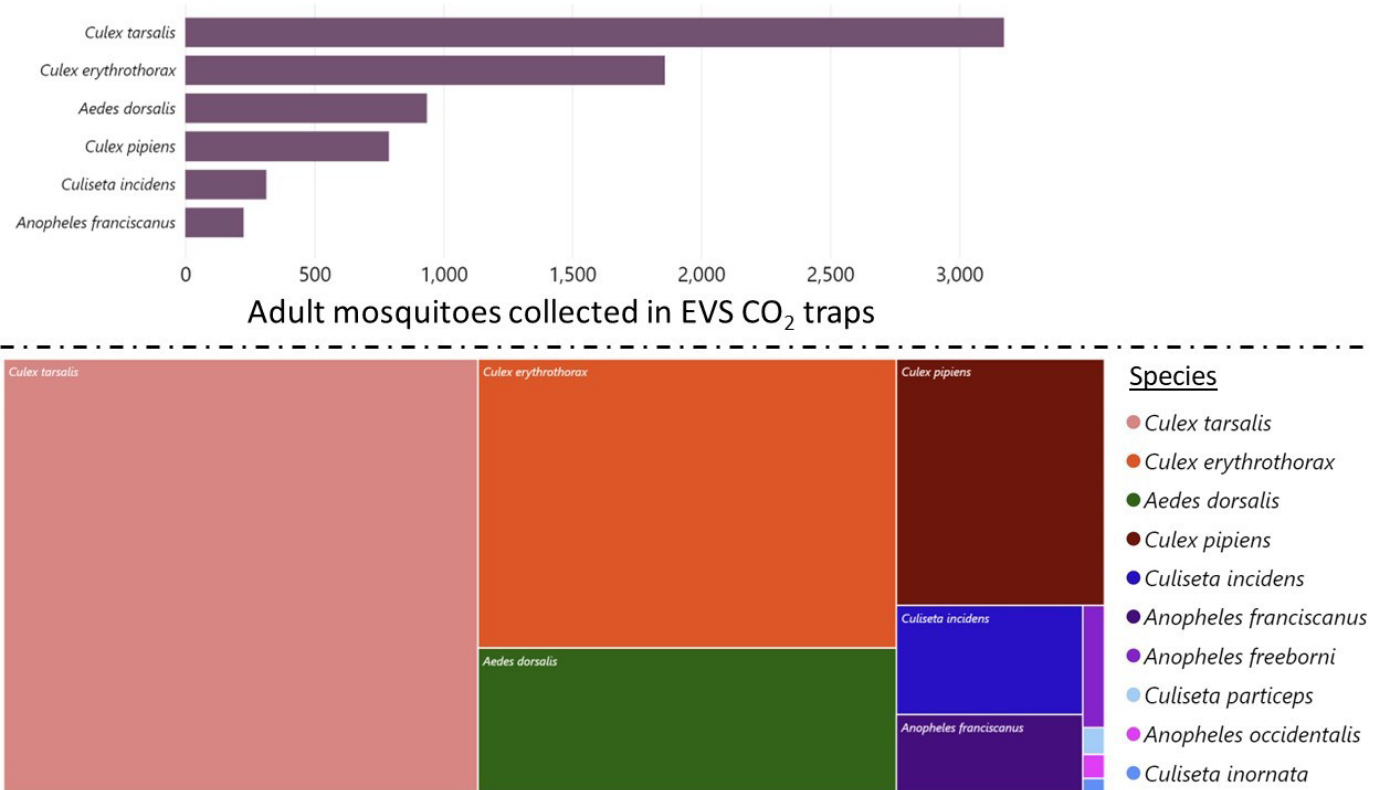
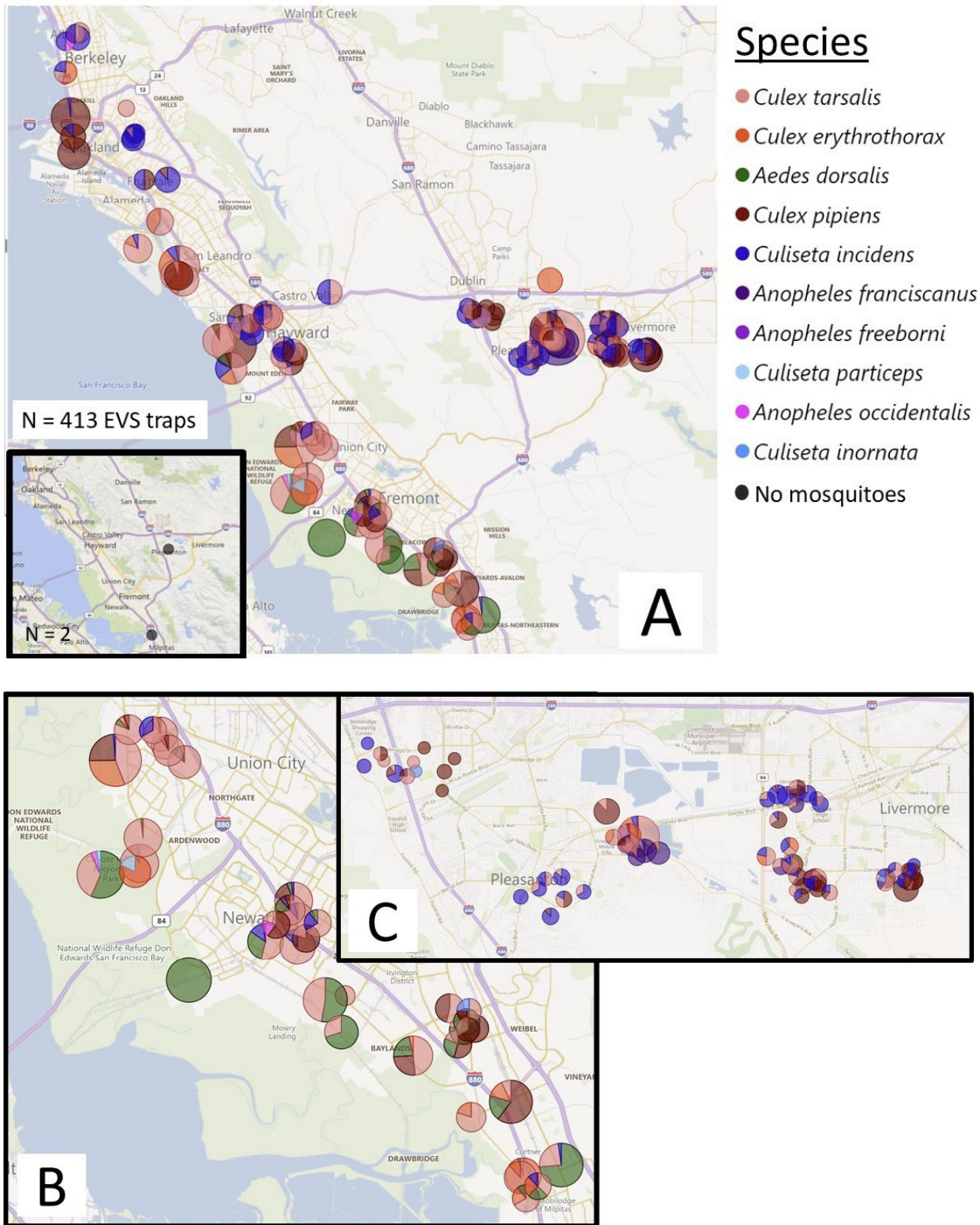


Figure 4. The most abundant species of mosquito captured using EVS CO<sub>2</sub> traps during the month of this report. Larger squares and rectangles indicate higher abundance of that species.



**Figure 5. Mosquito abundance by trap site evaluated using EVS CO<sub>2</sub> traps.** Pie charts over trap sites indicate the distribution of mosquito species collected at the trap site. The size of each pie chart indicates the relative number of mosquitoes at each site during the month in (A) Alameda County (insert shows traps that were placed but did not collect mosquitoes), (B) the central and southern bayside region, and (C) the eastern region of the county.

Analysis and report by Eric Haas-Stapleton, PhD, Laboratory Director



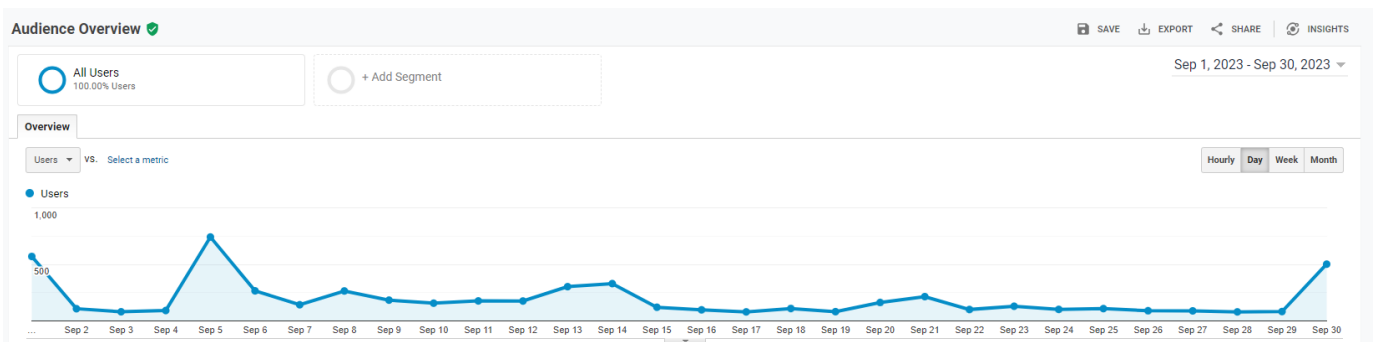
## B. PUBLIC EDUCATION

### Events and Education

- Solano Stroll September 10<sup>th</sup> in Albany
- McKinley Elementary School in San Leandro presentations to three classrooms September 6<sup>th</sup> and 12<sup>th</sup>
- The district hosted 21 legislative and agency staffers for the CSDA Special Districts tour at our office in Hayward on Sept 27<sup>th</sup>



### Google Analytics



79,132 site views

While it appears that we continue to have bot activity on the first day of the month, the large number could also be attributed to the press release that went out on August 31<sup>st</sup> about the upcoming adult mosquito control treatment. September 5<sup>th</sup> also had a bump likely due to the day-of treatment social media posts. We see a third bump on

September 13<sup>th</sup>, which aligns with social media posts about the second adult mosquito control treatment of the month. September 21<sup>st</sup> was our last adult mosquito control treatment in September, and it appears to have caused a minor bump in site visitors.

**Social media**

**Top Facebook Post**



**Posts: 10 Reach: 762 Followers: 497 (37 increase)**

**Top Twitter Post**

**Posts: 10  
Reach: 1,191  
Followers: 820 (16 increase)**



**Adult mosquito control treatments earned far more views and engagement than other previous posts**



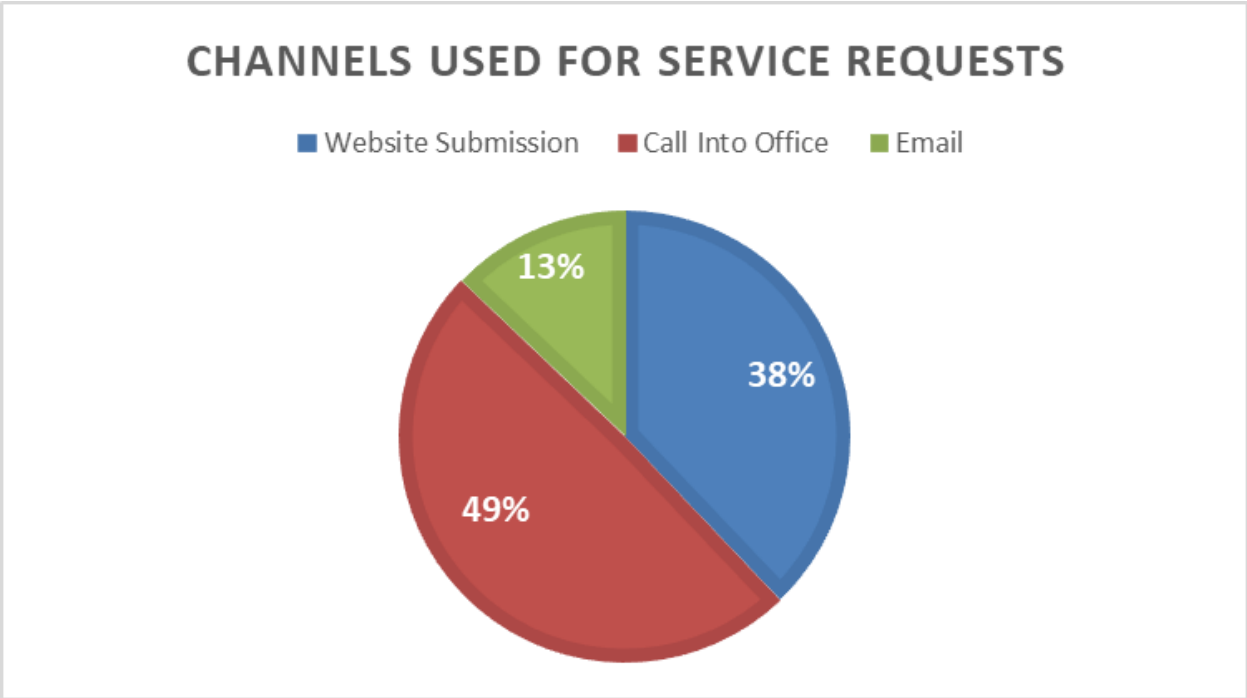
The district worked with the **city of Livermore Public Information Officer** and **Livermore Police Department Public Information Officer** to amplify the messages to their social media followers

**3 different treatment posts**  
Facebook: 32,670 impressions  
Twitter: 12,104 impressions  
NextDoor: 7,662 impressions

Above is an example of one of the media posts with details of the polygon of treatment along with a map visual

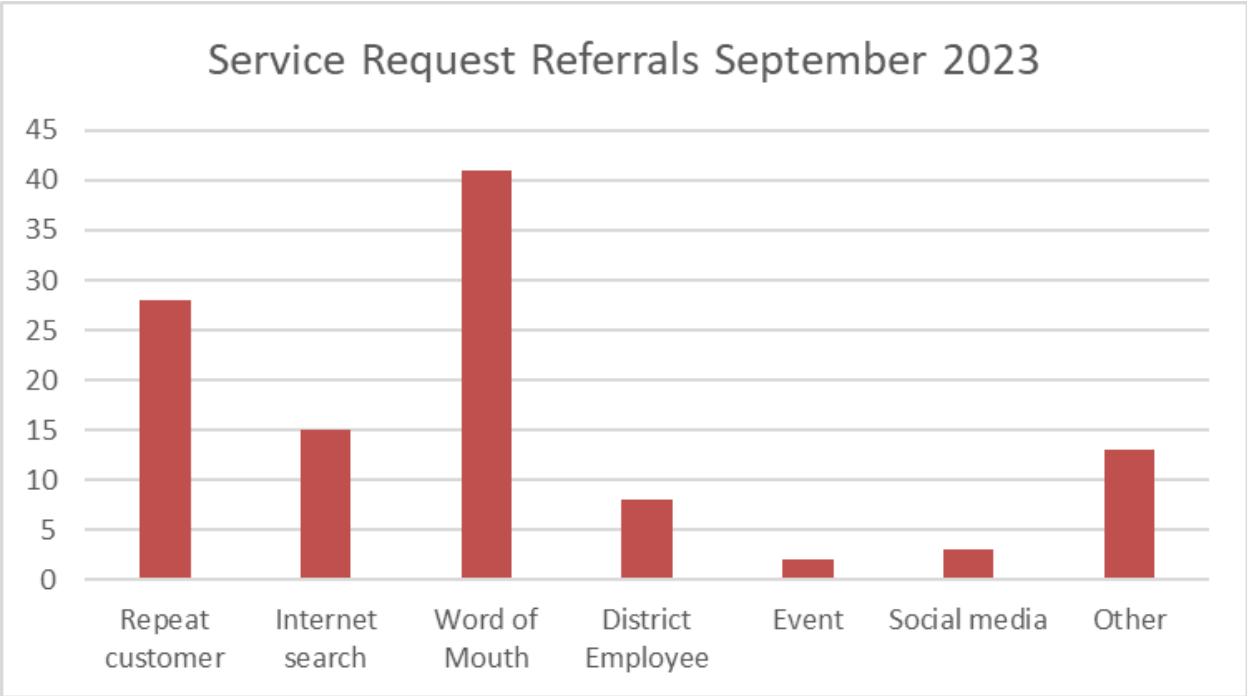
**60 people** signed up for email Fogging notifications

**Channel used for Service Request for September**



Calls: 61   Email: 16   Online submissions: 47

**Service Request Referral Summary for September**



## California Arbovirus Surveillance Bulletin #25

Week 39 Friday, September 29, 2023



### WEEKLY UPDATE

#### Humans

##### West Nile virus

A total of 29 new human cases of West Nile virus (WNV) were reported this week from 14 counties: Colusa (1), Contra Costa (1), Fresno (3), Kings (2), Los Angeles (4), Merced (2), Nevada (1), Placer (1), Riverside (2), San Bernardino (2), San Joaquin (2), Stanislaus (6), Sutter (1), and Yolo (1). **These are the first human cases of WNV reported from Colusa and Nevada counties this year.** In 2023, a total of 183 human cases of WNV have been reported from 27 counties. Of the 183 cases, 134 (73%) had neuroinvasive disease and 6 (3%) were fatal. The median age of the case-patients was 59 years and 125 (68%) of the case-patients were male. The dates of symptom onset ranged from June 30 to September 11. In addition to the 183 WNV human cases, 20 asymptomatic WNV-positive blood donors have been reported from 14 counties: Amador (1), Butte (1), Contra Costa (1), Fresno (2), Kern (1), Kings (2), Los Angeles (3), Orange (1), Riverside (1), San Bernardino (2), San Joaquin (1), San Mateo (1), Stanislaus (1), and Yolo (2). At this time last year, 81 WNV human cases had been reported from 16 counties.

##### St. Louis encephalitis virus

A single (1) case of St. Louis encephalitis virus (SLEV) was reported this week from 1 county: Stanislaus (1). In 2023, 3 SLEV human cases have been reported from 2 counties. At this time last year, 6 SLEV human cases had been reported from 4 counties.

#### Dead Birds

A total of 42 new WNV positive dead birds were reported from 9 counties: Alameda (11), Los Angeles (1), Sacramento (4), San Joaquin (1), San Luis Obispo (1), San Mateo (1), Santa Clara (13), Sonoma (2), and Yolo (8). **This is the first WNV positive dead bird for San Luis Obispo County this year.** In 2023, 696 WNV positive dead birds have been reported from 30 counties. At this time last year, 166 WNV positive dead birds had been reported from 22 counties.

#### Mosquito Pools

##### West Nile virus

A total of 152 new WNV positive mosquito pools were reported from 17 counties: Alameda (3), Butte (1), Fresno (12), Kern (3), Los Angeles (38), Madera (3), Merced (2), Orange (29), Riverside (23), Sacramento (3), San Bernardino (5), San Diego (1), San Joaquin (6), Shasta (4), Stanislaus (5), Tulare (13), and Yolo (1). **This is the first WNV positive mosquito pool from San Diego this year.** In 2023, 4,135 WNV positive mosquito pools have been reported from 31 counties. At this time last year, 2,925 WNV positive mosquito pools had been reported from 26 counties.

##### St. Louis encephalitis virus

A total of 63 new SLEV positive mosquito pools were reported from 9 counties: Fresno (21), Kern (2), Madera (4), Merced (1), Riverside (3), San Joaquin (1), Stanislaus (1), Tulare (29) and Yolo (1). In 2023, 615 SLEV positive mosquito pools have been reported from 15 counties. At this time last year, 130 SLEV positive mosquito pools had been reported from 8 counties.

#### Sentinel Chickens

##### West Nile virus

A total of 8 new WNV positive chickens were reported this week from 2 counties: Los Angeles (6) and Yolo (2). In 2023, 163 WNV positive chickens have been reported from 17 counties. At this time last year, 123 WNV positive chickens had been reported from 13 counties.

##### St. Louis encephalitis virus

No new SLEV positive chickens were reported this week. In 2023, 1 SLEV positive chicken has been reported from 1 county. At this time last year, no SLEV positive chickens had been reported.



## California Arbovirus Surveillance Bulletin #25

Week 39 Friday, September 29, 2023

<b>2022 &amp; 2023 YTD West Nile Virus Comparisons</b>		
	<b>2022</b>	<b>2023</b>
Total No. Dead Bird Reports	4,138	5,695
No. Positive Counties	32	41
No. Human Cases	81	183
No. Positive Dead Birds / No. Tested	166 / 1,125	696 / 1,694
No. Positive Mosquito Pools / No. Tested	2,925 / 34,191	4,135 / 45,548
No. Seroconversions / No. Tested	123 / 4,384	163 / 3,128

<b>YTD WNV Activity by Element and County, 2023</b>					
<b>County</b>	<b>Humans*</b>	<b>Horses</b>	<b>Dead Birds</b>	<b>Mosquito Pools</b>	<b>Sentinel Chickens</b>
Alameda			58	15	3
Butte	17	1	2	69	31
Calaveras					3
Colusa	1		2	2	2
Contra Costa	2		50	18	7
El Dorado	1		3		
Fresno	5	2	1	224	
Glenn	4			1	
Imperial				3	
Inyo				2	
Kern	4	2		102	
Kings	6	1		66	
Lake	4		6	25	
Los Angeles	18		34	438	19
Madera	4	1	1	207	
Marin			2		
Merced	5	1		43	22
Napa		1	3	7	
Nevada	1		1		2
Orange	1	1		121	
Placer	3	1	43	177	
Riverside	7	1	60	127	
Sacramento	19	3	189	339	5
San Benito			1		4
San Bernardino	14	1	11	147	
San Diego			4	1	
San Joaquin	12	2	20	597	
San Luis Obispo		2	1		
San Mateo			3		
Santa Clara	1	1	90	14	
Shasta	3		2	145	5
Siskiyou		1			
Solano	1		15	24	11
Sonoma			11	2	
Stanislaus	14	2	6	285	
Sutter	5		6	66	19
Tehama					4
Tulare	15	1	5	550	10
Ventura			3		
Yolo	11		63	292	9
Yuba	5	1		26	7
<b>Totals</b>	<b>183</b>	<b>26</b>	<b>696</b>	<b>4,135</b>	<b>163</b>

\*Asymptomatic human infections are not included.

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YTD SLEV Activity by Element and County, 2023			
County	Humans	Mosquito Pools	Sentinel Chickens
Fresno		135	
Imperial		3	
Inyo		1	
Kern	1	61	
Kings		30	
Madera		47	
Merced		9	
Napa		1	
Placer		1	
Riverside		111	
San Joaquin		6	
Shasta		3	1
Stanislaus	2	18	
Tulare		186	
Yolo		3	
<b>Totals</b>	<b>3</b>	<b>615</b>	<b>1</b>

### TESTING SUMMARIES

		WNV	SLEV	WEEV
<b>Human Cases</b>	Week	29	1	0
	YTD	183	3	0

		Positive / Total Tested					
		WNV	SLEV	WEEV	CHIK	DENV	ZIKA
<b>Dead Birds</b>	Week	42 / 53					
	YTD	696 / 1,694					
<b>Chicken Sera</b>	Week	8 / 97	0 / 97	0 / 97			
	YTD	163 / 3,128	1 / 3,128	0 / 3,128			
<b>Mosquito Pools</b>	Week	152 / 2,226	63 / 1,966	0 / 1,966	0 / 21	0 / 21	0 / 21
	YTD	4,135 / 45,548	615 / 41,064	0 / 41,121	0 / 652	0 / 652	0 / 652

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### NEW POSITIVES

#### Dead Birds

County	Agency	City	Zip Code	Species	Date Reported
Alameda	Alameda Co MAD	Dublin	94568	American Crow	9/28/2023
Alameda	Alameda Co MAD	Fremont	94538	Unknown - Crow or Raven	9/22/2023
Alameda	Alameda Co MAD	Hayward	94545	American Crow	9/28/2023
Alameda	Alameda Co MAD	Livermore	94550	American Crow	9/21/2023
Alameda	Alameda Co MAD	Livermore	94550	American Crow	9/25/2023
Alameda	Alameda Co MAD	Livermore	94550	American Crow	9/25/2023
Alameda	Alameda Co MAD	Livermore	94550	American Crow	9/25/2023
Alameda	Alameda Co MAD	Livermore	94550	American Crow	9/28/2023
Alameda	Alameda Co MAD	Livermore	94551	American Crow	9/26/2023
Alameda	Alameda Co MAD	Union City	94587	American Crow	9/18/2023
Alameda	Alameda Co MAD	Union City	94587	American Crow	9/26/2023
Los Angeles	San Gabriel Valley MVCD	La Verne	91750	American Crow	9/26/2023
Sacramento	Sacramento-Yolo MVCD	Elk Grove	95624	American Crow	9/21/2023
Sacramento	Sacramento-Yolo MVCD	Folsom	95630	California Scrub-Jay	9/19/2023
Sacramento	Sacramento-Yolo MVCD	Sacramento	95825	American Crow	9/23/2023
Sacramento	Sacramento-Yolo MVCD	Sacramento	95829	Mourning Dove	9/25/2023
San Joaquin	San Joaquin Co MVCD	Thornton	95686	Red-tailed Hawk	6/26/2023
San Luis Obispo	San Luis Obispo Animal Services	Atascadero	93422	California Scrub-Jay	9/6/2023
San Mateo	Santa Clara Co VCD	Menlo Park	94025	American Crow	9/21/2023
Santa Clara	Santa Clara Co VCD	Los Altos	94024	California Scrub-Jay	9/25/2023
Santa Clara	Santa Clara Co VCD	Morgan Hill	95037	American Crow	9/22/2023
Santa Clara	Santa Clara Co VCD	Palo Alto	94301	American Crow	9/25/2023
Santa Clara	Santa Clara Co VCD	Palo Alto	94303	American Crow	9/21/2023
Santa Clara	Santa Clara Co VCD	Palo Alto	94303	American Crow	9/22/2023
Santa Clara	Santa Clara Co VCD	Palo Alto	94306	American Crow	9/21/2023
Santa Clara	Santa Clara Co VCD	San Jose	95124	American Crow	9/25/2023
Santa Clara	Santa Clara Co VCD	San Jose	95129	American Crow	9/23/2023
Santa Clara	Santa Clara Co VCD	San Jose	95130	California Scrub-Jay	9/25/2023
Santa Clara	Santa Clara Co VCD	San Jose	95131	American Crow	9/23/2023
Santa Clara	Santa Clara Co VCD	San Jose	95132	American Crow	9/22/2023
Santa Clara	Santa Clara Co VCD	Saratoga	95070	California Scrub-Jay	9/22/2023
Santa Clara	Santa Clara Co VCD	Sunnyvale	94089	American Crow	9/24/2023
Sonoma	Marin-Sonoma MVCD	Santa Rosa	95401	California Scrub-Jay	9/21/2023
Sonoma	Marin-Sonoma MVCD	Santa Rosa	95405	California Scrub-Jay	9/20/2023
Yolo	Sacramento-Yolo MVCD	Davis	95616	American Crow	9/20/2023
Yolo	Sacramento-Yolo MVCD	Davis	95616	American Crow	9/21/2023
Yolo	Sacramento-Yolo MVCD	Davis	95616	American Crow	9/22/2023
Yolo	Sacramento-Yolo MVCD	Davis	95616	American Crow	9/22/2023
Yolo	Sacramento-Yolo MVCD	Davis	95616	Cooper's Hawk	7/16/2023
Yolo	Sacramento-Yolo MVCD	Davis	95616	Cooper's Hawk	7/24/2023
Yolo	Sacramento-Yolo MVCD	Davis	95616	Swainson's Hawk	7/17/2023
Yolo	Sacramento-Yolo MVCD	Davis	95618	Cooper's Hawk	7/28/2023

#### Mosquito Pools

County	Site Code	Pool #	Species	City	# in Pool	Trap	Collected	Virus
Alameda	ALCO 479147	30819	Cx tarsalis	Fremont	40	CO2	9/26/2023	WNV
Alameda	ALCO 479147	30820	Cx tarsalis	Fremont	40	CO2	9/26/2023	WNV
Alameda	ALCO 568891	30836	Cx pipiens	Livermore	7	CO2	9/27/2023	WNV
Butte	BUCO 34	466	Cx tarsalis	Richvale	48	CO2	9/19/2023	WNV
Fresno	CNSL 1119	314	Cx quinquefasciatus	Fresno	50	GRVD	9/22/2023	WNV
Fresno	CNSL 1447	772	Cx quinquefasciatus	Clovis	50	GRVD	9/21/2023	WNV
Fresno	CNSL 1906	301	Cx quinquefasciatus	Fresno	50	GRVD	9/20/2023	SLEV
Fresno	CNSL 2086	776	Cx quinquefasciatus	Sanger	50	GRVD	9/22/2023	SLEV
Fresno	CNSL 2505	739	Cx quinquefasciatus	Sanger	45	GRVD	9/19/2023	SLEV
Fresno	CNSL 2520	125	Cx quinquefasciatus	Sanger	50	GRVD	9/19/2023	SLEV
Fresno	CNSL 3044	770	Cx quinquefasciatus	Reedley	13	GRVD	9/20/2023	WNV
Fresno	CNSL 3077	306	Cx quinquefasciatus	Orange Cove	46	GRVD	9/21/2023	SLEV

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Fresno	CNSL 3301	775	Cx quinquefasciatus	Parlier	41	GRVD	9/21/2023	WNV
Fresno	CNSL 5039	308	Cx quinquefasciatus	Kingsburg	50	GRVD	9/21/2023	WNV
Fresno	CNSL 5039	308	Cx quinquefasciatus	Kingsburg	50	GRVD	9/21/2023	SLEV
Fresno	CNSL 5064	312	Cx quinquefasciatus	Kingsburg	41	GRVD	9/21/2023	SLEV
Fresno	CNSL 6244	744	Cx quinquefasciatus	Riverdale	38	GRVD	9/19/2023	SLEV
Fresno	CNSL 8011	165	Cx quinquefasciatus	Clovis	45	GRVD	9/19/2023	SLEV
Fresno	CNSL 8228	773	Cx quinquefasciatus	Clovis	32	GRVD	9/21/2023	SLEV
Fresno	CNSL 9004	311	Cx quinquefasciatus	Clovis	50	GRVD	9/21/2023	SLEV
Fresno	CNSL 9104	296	Cx quinquefasciatus	Fresno	50	GRVD	9/20/2023	WNV
Fresno	CNSL 9104	296	Cx quinquefasciatus	Fresno	50	GRVD	9/20/2023	SLEV
Fresno	FRNO 111	924	Cx tarsalis	Fresno	26	CO2	9/21/2023	SLEV
Fresno	FRNO 15	911	Cx quinquefasciatus	Fresno	13	GRVD	9/19/2023	SLEV
Fresno	FRNO 174	894	Cx quinquefasciatus	Fresno	24	GRVD	9/19/2023	SLEV
Fresno	FRNO 278	909	Cx quinquefasciatus	Fresno	17	GRVD	9/19/2023	SLEV
Fresno	FRNO 281	916	Cx quinquefasciatus	Fresno	33	GRVD	9/19/2023	SLEV
Fresno	FRNO 31	908	Cx quinquefasciatus	Fresno	39	GRVD	9/19/2023	WNV
Fresno	FRNO 88	890	Cx quinquefasciatus	Fresno	12	BGSENT	9/19/2023	WNV
Fresno	FRWS 1202	440	Cx tarsalis	Dos Palos	37	CO2	9/26/2023	SLEV
Fresno	FRWS 200001	434	Cx tarsalis	Mendota	50	BGSENT	9/21/2023	WNV
Fresno	FRWS 300026	437	Cx tarsalis	Firebaugh, Ca	50	BGSENT	9/21/2023	WNV
Fresno	FRWS 300031	445	Cx quinquefasciatus	Firebaugh	50	CO2	9/26/2023	SLEV
Fresno	FRWS 4102	450	Cx tarsalis	Kerman	50	CO2	9/26/2023	WNV
Fresno	FRWS 4102	450	Cx tarsalis	Kerman	50	CO2	9/26/2023	SLEV
Fresno	FRWS 4102	451	Cx tarsalis	Kerman	25	CO2	9/26/2023	WNV
Fresno	FRWS 60003	438	Cx tarsalis	Huron	50	BGSENT	9/26/2023	SLEV
Kern	KERN 127	1220	Cx quinquefasciatus	Bakersfield	45	GRVD	9/19/2023	SLEV
Kern	KERN 139	1227	Cx quinquefasciatus	Bakersfield	24	GRVD	9/20/2023	WNV
Kern	KERN 2014	1231	Cx quinquefasciatus	Bakersfield	34	GRVD	9/20/2023	WNV
Kern	KERN 2015	1235	Cx quinquefasciatus	Bakersfield	27	GRVD	9/22/2023	SLEV
Kern	KERN 2025	1226	Cx quinquefasciatus	Bakersfield	22	GRVD	9/20/2023	WNV
Los Angeles	GRLA 2093	770	Cx quinquefasciatus	South Gate	50	GRVD	9/21/2023	WNV
Los Angeles	GRLA 2278	760	Cx quinquefasciatus	Long Beach	50	BGSENT	9/20/2023	WNV
Los Angeles	GRLA 2312	741	Cx quinquefasciatus	San Pedro	50	GRVD	9/19/2023	WNV
Los Angeles	GRLA 2492	5804	Cx quinquefasciatus	La Canada Flintridge	50	GRVD	9/21/2023	WNV
Los Angeles	GRLA 2497	5812	Cx quinquefasciatus	La Canada Flintridge	49	GRVD	9/21/2023	WNV
Los Angeles	GRLA 2500	5795	Cx quinquefasciatus	Elysian Valley	50	GRVD	9/20/2023	WNV
Los Angeles	GRLA 2530	5820	Cx quinquefasciatus	Sunland	39	BGSENT	9/22/2023	WNV
Los Angeles	GRLA 2550	5824	Cx quinquefasciatus	Mission Hills	50	GRVD	9/22/2023	WNV
Los Angeles	GRLA 2574	5787	Cx quinquefasciatus	Sherman Oaks	50	GRVD	9/19/2023	WNV
Los Angeles	GRLA 2580	5785	Cx quinquefasciatus	Sherman Oaks	50	GRVD	9/19/2023	WNV
Los Angeles	GRLA 2651	5786	Cx quinquefasciatus	Sepulveda Basin	50	GRVD	9/19/2023	WNV
Los Angeles	GRLA 2889	758	Cx quinquefasciatus	Lakewood	50	GRVD	9/20/2023	WNV
Los Angeles	GRLA 2918	5817	Cx quinquefasciatus	Sunland	42	GRVD	9/22/2023	WNV
Los Angeles	GRLA 2936	5803	Cx quinquefasciatus	Burbank	50	GRVD	9/20/2023	WNV
Los Angeles	GRLA 3000	5821	Cx quinquefasciatus	Sun Valley	50	BGSENT	9/22/2023	WNV
Los Angeles	GRLA 3046	765	Cx quinquefasciatus	Bellflower	50	GRVD	9/21/2023	WNV
Los Angeles	GRLA 3047	764	Cx quinquefasciatus	Downey	50	GRVD	9/21/2023	WNV
Los Angeles	GRLA 3057	773	Cx quinquefasciatus	Huntington Park	50	GRVD	9/21/2023	WNV
Los Angeles	GRLA 3059	767	Cx quinquefasciatus	Paramount	50	GRVD	9/21/2023	WNV
Los Angeles	GRLA 3088	5823	Cx quinquefasciatus	Pacoima	50	GRVD	9/22/2023	WNV
Los Angeles	GRLA 3133	5815	Cx quinquefasciatus	San Fernando	50	GRVD	9/22/2023	WNV
Los Angeles	LACW 1081	731	Cx tarsalis	Los Angeles	32	CO2	9/12/2023	WNV
Los Angeles	SGVA 1069	848	Cx quinquefasciatus	La Puente	50	GRVD	9/27/2023	WNV
Los Angeles	SGVA 1117	844	Cx quinquefasciatus	West Covina	50	GRVD	9/27/2023	WNV
Los Angeles	SGVA 1119	843	Cx quinquefasciatus	La Verne	50	GRVD	9/26/2023	WNV
Los Angeles	SGVA 1216	833	Cx quinquefasciatus	Covina	50	GRVD	9/26/2023	WNV
Los Angeles	SGVA 1281	849	Cx quinquefasciatus	Covina	50	GRVD	9/27/2023	WNV
Los Angeles	SGVA 316	840	Cx quinquefasciatus	Duarte	50	GRVD	9/26/2023	WNV
Los Angeles	SGVA 455	842	Cx quinquefasciatus	San Dimas	47	GRVD	9/26/2023	WNV
Los Angeles	SGVA 508	828	Cx quinquefasciatus	Covina	50	GRVD	9/26/2023	WNV
Los Angeles	SGVA 508	829	Cx quinquefasciatus	Covina	50	GRVD	9/26/2023	WNV
Los Angeles	SGVA 650	827	Cx quinquefasciatus	Pomona	50	GRVD	9/26/2023	WNV
Los Angeles	SGVA 7	826	Cx quinquefasciatus	Claremont	50	GRVD	9/26/2023	WNV
Los Angeles	SGVA 860	845	Cx quinquefasciatus	Baldwin Park	50	GRVD	9/27/2023	WNV
Los Angeles	SGVA 896	853	Cx quinquefasciatus	La Verne	50	GRVD	9/26/2023	WNV
Los Angeles	SGVA 960	821	Cx quinquefasciatus	Rosemead	50	GRVD	9/26/2023	WNV
Los Angeles	SGVA 965	841	Cx quinquefasciatus	Claremont	50	GRVD	9/26/2023	WNV
Los Angeles	SGVA 972	835	Cx quinquefasciatus	Covina	50	GRVD	9/26/2023	WNV
Madera	MADR 12	643	Cx tarsalis	Madera	25	CO2	9/22/2023	SLEV

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Madera	MADR 227	607	Cx tarsalis	Madera	37	CO2	9/20/2023	SLEV
Madera	MADR 299	619	Cx tarsalis	Chowchilla	31	CO2	9/20/2023	WNV
Madera	MADR 581	630	Cx tarsalis	Madera	7	CO2	9/21/2023	WNV
Madera	MADR 688	624	Cx quinquefasciatus	Madera	7	CO2	9/21/2023	SLEV
Madera	MADR 704	645	Cx tarsalis	Madera	38	CO2	9/22/2023	WNV
Madera	MADR 704	645	Cx tarsalis	Madera	38	CO2	9/22/2023	SLEV
Merced	MERC 638283	775	Cx pipiens	Livingston	11	BGSENT	9/21/2023	WNV
Merced	MERC 818438	805	Cx tarsalis	Merced	44	CO2	9/26/2023	WNV
Merced	MERC 964123	780	Cx tarsalis	Gustine	50	BGSENT	9/22/2023	SLEV
Orange	ORCO 1008	4123	Cx quinquefasciatus	Fullerton	36	GRVD	9/26/2023	WNV
Orange	ORCO 1009	4088	Cx quinquefasciatus	Garden Grove	35	GRVD	9/26/2023	WNV
Orange	ORCO 1009	4134	Cx quinquefasciatus	Garden Grove	44	GRVD	9/26/2023	WNV
Orange	ORCO 1015	4225	Cx quinquefasciatus	Orange	30	GRVD	9/27/2023	WNV
Orange	ORCO 1020	4200	Cx quinquefasciatus	Seal Beach	23	GRVD	9/27/2023	WNV
Orange	ORCO 218	4082	Cx quinquefasciatus	Anaheim	32	GRVD	9/26/2023	WNV
Orange	ORCO 218	4089	Cx quinquefasciatus	Anaheim	50	GRVD	9/26/2023	WNV
Orange	ORCO 218	4137	Cx quinquefasciatus	Anaheim	52	GRVD	9/26/2023	WNV
Orange	ORCO 29	4269	Cx quinquefasciatus	Santa Ana	50	CO2	9/27/2023	WNV
Orange	ORCO 29	4273	Cx quinquefasciatus	Santa Ana	50	CO2	9/27/2023	WNV
Orange	ORCO 29	4274	Cx quinquefasciatus	Santa Ana	50	CO2	9/27/2023	WNV
Orange	ORCO 302	4251	Cx quinquefasciatus	Anaheim	50	GRVD	9/27/2023	WNV
Orange	ORCO 306	4133	Cx quinquefasciatus	Villa Park	40	GRVD	9/26/2023	WNV
Orange	ORCO 317	4159	Cx quinquefasciatus	Fullerton	50	GRVD	9/26/2023	WNV
Orange	ORCO 319	4220	Cx quinquefasciatus	Buena Park	51	GRVD	9/27/2023	WNV
Orange	ORCO 321	4236	Cx quinquefasciatus	Anaheim	50	GRVD	9/27/2023	WNV
Orange	ORCO 321	4237	Cx quinquefasciatus	Anaheim	50	GRVD	9/27/2023	WNV
Orange	ORCO 323	4191	Cx quinquefasciatus	Buena Park	50	GRVD	9/26/2023	WNV
Orange	ORCO 327	4148	Cx quinquefasciatus	Brea	50	GRVD	9/26/2023	WNV
Orange	ORCO 331	4164	Cx quinquefasciatus	Placentia	38	GRVD	9/26/2023	WNV
Orange	ORCO 337	4255	Cx quinquefasciatus	Anaheim	42	GRVD	9/27/2023	WNV
Orange	ORCO 340	4154	Cx quinquefasciatus	Santa Ana	39	GRVD	9/26/2023	WNV
Orange	ORCO 342	4156	Cx quinquefasciatus	Fullerton	20	GRVD	9/26/2023	WNV
Orange	ORCO 347	4162	Cx quinquefasciatus	Santa Ana	30	GRVD	9/26/2023	WNV
Orange	ORCO 348	4180	Cx quinquefasciatus	Santa Ana	26	GRVD	9/26/2023	WNV
Orange	ORCO 351	4203	Cx quinquefasciatus	Westminster	50	GRVD	9/27/2023	WNV
Orange	ORCO 362	4168	Cx quinquefasciatus	Garden Grove	45	GRVD	9/26/2023	WNV
Orange	ORCO 366	4165	Cx quinquefasciatus	Orange	43	GRVD	9/26/2023	WNV
Orange	ORCO 82	4210	Cx quinquefasciatus	Cypress	50	GRVD	9/27/2023	WNV
Riverside	COAV 0	5682	Cx quinquefasciatus	Indio	16	BGSENT	9/27/2023	WNV
Riverside	COAV 0	5941	Cx quinquefasciatus	Indio	8	BGSENT	9/27/2023	WNV
Riverside	COAV 130	5865	Cx tarsalis	Oasis	50	CO2	9/26/2023	WNV
Riverside	COAV 230005	5649	Cx quinquefasciatus	Palm Springs	50	GRVD	9/27/2023	WNV
Riverside	COAV 230008	5683	Cx quinquefasciatus	Palm Springs	23	BGSENT	9/27/2023	WNV
Riverside	COAV 30	5715	Cx tarsalis	Thermal	50	CO2	9/26/2023	WNV
Riverside	COAV 301	5635	Cx quinquefasciatus	Bermuda Dunes	50	GRVD	9/26/2023	WNV
Riverside	COAV 307	5748	Cx quinquefasciatus	Coachella	50	BGSENT	9/26/2023	SLEV
Riverside	COAV 327	5869	Cx quinquefasciatus	Desert Hot Springs	48	CO2	9/27/2023	WNV
Riverside	COAV 328	5643	Cx quinquefasciatus	Palm Desert	50	GRVD	9/26/2023	WNV
Riverside	COAV 346	5727	Cx quinquefasciatus	Thermal	50	BGSENT	9/26/2023	SLEV
Riverside	COAV 346	5728	Cx quinquefasciatus	Thermal	78	BGSENT	9/26/2023	SLEV
Riverside	COAV 422	5523	Cx quinquefasciatus	Coachella	37	BGSENT	9/26/2023	WNV
Riverside	COAV 425	5521	Cx quinquefasciatus	Coachella	50	BGSENT	9/26/2023	WNV
Riverside	COAV 425	5522	Cx quinquefasciatus	Coachella	7	BGSENT	9/26/2023	WNV
Riverside	COAV 542	6000	Cx tarsalis	Thermal	50	CO2	9/29/2023	WNV
Riverside	COAV 543	5976	Cx tarsalis	Thermal	50	CO2	9/29/2023	WNV
Riverside	COAV 6	5719	Cx tarsalis	Oasis	50	CO2	9/26/2023	WNV
Riverside	COAV 6	5720	Cx tarsalis	Oasis	50	CO2	9/26/2023	WNV
Riverside	COAV 6	5722	Cx tarsalis	Oasis	50	CO2	9/26/2023	WNV
Riverside	COAV 605	5639	Cx quinquefasciatus	Indio	29	GRVD	9/26/2023	WNV
Riverside	COAV 68	5813	Cx tarsalis	Mecca	50	CO2	9/26/2023	WNV
Riverside	COAV 799	5745	Cx quinquefasciatus	La Quinta	31	BGSENT	9/26/2023	WNV
Riverside	NWST 32	291	Cx quinquefasciatus	Rubidoux	50	GRVD	9/26/2023	WNV
Riverside	NWST 350	277	Cx quinquefasciatus	Riverside	50	BGSENT	9/20/2023	WNV
Riverside	NWST 69	281	Cx quinquefasciatus	Riverside	50	GRVD	9/20/2023	WNV
Sacramento	SAYO 205028	7109	Cx pipiens	Orangevale	5	CO2	9/22/2023	WNV
Sacramento	SAYO 245002	7147	Cx pipiens	Wilton	2	GRVD	9/22/2023	WNV
Sacramento	SAYO 253016	7125	Cx tarsalis	Galt	50	CO2	9/22/2023	WNV
San Bernardino	SANB 146	374	Cx quinquefasciatus	San Bernardino	20	CO2	9/20/2023	WNV
San Bernardino	WVAL 1156	2560	Cx quinquefasciatus	Ontario	20	BGSENT	9/27/2023	WNV



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San Bernardino	WVAL 466	2621	Cx quinquefasciatus	Ontario	50	BGSENT	9/29/2023	WNV
San Bernardino	WVAL 5005	2499	Cx quinquefasciatus	Rancho Cucamonga	26	GRVD	9/26/2023	WNV
San Bernardino	WVAL 6001	2500	Cx quinquefasciatus	Ontario	19	GRVD	9/26/2023	WNV
San Diego	SAND 18	12402	Cx tarsalis	Del Mar	16	CO2	9/13/2023	WNV
San Joaquin	SJCM 8008	2896	Cx tarsalis	Manteca	50	CO2	9/26/2023	WNV
San Joaquin	SJCM 8011	2913	Cx tarsalis	Ripon	22	CO2	9/26/2023	WNV
San Joaquin	SJCM 8094	2903	Cx tarsalis	Manteca	41	CO2	9/26/2023	SLEV
San Joaquin	SJCM 8206	2929	Cx tarsalis	Lodi	100	CO2	9/26/2023	WNV
San Joaquin	SJCM 8206	2930	Cx tarsalis	Lodi	100	CO2	9/26/2023	WNV
San Joaquin	SJCM 8208	2942	Cx pipiens	Lodi	26	CO2	9/28/2023	WNV
San Joaquin	SJCM 8210	2881	Cx pipiens	Escalon	50	CO2	9/26/2023	WNV
Shasta	SHAS 231	2114	Cx tarsalis	Anderson	14	CO2	9/26/2023	WNV
Shasta	SHAS 628	2124	Cx pipiens	Anderson	35	CO2	9/26/2023	WNV
Shasta	SHAS 719	2158	Cx pipiens	Anderson	31	CO2	9/27/2023	WNV
Shasta	SHAS 724	2100	Cx pipiens	Redding	30	BGPRO-SENT	9/25/2023	WNV
Stanislaus	EAST 1077	23257	Cx pipiens	Modesto	47	GRVD	9/19/2023	WNV
Stanislaus	EAST 2050	23255	Cx pipiens	Modesto	50	GRVD	9/19/2023	WNV
Stanislaus	TRLK 1312	1779	Cx pipiens	Ceres	50	CO2	9/26/2023	WNV
Stanislaus	TRLK 2000	1807	Cx pipiens	Denair	14	CO2	9/26/2023	WNV
Stanislaus	TRLK 408	1784	Cx pipiens	Turlock	50	CO2	9/26/2023	SLEV
Stanislaus	TRLK 432	1793	Cx tarsalis	Turlock	34	CO2	9/26/2023	WNV
Tulare	DLTA 632144	6437	Cx tarsalis	Delft Colony	50	CO2	9/26/2023	SLEV
Tulare	DLTA 632144	6438	Cx tarsalis	Delft Colony	50	CO2	9/26/2023	WNV
Tulare	DLTA 64163	6303	Cx quinquefasciatus	Dinuba	15	GRVD	9/21/2023	SLEV
Tulare	DLTA 6417	6375	Cx quinquefasciatus	Dinuba	14	BGSENT	9/22/2023	SLEV
Tulare	DLTA 73161	6443	Cx quinquefasciatus	Traver	23	BGSENT	9/26/2023	SLEV
Tulare	DLTA 752032	6268	Cx quinquefasciatus	Patterson Tract	50	CO2	9/20/2023	SLEV
Tulare	DLTA 752032	6271	Cx quinquefasciatus	Patterson Tract	50	CO2	9/20/2023	SLEV
Tulare	DLTA 752842	6276	Cx quinquefasciatus	Ivanhoe	50	CO2	9/20/2023	WNV
Tulare	DLTA 752842	6284	Cx quinquefasciatus	Ivanhoe	50	CO2	9/20/2023	SLEV
Tulare	DLTA 752842	6289	Cx quinquefasciatus	Ivanhoe	50	CO2	9/20/2023	WNV
Tulare	DLTA 752842	6292	Cx quinquefasciatus	Ivanhoe	50	CO2	9/20/2023	SLEV
Tulare	DLTA 752842	6293	Cx quinquefasciatus	Ivanhoe	50	CO2	9/20/2023	WNV
Tulare	DLTA 7625	6498	Cx stigmatosoma	Woodlake	11	GRVD	9/27/2023	WNV
Tulare	DLTA 7625	6498	Cx stigmatosoma	Woodlake	11	GRVD	9/27/2023	SLEV
Tulare	DLTA 8324	6376	Cx quinquefasciatus	Goshen	50	BGSENT	9/22/2023	WNV
Tulare	DLTA 8324	6378	Cx quinquefasciatus	Goshen	27	BGSENT	9/22/2023	WNV
Tulare	DLTA 8324	6378	Cx quinquefasciatus	Goshen	27	BGSENT	9/22/2023	SLEV
Tulare	DLTA 8413	6412	Cx quinquefasciatus	Visalia	50	BGSENT	9/26/2023	SLEV
Tulare	DLTA 8413	6462	Cx quinquefasciatus	Visalia	50	BGSENT	9/27/2023	SLEV
Tulare	DLTA 8414	6392	Cx quinquefasciatus	Visalia	50	BGSENT	9/26/2023	SLEV
Tulare	DLTA 841543	6382	Cx quinquefasciatus	Visalia	19	CO2	9/22/2023	SLEV
Tulare	DLTA 8419	6507	Cx quinquefasciatus	Goshen	50	BGSENT	9/27/2023	WNV
Tulare	DLTA 8419	6507	Cx quinquefasciatus	Goshen	50	BGSENT	9/27/2023	SLEV
Tulare	DLTA 842013	6511	Cx quinquefasciatus	Visalia	50	CO2	9/27/2023	WNV
Tulare	DLTA 8422	6407	Cx quinquefasciatus	Goshen	50	BGSENT	9/26/2023	SLEV
Tulare	DLTA 8422	6408	Cx quinquefasciatus	Goshen	50	BGSENT	9/26/2023	SLEV
Tulare	DLTA 84224	6390	Cx quinquefasciatus	Visalia	50	BGSENT	9/26/2023	SLEV
Tulare	DLTA 8423	6467	Cx quinquefasciatus	Visalia	50	BGSENT	9/27/2023	SLEV
Tulare	DLTA 843232	6520	Cx quinquefasciatus	Visalia	29	CO2	9/27/2023	SLEV
Tulare	DLTA 8434	6326	Cx quinquefasciatus	Visalia	33	BGSENT	9/21/2023	SLEV
Tulare	DLTA 84354	6346	Cx quinquefasciatus	Visalia	32	BGSENT	9/21/2023	SLEV
Tulare	DLTA 85143	6328	Cx quinquefasciatus	Visalia	50	BGSENT	9/21/2023	WNV
Tulare	DLTA 8527	6480	Cx quinquefasciatus	Visalia	46	BGSENT	9/27/2023	SLEV
Tulare	DLTA 94021	6192	Cx quinquefasciatus	Visalia	50	BGSENT	9/19/2023	SLEV
Tulare	DLTA 94023	6310	Cx quinquefasciatus	Visalia	29	BGSENT	9/21/2023	WNV
Tulare	DLTA 9506	6509	Cx quinquefasciatus	Visalia	20	BGSENT	9/27/2023	SLEV
Tulare	DLTA 95063	6307	Cx quinquefasciatus	Visalia	13	BGSENT	9/21/2023	WNV
Tulare	DLTA 950924	6340	Cx quinquefasciatus	Visalia	50	CO2	9/21/2023	SLEV
Tulare	DLTA 950924	6343	Cx tarsalis	Visalia	18	CO2	9/21/2023	WNV
Tulare	DLTA 950924	6343	Cx tarsalis	Visalia	18	CO2	9/21/2023	SLEV
Tulare	DLTA 9611	6454	Cx stigmatosoma	Exeter	16	BGSENT	9/26/2023	SLEV
Tulare	DLTA 962621	6323	Cx quinquefasciatus	Exeter	45	CO2	9/21/2023	SLEV
Yolo	SAYO 135020	7321	Cx tarsalis	Woodland	50	CO2	9/27/2023	SLEV
Yolo	SAYO 145005	7227	Cx tarsalis	Davis	50	CO2	9/26/2023	WNV

## California Arbovirus Surveillance Bulletin #25

Week 39 Friday, September 29, 2023

### Sentinel Chickens

County	Site Code	Nearest City	Date Bled	Virus	Band 01	Band 02
Los Angeles	LACW 1005	El Segundo	9/21/2023	WNV	2021	
Los Angeles	LACW 1006	Playa Del Rey	9/21/2023	WNV	2030	
Los Angeles	LACW 1007	Baldwin Hills	9/21/2023	WNV	2031	
Los Angeles	LACW 1009	Los Angeles	9/12/2023	WNV	2036	
Los Angeles	LACW 1026	Los Angeles	9/12/2023	WNV	2061	2063
Yolo	SAYO 116006	Knights Landing	9/25/2023	WNV	2687	2700

## California Arbovirus Surveillance Bulletin #25

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### TEST PROTOCOLS

#### **Humans:**

Specimens are tested by local laboratories with an IgM or IgG immunofluorescent assay (IFA) and/or an IgM enzyme immunoassay (EIA). Specimens with inconclusive results are forwarded to the California Department of Public Health Viral and Rickettsial Disease Laboratory (VRDL) for further testing with a plaque reduction neutralization test (PRNT).

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#### **Dead Birds**

Oral swab samples collected from bird carcasses are tested at the UC Davis Arbovirus Research and Training laboratory (DART) or at a local agency for West Nile virus by RT-qPCR.

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#### **Sentinel Chickens:**

Dried blood spot samples from sentinel chickens are tested at the California Department of Public Health Vector-Borne Disease Laboratory for IgG antibodies to West Nile, St. Louis encephalitis, and western equine encephalomyelitis viruses by an EIA. Positive samples are confirmed by IFA, western-blot, or PRNT.

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#### **Mosquito Pools:**

Mosquito pools are tested at DART or at a local agency for West Nile, western equine encephalomyelitis, and St. Louis encephalitis viral RNA using a multiplex RT-qPCR. Invasive *Aedes* mosquitoes (*Ae. aegypti* and *Ae. albopictus*) are also tested at DART for chikungunya, dengue, and Zika viral RNA by a separate RT-qPCR.

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*Website Information:* For updated information on WNV in California, please visit the California WNV website, <https://westnile.ca.gov>, or the California Vector-Borne Disease Surveillance System website, <https://maps.vectorsurv.org>.

Prepared by the Vector-Borne Disease Section (Infectious Diseases Branch), California Department of Public Health, 850 Marina Bay Parkway, Richmond, CA 94804. Questions concerning this bulletin should be addressed to Hannah Romo: [Hannah.romo@cdph.ca.gov](mailto:Hannah.romo@cdph.ca.gov)