

AGENDA
1125th MEETING OF THE BOARD OF TRUSTEES
OF THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT
MAY 8TH, 2024

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/87358392693>
see below for additional details.

TRUSTEES: Cathy Roache, President, County-at-Large
Tyler Savage, Vice-President, City of Alameda
Valerie Arkin, Secretary, City of Pleasanton
Robin López, City of Albany: *from 1249 Marin Avenue, Albany, CA 94706.*
P. Robert Beatty, City of Berkeley:
Kashef Qadri, City of Dublin: *from 100 Civic Plaza, Dublin, CA*
City of Emeryville, vacant
John Zlatnik, City of Fremont
George Syrop, City of Hayward
Maya Manoharan, City of Livermore
Eric Hentschke, City of Newark
Lisa Rasler, City of Oakland
Hope Salzer, City of Piedmont: *from 76 Cambrian Ave, Piedmont, CA*
Victor Aguilar, City of San Leandro
Subru Bhat, City of Union City

1. Call to order.
2. Introduction of new Board Member Lisa Rasler, representing the City of Oakland (Information only).
3. Roll call.
4. President Roache 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).
5. Approval of the minutes of the 1124th Regular Meeting held April 10th, 2024 (**Board action required**).
6. Approval of the final budget for fiscal year 2024-25 (**Board action required**)
7. Presentation of the preliminary Engineers Report for fiscal year 2024-2025 by Melanie Guillory-Lee from SCI Consulting Group (Information only).
8. Resolution 1125-1 intending to continue assessments for fiscal year 2024-25, preliminarily approving the engineer's report, and providing for notice of hearing. (**Board action required**)
9. Resolution 1125-2 approving the Hayward Area Shoreline Planning Agency Joint Powers Authority (HASPA JPA) agreement, joining as a trustee agency (**Board action required**)

- a. Staff Report
 - b. Presentation by Regulatory & Public Affairs Director, Erika Castillo
 - c. Amended and restated Hayward Area Shoreline Planning Agency (HASPA) joint exercise of powers agreement.
 - d. Schedule C: Annual dues table/ weighted voting chart
 - e. Minutes of the October 13th 2021 ACMAD Board of Trustees Regular Meeting
10. Compensation recommendation of General Manager Ryan Clausnitzer based on a recommendation from the Manager Evaluation Committee and according to the employee contract. **(Board action required)**
11. ACMAD's 2022-2023 Biennial Report (Information only)
12. Financial Reports as of April 30th, 2024 (Information only).
- a. Check Register
 - b. Income Statement
 - c. Investments, reserves, and cash report
 - d. Balance Sheet
13. Presentation of the Monthly Staff Report (Information only).
14. Presentation of the Manager's Report (Information only).
- a. Trustee Anniversary Recognition
 - b. CSDA Annual Conference: 9/9-9/12 Indian Wells, CA
 - c. LA Times article: *Mosquito season is upon us. So why are Southern California officials releasing more of them?*
 - d. OPEB investment strategy update in June meeting.
 - e. Required training expiration date:
 - i. AB 1234: Savage (12/23/23)
 - ii. AB 1825: Aguilar (8/11/23)
15. Board President asks for reports on conferences and seminars attended by Trustees.
16. Board President asks for announcements from members of the Board.
17. Board President asks trustees for items to be added to the agenda for the next Board meeting.
18. Adjournment.

RESIDENTS 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.

HOW TO OBSERVE THE MEETING:

Telephone: Listen to the meeting live by calling Zoom at **(669) 900-6833**

Enter the **Meeting ID# 873 5839 2693** followed by the pound (#) key.

Computer: Watch the live streaming of the meeting from a computer by navigating to <https://us02web.zoom.us/j/87358392693>

Mobile: Log in through the Zoom mobile app on a smartphone and enter **Meeting ID# 873 5839 2693**

HOW TO SUBMIT PUBLIC COMMENTS:

Before the Meeting: Please email your comments to 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 be treated as contemporaneous comments.

Contemporaneous Comments: During the meeting, the Board President or designee will announce the opportunity to make public comments and identify the cut off time for submission. Please email your comments to 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. Once the public comment period is closed, all comments timely received will be read aloud at the meeting (not to exceed three minutes at staff's cadence). Comments received after the close of the public comment period will be added to the record after the meeting.

MINUTES

1124th MEETING OF THE BOARD OF TRUSTEES OF THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT

April 10th, 2024

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/87132461185>
TRUSTEES: Cathy Roache, President, County-at-Large
Tyler Savage, Vice-President, City of Alameda
Valerie Arkin, Secretary, City of Pleasanton
Robin López, City of Albany: *from 1000 San Pablo Ave., Albany CA*
P. Robert Beatty, City of Berkeley
Kashef Qaadri, City of Dublin
City of Emeryville, vacant
John Zlatnik, City of Fremont
George Syrop, City of Hayward
Maya Manoharan, City of Livermore
Eric Hentschke, City of Newark
City of Oakland, vacant
Hope Salzer, City of Piedmont
Victor Aguilar, City of San Leandro: *from 3732 Winston Dr., El Monte CA*
Subru Bhat, City of Union City

1. Board President Roache called the regularly scheduled board meeting to order at 5:03 pm.

2. Trustees Roache, Zlatnik, Syrop, Manoharan, Hentschke and Bhat were present in-person at the district. Trustee Savage arrived in-person at 5:17 pm. Trustee Aguilar attended remotely from the publicly posted location above. Trustee López logged in remotely at 5:15 pm from the publicly posted location above. Trustees Beatty, Qaadri and Salzer were absent. Trustee Arkin attended remotely under AB 2449, which required Board approval.

Motion: Trustee Syrop moved to approve remote attendance for Trustee Arkin

Second: Trustee Bhat

Vote: Motion carries: unanimous

3. Introduction of new Board Member, Dr. Maya Manoharan, representing the City of Livermore.

Discussion: Trustee Manoharan mentioned she is excited to be part of this Board. She has experience and an interest in public health. She was previously employed as an epidemiologist. President Roach asked what she is doing now and where? (She is a clinician in Mountain View.)

4. President Roache invited members of the public to speak on any issue relevant to the district. Vector Biologist, Sarah Lawton, was present to record the minutes. Information & Technology Director, Robert Ferdan, was present for technical support. Mechanical Specialist,

Mark Wieland, was present for item 6. Sophia Cassetta and Kristy Wilhite were present from Enterprise Fleet Management for item 6.

5. Approval of the minutes of the 1123rd meeting held March 13th, 2024.

Discussion: None

Motion: Trustee Hentschke moved to approve the minutes

Second: Trustee Arkin

Vote: Motion carries: unanimous

6. Resolution 1124-1 authorizing the General Manager to execute an agreement with Enterprise Fleet Management (EFM) to lease no more than eight vehicles in FY 2024-25; staff will auction off eight district-owned vehicles listed in the staff report at a later date.

Discussion: After the General Manager summarized the background information, Sophia Cassetta and Kristy Wilhite gave their presentation and answered questions along with Mark Wieland. Trustee Savage asked if any leased trucks are EVs based on concerns about weight and exposure to salt corrosion on electrical components (no, the replacement leased vehicles would be traditional gas.) Trustee Savage followed up asking if there are enough customizations allowed to the vehicles for what is needed (yes, we would be able to add what we need by simplifying and standardizing our equipment.) Trustee Savage mentioned the “conservative” estimated cost savings of \$182,000 and asked about the high range estimate (there would be too many variables to give a high-end estimate.) Trustee Savage asked if there are any EVs included in the quote (these estimates are looking at “same-for-same” replacement now but it can change to EVs, when available.) Trustee Arkin asked about the 20-year-old vehicle that has very low miles, why replace (it is an old cargo van only used for public outreach event that is oversized, outdated, underused, with many staff uncomfortable driving it; we want to replace it with something more practical that also has “stow and go” seats so we can carpool with staff.)

Motion: Trustee Hentschke moved to authorize the agreement with EFM

Second: Trustee Manoharan

Vote: Motion carries: unanimous

7. Second reading of revisions to ACMAD policy

Discussion: The General Manager provided background on policy changes found in this version.

Motion: Trustee Bhat moved to accept the revisions

Second: Trustee Zlatnik

Vote: Motion carries: unanimous

8. First draft of the 2024-25 budget for discussion

Discussion: After the General Manager presented the budget, Trustee Savage asked to clarify how the “Operational requirement” is calculated (60% percent of the budgeted expenses for the year.) Trustee Savage followed up asking if that is mandated (no, just a best practice for adequate cash flow.) Trustee Syrop asked if the District is looking to increase the VCJPA fund (no, it is there as a fail-safe for significant insurance claims.) Trustee Syrop added well done on the budget; it is not usual to see a surplus and would like to pass the compliment to Ms. Robles. Trustee Bhat asked if this budget will be up for approval in May (yes, it is important for Trustees to attend the next two meetings to ensure we pass the budget and approve property taxes for FY24-25.) President Roache asked about the proposed new position(s) in the budget (following up on the strategic plan, we will hire someone to focus on invasive *Aedes* in the field with fluency in another language supporting the field, lab, and public education; the two “line items”

are there as the position would have a salary step increase.) President Roache asked where the invasive mosquito will come from (San Jose has a recent detection of *Aedes aegypti*, but it could appear anywhere in Alameda County via traps or through residents calling.) Trustee Roache followed up by asking if there could be a survey conducted in the primary language spoken in the anticipated city (we find our biggest gap is with Spanish speakers.) Trustee Manoharan asked if our outreach efforts will be flyers or word of mouth (both, using translating services our website and fliers via QR codes to link at events.) President Roache asked if this position would address the high mosquito pressure that we had last year (we expect to have four seasonals to assist operations after a successful recruitment process that is ongoing.) Trustee Aguilar asked if we would consider promoting the District using Telemundo or other Spanish-speaking outlets (good idea to share with our outreach team). Trustee Savage asked what Vector Control does for outreach (they also focus on education and prevention.) Trustee Syrop asked if the Finance Committee is reviewing and editing this budget (yes, they met twice; recently right before this meeting.)

9. Verbal report from the ad-hoc trustee recruitment committee

Discussion: The General Manager thanked Trustee Bhat for helping to find the new Livermore Trustee, Maya Manoharan. Trustee Zlatnik asked if there has been any progress with the Oakland City Council (we are working with Councilmember Bas' office.) Trustee López reached out and will continue to support the district in this endeavor. Trustee Arkin reached out to her contacts in Emeryville but has not heard back, but she will keep working on it.

10. Financial Reports as of March 31st, 2024

Discussion: The General Manager presented highlights from the Financial Report. Trustee Savage asked which account is used for payroll (Bank of America which may be consolidated with Five Star.)

11. Presentation of the Monthly Staff Report

Discussion: After the General Manager and Mark Wieland presented the staff report, Trustee Zlatnik asked how to report a dead bird (the California Dead Bird Hotline at 1-(877)-WNV-BIRD.) Trustee Syrop asked if this was clearly found on our website (Yes.) Trustee Savage asked about the aquaculture/fish project and why the proposed costs are different from the actual costs (the costs of change orders so far are covered by contingencies such as relocating the water and gas lines and adding a ramp in a sloped area.)

12. Presentation of the Manager's Report

Discussion: The General Manager presented highlights from the Manager's Report

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

Discussion: Trustee Zlatnik attended the League of Women Voters' meeting and presented information about the District.

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

Discussion: The General Manager thanked Trustee Bhat for submitting "Letters to the Editor" in support of HR 7525, which would allow Special Districts to receive Federal funding to both the *East Bay Times* and *San Francisco Chronicle*.

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

Discussion: President Roache is requesting a GM salary closed session item. The General Manager is asking PFM to give a presentation on our OPEB next month along with SCI consulting on our benefit assessment. Trustee Syrop asked if the district could consult on ESG preferences (we will discuss that at the next meeting, including passive vs active account management.)

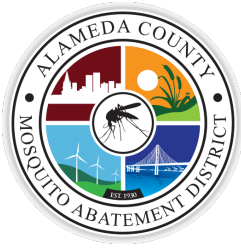
16. Adjournment at 6:56 pm.

Respectfully submitted,

Approved as written and/or corrected
at the 1125th meeting of the Board of
Trustees held May 8th, 2024

Valerie Arkin, Secretary
BOARD OF TRUSTEES

Cathy Roache, President
BOARD OF TRUSTEES



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Hayward, CA 94545

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Board of Trustees

President

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County-at-Large

Vice-President

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Secretary

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Robin López

Albany

P. Robert Beatty

Berkeley

Kashef Qaadri

Dublin

vacant

Emeryville

John Zlatnik

Fremont

George Syrop

Hayward

Maya Manoharan

Livermore

Lisa Rasler

Oakland

Eric Hentschke

Newark

Hope Salzer

Piedmont

Victor Aguilar

San Leandro

Subru Bhat

Union City

Ryan Clausnitzer

General Manager

May 8th, 2024

RE: ACMAD's 2024-25 Budget: Second Draft

Dear ACMAD Board,

Please accept the second draft of the 2024/25 budget.

One of the more substantial revisions from the prior drafts is separating, and decreasing, the expected (but unpredictable) *redevelopment* property tax revenue estimate from the more predictable property tax assessment revenue. While this decreases our net income, a "favorable budget variance" (underestimating our revenue and overestimating our costs) allows the district to maintain our benefit assessment at the same level since 2008. This favorable budget variance strategy also extends to investment income, which is purposely underestimated, but with the current interest rate environment, very likely to exceed our estimations.

We *increased* anticipated revenue from prior budget drafts based on our transition to a vehicle leasing program and the subsequent selling of multiple vehicles. We also increased our insurance costs to align with VCJPA's preliminary budget, released in mid-April. Lastly, we are delaying hiring the new position into early autumn based on staff onboarding workload and success in seasonal hire recruitment.

Based on these estimates, we project a net income **surplus of \$11,886**. This surplus does not include cash carried over nor unused capital project funding. Adding those amounts, subtracting the cash necessary to operate from July to December and the reserve transfers from the prior year leaves the District with a **\$859,770 surplus**.

Following our District's reserve policies, 25% of this surplus will be transferred to our Pension Rate Stabilization reserve fund with the remainder deposited in our Repair & Replace (exiting capital asset) fund at the conclusion of the 2024-25 budget fiscal year.

Sincerely,

Michelle Robles
Financial & HR Specialist

	Budget 24/25	Year to year % budget change	Budget 23/24	Actual 22/23	A vs B	Budget 22/23	Actual 21/22	Budget 21/22	Actual 20/21	Budget 20/21
REVENUES										
Ad Valorem Property Taxes	\$ 3,125,578	10%	\$ 2,842,050	\$ 3,005,363	9%	\$ 2,755,397	\$ 2,759,272	\$ 2,580,814	\$ 2,624,188	\$ 2,300,000
Special Tax & Benefit Assessment	\$ 2,019,779	1%	\$ 2,008,405	\$ 1,999,781	1%	\$ 1,981,814	\$ 1,988,520	\$ 1,981,959	\$ 1,962,192	\$ 1,821,600
Redevelopment	\$ 100,000		\$ -	\$ 456,130		\$ -	\$ 401,310	\$ -	\$ 364,485	\$ -
Interest earned (restricted fund interest NOT included as revenue)	\$ 20,000	0%	\$ 20,000	\$ 288,784	1344%	\$ 20,000	\$ (4,799)	\$ 30,000	\$ 19,208	\$ 30,000
Sale of Property and Equipment & Misc.	\$ 50,000	900%	\$ 5,000	\$ 12,304	392%	\$ 2,500	\$ 121,218	\$ 5,000	\$ 1,038	\$ 5,000
Reimburses Retiree Health Benefits and fees from OPEB	\$ 158,398	0%	\$ 158,348	\$ 142,690	1%	\$ 140,946	\$ 135,592	\$ 168,091	\$ 163,355	\$ 164,913
Total Revenue (see figure 1)	\$ 5,473,754	9%	\$ 5,033,804	\$ 5,905,052	20%	\$ 4,900,658	\$ 5,401,113	\$ 4,765,864	\$ 5,134,466	\$ 4,321,513
EXPENDITURES										
Salaries (including deferred comp.& trustee in lieu payments)	\$ 2,790,251	13%	\$ 2,462,469	\$ 2,318,987	-2%	\$ 2,371,703	\$ 2,121,872	\$ 2,236,282	\$ 2,037,043	\$ 2,116,177
CalPERS Retirement	\$ 651,597	18%	\$ 553,955	\$ 525,487	-2%	\$ 534,559	\$ 471,085	\$ 473,950	\$ 423,110	\$ 423,350
Medicare & Social Security	\$ 46,366	15%	\$ 40,292	\$ 33,692	-13%	\$ 38,763	\$ 30,026	\$ 33,062	\$ 27,867	\$ 31,278
Fringe Benefits	\$ 683,132	13%	\$ 605,491	\$ 604,258	7%	\$ 564,969	\$ 484,487	\$ 579,596	\$ 502,898	\$ 527,031
Total Salaries, Retirement, & Benefits (pgs. 2,3) (see figure 3)	\$ 4,171,345	14%	\$ 3,662,207	\$ 3,482,424	-1%	\$ 3,509,995	\$ 3,107,470	\$ 3,322,891	\$ 2,990,918	\$ 3,097,835
Service & Supplies (Clothing & Personal supplies)	\$ 9,500	6%	\$ 9,000	\$ 7,518	-16%	\$ 9,000	\$ 7,882	\$ 10,000	\$ 4,859	\$ 10,000
Service & Supplies (Laundry services & supplies)	\$ 16,000	23%	\$ 13,000	\$ 12,853	-1%	\$ 13,000	\$ 10,417	\$ 15,000	\$ 9,125	\$ 15,000
Utilities	\$ 26,000	10%	\$ 23,700	\$ 19,416	-11%	\$ 21,700	\$ 18,135	\$ 17,000	\$ 15,422	\$ 12,000
Small tools and instruments	\$ 3,000	0%	\$ 3,000	\$ 2,120	-29%	\$ 3,000	\$ 1,963	\$ 3,000	\$ 2,189	\$ 3,000
Maintenance (Landscaping & Facility)	\$ 30,000	0%	\$ 30,000	\$ 18,062	-40%	\$ 30,000	\$ 26,671	\$ 35,000	\$ 20,262	\$ 25,000
Maintenance (Equipment)	\$ 28,000	-7%	\$ 30,000	\$ 36,210	21%	\$ 30,000	\$ 25,355	\$ 35,000	\$ 22,290	\$ 35,000
Transportation, travel, training, & board	\$ 114,525	-11%	\$ 127,990	\$ 133,125	11%	\$ 119,840	\$ 120,419	\$ 127,630	\$ 74,653	\$ 122,400
Professional services	\$ 160,600	31%	\$ 122,950	\$ 93,115	-39%	\$ 152,200	\$ 97,726	\$ 203,450	\$ 91,623	\$ 176,200
Memberships, dues, & subscriptions.	\$ 29,000	7%	\$ 27,000	\$ 24,594	-34%	\$ 37,000	\$ 25,103	\$ 24,000	\$ 22,906	\$ 23,337
Insurance - VCJPA	\$ 203,198	-4%	\$ 211,959	\$ 177,963	-1%	\$ 179,436	\$ 160,933	\$ 150,611	\$ 141,650	\$ 137,524
Community education	\$ 55,000	4%	\$ 53,000	\$ 28,194	-49%	\$ 55,000	\$ 26,225	\$ 39,500	\$ 26,317	\$ 38,575
Operations	\$ 287,500	10%	\$ 261,500	\$ 120,639	-47%	\$ 227,500	\$ 182,576	\$ 239,000	\$ 223,362	\$ 241,000
Household expenses	\$ 22,700	6%	\$ 21,350	\$ 18,517	-7%	\$ 19,950	\$ 25,388	\$ 17,350	\$ 15,881	\$ 16,750
Office expenses	\$ 10,000	-23%	\$ 13,000	\$ 7,248	-40%	\$ 12,000	\$ 7,003	\$ 12,000	\$ 9,748	\$ 12,000
Information Technology/ Communication	\$ 125,500	21%	\$ 104,000	\$ 97,711	-9%	\$ 107,400	\$ 74,950	\$ 112,400	\$ 71,771	\$ 111,400
Laboratory	\$ 130,000	-7%	\$ 140,000	\$ 106,784	-19%	\$ 132,500	\$ 82,354	\$ 144,000	\$ 64,136	\$ 139,000
Total Staff Budget (pg. 4) (see figure 4)	\$ 1,250,523	5%	\$ 1,191,449	\$ 904,069	-21%	\$ 1,149,526	\$ 893,100	\$ 1,184,941	\$ 816,194	\$ 1,118,186
Contingency	\$ 40,000	-17%	\$ 48,000	\$ -		\$ 46,000	\$ -	\$ 50,000	\$ -	\$ 50,000
Total Expenditures (see figure 2)	\$ 5,461,868	11%	\$ 4,901,656	\$ 4,386,493	-7%	\$ 4,705,521	\$ 4,000,570	\$ 4,557,832	\$ 3,807,112	\$ 4,266,021
SURPLUS (DEFICIT)	\$ 11,886		\$ 132,148	\$ 1,518,559		\$ 195,136	\$ 1,400,543	\$ 208,032	\$ 1,327,354	\$ 55,491
CASH CARRIED OVER (pg. 5)	\$ 847,884		\$ 1,081,184			\$ 882,263	\$ 1,530,673		\$ 1,616,656	
SURPLUS (DEFICIT) AFTER OPERATIONAL CASH NEEDS	\$ 859,770		\$ 1,188,332			\$ 1,077,400	\$ 1,738,705		\$ 217,147	
RESERVE ACCOUNT ALLOCATIONS										
	Transfers		Transfers	Actual 22/23		Budget 22/23	Actual 21/22	Budget 21/22	Actual 20/21	Actual 20/21
VCJPA Member Contingency Fund	\$ -		\$ (4,351)	\$ (43,103)		\$ (43,103)	\$ -	\$ -	\$ -	\$ -
PARS: Pension Rate Stabilization	\$ 214,943		\$ 297,083	\$ 269,350		\$ 269,350	\$ 434,676	\$ 434,676	\$ -	\$ -
CA CLASS: Public Health Emergency Fund	\$ (43,636)		\$ (41,085)	\$ (26,732)		\$ (26,732)	\$ -	\$ -	\$ -	\$ -
CA CLASS: Repair and Replace Fund (pg. 7)	\$ 203,815		\$ 866,685	\$ 537,912		\$ 537,912	\$ 1,311,625	\$ 1,311,625	\$ 314,315	\$ 314,315
CA CLASS: Operating Reserve Fund	\$ -		\$ -	\$ -		\$ -	\$ -	\$ -	\$ (25,000)	\$ (25,000)
CAMP: Capital Reserve Fund	\$ 484,649		\$ 70,000	\$ 70,009		\$ 339,974	\$ 10,006	\$ (7,596)	\$ (72,168)	\$ (72,168)
Total reserve allocations (pg. 7) (see figure 5)	\$ 859,770		\$ 1,188,332	\$ 807,436		\$ 1,077,400	\$ 1,756,307	\$ 1,738,705	\$ -	\$ 217,147
SURPLUS (DEFICIT) AFTER RESERVE ALLOCATIONS	\$ -		\$ -			\$ -				

Salaries 7/1/24 - 6/30/25

Date of hire	Position	2024-25	Longevity	Longevity Amount	New Salary	# mo	Subtotal	Deferred Comp.	(per pay period)
Jul-99	VS3	\$ 11,417.29	5%	\$ 570.86	\$ 11,988.15	12	\$ 143,858	\$ 2,157.87	\$ 89.91
Mar-14	VB2	\$ 10,721.81	2%	\$ 214.44	\$ 10,936.25	12	\$ 131,235	\$ 1,968.52	\$ 82.02
Aug-18	VS1	\$ 10,316.30	0%	\$ -	\$ 10,316.30	3	\$ 30,949	\$ 464.23	\$ 77.37
	VS2	\$ 10,851.85	1%	\$ 108.52	\$ 10,960.37	6	\$ 65,762	\$ 986.43	\$ 82.20
	VS3	\$ 11,417.29	1%	\$ 114.17	\$ 11,531.46	3	\$ 34,594	\$ 518.92	\$ 86.49
Apr-02	VB2	\$ 10,721.81	4%	\$ 428.87	\$ 11,150.68	12	\$ 133,808	\$ 2,007.12	\$ 83.63
Nov-03	VB2	\$ 10,721.81	4%	\$ 428.87	\$ 11,150.68	12	\$ 133,808	\$ 2,007.12	\$ 83.63
Mar-02	RPA3	\$ 12,640.12	4%	\$ 505.60	\$ 13,145.72	11	\$ 144,603	\$ 2,169.04	\$ 98.59
	RPA4	\$ 13,272.12	4%	\$ 530.88	\$ 13,803.00	1	\$ 13,803	\$ 207.05	\$ 103.52
Jul-15	Mgr	\$ 17,218.38	1%	\$ 172.18	\$ 17,390.56	12	\$ 208,687		
Sep-15	VB2	\$ 10,721.81	1%	\$ 107.22	\$ 10,829.03	12	\$ 129,948	\$ 1,949.23	\$ 81.22
Jul-15	IT5	\$ 12,484.96	1%	\$ 124.85	\$ 12,609.81	12	\$ 151,318	\$ 2,269.77	\$ 94.57
Nov-19	VB1	\$ 10,212.28	0%	\$ -	\$ 10,212.28	4.5	\$ 45,955	\$ 689.33	\$ 76.59
	VB2	\$ 10,721.81	1%	\$ 107.22	\$ 10,829.03	7.5	\$ 81,218	\$ 1,218.27	\$ 81.22
Jul-15	LAB5	\$ 14,215.84	1%	\$ 142.16	\$ 14,358.00	12	\$ 172,296	\$ 2,584.44	\$ 107.68
Jul-91	Sup 5	\$ 14,075.09	6%	\$ 844.51	\$ 14,919.60	12	\$ 179,035	\$ 2,685.53	\$ 111.90
Jul-20	POC4	\$ 11,231.86	0%	\$ -	\$ 11,231.86	12	\$ 134,782	\$ 2,021.73	\$ 84.24
Dec-22	MCT3	\$ 8,823.21	0%	\$ -	\$ 8,823.21	11	\$ 97,055	\$ 1,455.83	\$ 66.17
	MCT4	\$ 9,264.41	0%	\$ -	\$ 9,264.41	1	\$ 9,264	\$ 138.97	\$ 69.48
Apr-16	FHS4	\$ 10,712.01	1%	\$ 107.12	\$ 10,819.13	11	\$ 119,010	\$ 1,785.16	\$ 81.14
	FHS5	\$ 11,247.61	1%	\$ 112.48	\$ 11,360.09	1	\$ 11,360	\$ 170.40	\$ 85.20
Sep-15	VB2	\$ 10,721.81	1%	\$ 107.22	\$ 10,829.03	12	\$ 129,948	\$ 1,949.23	\$ 81.22
Jan-23	MCT3	\$ 8,823.21	0%	\$ -	\$ 8,823.21	6	\$ 52,939	\$ 794.09	\$ 66.17
	MCT4	\$ 9,264.41	0%	\$ -	\$ 9,264.41	6	\$ 55,586	\$ 833.80	\$ 69.48
Feb-15	Mech 5	\$ 11,199.76	1%	\$ 112.00	\$ 11,311.76	7	\$ 79,182	\$ 1,187.73	\$ 84.84
	Mech 5	\$ 11,199.76	2%	\$ 224.00	\$ 11,423.76	5	\$ 57,119	\$ 856.78	\$ 85.68
NEW	STEP 1	\$ 8,820.86	0%	\$ -	\$ 8,820.86	6	\$ 52,925	\$ 793.88	\$ 66.16
NEW	STEP 2	\$ 9,261.90	0%	\$ -	\$ 9,261.90	3	\$ 27,786	\$ 416.79	\$ 69.46
							\$ 2,627,836	\$ 36,287.24	

Seasonals:

Rate (ave)	#	Hours
\$	23.00	4 1,000
		\$92,000

Unemployment	\$ 12,000.00	\$3,128.00
		\$95,128.00

Trustee in Lieu:

Annual cost:	\$ 16,000.00
--------------	--------------

Salary	\$ 2,627,836.13
CalPERS Ret.	\$ 651,596.72
Seasonals	\$95,128.00
Trustees	\$16,000.00
Subtotal	\$ 3,374,560.85
Mgr 457	\$ 12,000.00
Mgr Vehicle All.	\$ 3,000.00
Staff 457	\$ 36,287.24
Medicare tax	\$ 39,669.62
Social Security	\$ 6,696.00
Grand Total	\$ 3,472,213.71

CalPERS

	Wages	Employer rate	Unfunded Liability Payment	Total PERS Payments
13.31% Classic	\$ 1,411,164.15	\$ 187,825.95	\$ 360,298.00	\$ 548,123.95
8.18% Pepra	\$ 1,216,671.98	\$ 99,523.77	\$ 3,949	\$ 103,472.77
			\$	651,596.72

CalPERS Plan Code	Current Year Health Rates	Next Year Health Rates (est)	Total Health Costs	Dental Rates	Total Dental	Life Ins. Rates	Total Life Insurance	Vision Rates	Total Vision	SDI	Benefit Cost per person
5332	2,042.82	2,165.39	25,249.26	161.05	1,932.60	6.11	73.32	20.81	249.72		27,504.90
5331	1,021.41	1,082.69	12,624.63	94.06	1,128.72	6.11	73.32	13.40	160.80		13,987.47
5331	1,021.41	1,082.69	12,624.63	94.06	1,128.72	6.11	73.32	13.40	160.80		13,987.47
5333	2,655.67	2,815.01	32,824.08	251.93	3,023.16	6.11	73.32	33.01	396.12		36,316.68
5251	1,021.41	1,082.69	12,624.63	251.93	3,023.16	6.11	73.32	33.01	396.12		16,117.23
5333	2,655.67	2,815.01	32,824.08	251.93	3,023.16	6.11	73.32	33.01	396.12		36,316.68
5253	2,655.67	2,815.01	32,824.08	251.93	3,023.16	6.11	73.32	33.01	396.12		36,316.68
5333	2,655.67	2,815.01	32,824.08	251.93	3,023.16	6.11	73.32	33.01	396.12		36,316.68
5252	2,042.82	2,165.39	25,249.26	161.05	1,932.60	6.11	73.32	20.81	249.72		27,504.90
5331	1,021.41	1,082.69	12,624.63	94.06	1,128.72	6.11	73.32	13.40	160.80		13,987.47
5252	2,042.82	2,165.39	25,249.26	161.05	1,932.60	6.11	73.32	20.81	249.72		27,504.90
5332	2,042.82	2,165.39	25,249.26	161.05	1,932.60	6.11	73.32	20.81	249.72		27,504.90
5333	2,655.67	2,815.01	32,824.08	251.93	3,023.16	6.11	73.32	33.01	396.12		36,316.68
5333	2,655.67	2,815.01	32,824.08	251.93	3,023.16	6.11	73.32	33.01	396.12		36,316.68
5332	2,042.82	2,165.39	25,249.26	161.05	1,932.60	6.11	73.32	20.81	249.72		27,504.90
5333	2,655.67	2,815.01	32,824.08	251.93	3,023.16	6.11	73.32	33.01	396.12		36,316.68
5332	2,042.82	2,165.39	25,249.26	161.05	1,932.60	6.11	73.32	20.81	249.72		27,504.90
5333	2,655.67	2,815.01	32,824.08	251.93	3,023.16	6.11	73.32	33.01	396.12		36,316.68
4331	1,021.41	1,082.69	9,560.40	94.06	1,128.72	6.11	73.32	13.40	160.80		10,923.24
Subtotal	38,609.33		474,147.09	3,609.91	43,318.92	116.09	1,393.08	475.55	5,706.60	23,650.53	548,216.21
.32% Admin Cost			1,517.27								1,517.27
Staff Totals			475,664.36		43,318.92		1,393.08		5,706.60	23,650.53	549,733.48

CalPERS Plan Code	Current Year Health Rates	Next Year Health Rates (est)	Total Health Costs	Dental Rates	Total Dental	Life Ins. Rates	Total Life Ins.	Vision Rates	Total Vision	SDI	Benefit Cost per person
5361	324.79	344.28	4,014.40	-	1,500.00			20.81	249.72		5,764.12
	-	-	-	94.06	1,128.72			20.81	249.72		1,378.44
6051	448.15	475.04	5,539.13	94.06	1,128.72			13.40	160.80		6,828.65
6082	896.30	950.08	11,078.27	161.05	1,932.60			20.81	249.72		13,260.59
6051	448.15	475.04	5,539.13	94.06	1,128.72			13.40	160.80		6,828.65
5361	324.79	344.28	4,014.40	161.05	1,932.60			20.81	249.72		6,196.72
5331	1,021.41	1,082.69	12,624.63	94.06	1,128.72			13.40	160.80		13,914.15
6081	448.15	475.04	5,539.13	94.06	1,128.72			13.40	160.80		6,828.65
6052	896.30	950.08	11,078.27	161.05	1,932.60			20.81	249.72		13,260.59
5362	649.58	688.55	8,028.81	161.05	1,932.60			20.81	249.72		10,211.13
5362	649.58	688.55	8,028.81	161.05	1,932.60			20.81	249.72		10,211.13
5362	649.58	688.55	8,028.81	161.05	1,932.60			20.81	249.72		10,211.13
5362	649.58	688.55	8,028.81	161.05	1,932.60			20.81	249.72		10,211.13
	7,406.36		91,542.61		20,671.80			240.89	2,890.68		115,105.09
.32% Admin Costs=			292.94								292.94
Annuitant Totals			91,835.55		20,671.80			2,890.68			115,398.03

Grand Total			567,499.91		63,990.72		1,393.08		8,597.28	23,650.53	665,131.51
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Medicare Part B Reimb. 18,000.00

683,131.51

A/C #	BUDGET CATEGORY	staff	Budget 24/25	% change	Budget 23/24	% change	Actual 22/23	A vs B	Budget 22/23	Actual 21/22	Actual 20/21
SERVICE AND SUPPLIES											
5201	Clothing and personal supplies (purchased)	MW	\$ 9,500	6%	\$ 9,000	6%	\$ 7,518	-16%	\$ 9,000	\$ 7,882	\$ 4,859
5202	Laundry service and supplies (rented)	MW	\$ 16,000	23%	\$ 13,000	0%	\$ 12,853	-1%	\$ 13,000	\$ 10,417	\$ 9,125
UTILITIES											
5301	Garbage (Waste Mgmt)	MR	\$ 4,000	-5%	\$ 4,200	14%	\$ 3,373	-9%	\$ 3,700	\$ 3,788	\$ 3,113
5302	PG & E	MR/ MW	\$ 18,000	20%	\$ 15,000	11%	\$ 12,673	-6%	\$ 13,500	\$ 10,959	\$ 8,915
5303	Hayward Water & Sewage	MR	\$ 4,000	-11%	\$ 4,500	0%	\$ 3,370	-25%	\$ 4,500	\$ 3,388	\$ 3,394
5401	SMALL TOOLS AND INSTRUMENTS	MW	\$ 3,000	0%	\$ 3,000	0%	\$ 2,120	-29%	\$ 3,000	\$ 1,963	\$ 2,189
MAINTENANCE											
5501	Landscaping service	MW	\$ 5,000	0%	\$ 5,000	0%	\$ 2,988	-40%	\$ 5,000	\$ 2,780	\$ 5,012
5502	Facility Maintenance	MW	\$ 25,000	0%	\$ 25,000	0%	\$ 15,074	-40%	\$ 25,000	\$ 23,891	\$ 15,250
5503	Maintenance of equipment	MW	\$ 28,000	-7%	\$ 30,000	0%	\$ 36,210	21%	\$ 30,000	\$ 25,355	\$ 22,290
TRANSPORTATION, TRAVEL, TRAINING, & BOARD											
5601	Fuel and GPS (WexMart)	MW/MR	\$ 55,000	-8%	\$ 60,000	9%	\$ 60,798	11%	\$ 55,000	\$ 56,272	\$ 38,922
5602	Meetings, conferences, & travel	RC	\$ 40,000	21%	\$ 33,000	10%	\$ 51,432	71%	\$ 30,000	\$ 30,366	\$ 7,494
5603	Board meeting expenses	RC	\$ 950	19%	\$ 800	23%	\$ 698	7%	\$ 650	\$ 542	\$ -
5605	Board plaques and nameplates	RC	\$ 225	18%	\$ 190	0%	\$ 221	16%	\$ 190	\$ 146	\$ 184
5606	Continuing Education fees	RC	\$ 3,350	12%	\$ 3,000	0%	\$ 240	-92%	\$ 3,000	\$ 2,700	\$ 2,863
5607	Staff Training (staff dev./ college courses)	RC	\$ 15,000	0%	\$ 15,000	0%	\$ 4,936	-67%	\$ 15,000	\$ 15,693	\$ 9,890
PROFESSIONAL SERVICES											
5701	Audit	MR	\$ 15,400	3%	\$ 15,000	0%	\$ 14,650	-2%	\$ 15,000	\$ 14,347	\$ 14,156
5702	Actuarial reports	MR	\$ 3,700	68%	\$ 2,200	-48%	\$ 3,700	-12%	\$ 4,200	\$ 2,200	\$ 1,200
5704	Legal Services	RC	\$ 8,000	0%	\$ 8,000	0%	\$ 7,932	-1%	\$ 8,000	\$ 4,258	\$ 5,263
5706	Tax collection service (SCI)	RC	\$ 39,000	0%	\$ 39,000	5%	\$ 37,642	2%	\$ 37,000	\$ 36,673	\$ 35,545
5707	Payroll service (OnePoint)	MR	\$ 10,000	0%	\$ 10,000	0%	\$ 8,816	-12%	\$ 10,000	\$ 8,650	\$ 8,835
5708	Environmental consultant/ EcoAtlas	EC	\$ 28,700	44%	\$ 20,000	-9%	\$ -	-100%	\$ 22,000	\$ 4,121	\$ 4,121
5709	HR Services (RGS & other)	RC	\$ 5,000	100%	\$ 2,500	0%	\$ -	-100%	\$ 2,500	\$ 4,245	\$ 221
5710	OPEB management (PFM & US Bank)	RC	\$ 25,000	0%	\$ 25,000	0%	\$ 19,565	-22%	\$ 25,000	\$ 22,542	\$ 22,187
5711	Financial advising	RC	\$ 25,000	4900%	\$ 500	-80%	\$ -	-100%	\$ 2,500	\$ -	\$ -
5712	Pre-employment physicals	RC	\$ 800	7%	\$ 750	-25%	\$ 810	-19%	\$ 1,000	\$ 690	\$ 95
5801	MEMBERSHIPS, DUES & SUBSCRIPTIONS	RC	\$ 29,000	7%	\$ 27,000	-27%	\$ 24,594	-34%	\$ 37,000	\$ 25,103	\$ 22,906
5802	INSURANCE - VC/JPA	RC	\$ 203,198	-4%	\$ 211,959	19%	\$ 176,982	-1%	\$ 178,136	\$ 159,952	\$ 140,724
5901	COMMUNITY EDUCATION	EC	\$ 55,000	4%	\$ 53,000	-4%	\$ 28,194	-49%	\$ 55,000	\$ 26,225	\$ 26,317
OPERATIONS											
6101	Pesticides	JH	\$ 210,000	11%	\$ 190,000	4%	\$ 92,820	-49%	\$ 182,000	\$ 143,588	\$ 174,993
6102	Field supplies (dippers etc)	JH	\$ 2,000	-33%	\$ 3,000	-14%	\$ 999	-71%	\$ 3,500	\$ 750	\$ 2,674
6103	Mosquitofish program	MW	\$ 7,500	50%	\$ 5,000	43%	\$ 2,119	-39%	\$ 3,500	\$ 1,315	\$ 2,722
6104	Spray equipment	MW	\$ 8,000	0%	\$ 8,000	0%	\$ 1,513	-81%	\$ 8,000	\$ 5,367	\$ 7,620
6105	Safety	MW	\$ 8,500	0%	\$ 8,500	0%	\$ 6,725	-21%	\$ 8,500	\$ 8,894	\$ 11,160
6106	Aerial Pool Survey	RF	\$ 25,000	25%	\$ 20,000	0%	\$ 15,100	-25%	\$ 20,000	\$ 21,300	\$ 20,000
6107	Permits	EC	\$ 4,000	100%	\$ 2,000	0%	\$ 1,363	-32%	\$ 2,000	\$ 1,362	\$ 4,193
6108	Helicopter service	JH	\$ 15,000	-40%	\$ 25,000	0%	\$ -	-100%	\$ 25,000	\$ -	\$ -
6109	Drone (NEW)	EHS	\$ 7,500		\$ -		\$ -		\$ -	\$ -	\$ -
HOUSEHOLD EXPENSES											
6201	Janitorial service	MW	\$ 8,500	13%	\$ 7,500	0%	\$ 7,294	-3%	\$ 7,500	\$ 5,940	\$ 7,357
6202	Supplies (+ emergency)	MW	\$ 3,200	12%	\$ 2,850	0%	\$ 2,023	-29%	\$ 2,850	\$ 1,753	\$ 2,235
6203	Alarm service	RF	\$ 11,000	0%	\$ 11,000	15%	\$ 9,200	-4%	\$ 9,600	\$ 17,695	\$ 6,289
6301	OFFICE EXPENSES	MR	\$ 10,000	-23%	\$ 13,000	8%	\$ 7,248	-40%	\$ 12,000	\$ 7,003	\$ 9,748
IT/ COMMUNICATIONS											
6401	IT Expenses	RF	\$ 90,000	29%	\$ 70,000	0%	\$ 71,063	2%	\$ 70,000	\$ 50,704	\$ 42,997
6402	Telephone Service & Internet	RF	\$ 11,000	10%	\$ 10,000	-9%	\$ 8,753	-20%	\$ 11,000	\$ 10,018	\$ 9,778
6403	Website hosting	RF	\$ 3,000	0%	\$ 3,000	25%	\$ 2,400	0%	\$ 2,400	\$ 2,400	\$ 2,400
6404	Cell phone service	RF	\$ 15,000	0%	\$ 15,000	-17%	\$ 12,871	-28%	\$ 18,000	\$ 8,942	\$ 13,149
6405	Microsoft Office 365	RF	\$ 6,500	8%	\$ 6,000	20%	\$ 2,611	-48%	\$ 5,000	\$ 2,886	\$ 3,240
LABORATORY											
6501	Mosquito and pathogen monitoring	EHS	\$ 100,000	0%	\$ 100,000	5%	\$ 74,530	-22%	\$ 95,000	\$ 66,017	\$ 50,024
6502	Insecticide resistance	EHS	\$ 5,000	0%	\$ 5,000	-68%	\$ 8,226	-47%	\$ 15,500	\$ 11	\$ 1,943
6503	Research	EHS	\$ 25,000	-29%	\$ 35,000	59%	\$ 24,028	9%	\$ 22,000	\$ 16,326	\$ 12,169
Total			\$ 1,250,523	5%	\$ 1,191,449	6%	\$ 904,069	-20%	\$ 1,124,526	\$ 893,100	\$ 816,194

Estimate of Cash Carryover from Fiscal Year 23/24 to 24/25

	debits	credits	balance
LAIF, Operational Fund, County, and Five Star Balances as of January 31, 2024			\$ 4,671,235
February check batch #1	\$ 156,628		\$ 4,514,607
February check batch #2	\$ 243,069		\$ 4,271,538
Balance as of February 29, 2024			\$ 4,455,323 <i>estimates below</i>
March check batch #1	\$ 150,117		\$ 4,305,206
<i>March check batch #2</i>	\$ 174,317		\$ 4,130,890
Balance as of March 31, 2024			\$ 4,088,448
April check batch #1	\$ 178,335		\$ 3,910,113
Deposit		2,201,442	
April check batch #2	\$ 224,009		\$ 5,887,546
Balance as of April 30, 2024			\$ 5,927,375
May check batch #1	\$ 160,000		\$ 5,767,375
May check batch #2	\$ 160,000		\$ 5,607,375
Balance as of May 31, 2024			\$ 5,607,375
June check batch #1	\$ 175,000		\$ 5,432,375
June check batch #2	\$ 175,000		\$ 5,257,375
Balance as of June 30, 2024			
Totals	\$ 1,396,777	\$ 2,201,442	\$ 5,257,375
Unused capital funds (pg. 6)			\$ 140,000
Reserve transfers from prior year			\$ 1,118,332
Operational requirement (July-December)			\$ 3,431,159
<u>Estimated Cash Carried Over</u>			\$ 847,884

CAPITAL EXPENDITURES (Outlay)					
	2020/21 Budgeted	2021-22	2022-23	2023-24	2024-25
<u>20/21 Capital Reserve</u> (new assets & non-capital projects)					
Exterior & carport painting	\$39,000				
Lobby display	\$20,000				
20/21 Capital Reserve Total	\$59,000				
Unused capital funds (cash carried over)	\$20,500				
<u>21/22 Capital Reserve</u> (new assets & non-capital projects)					
Lobby display		\$30,000			
<u>21/22 Repair and Replace (replacement assets)</u>					
V42		\$40,000			
21/22 Capital Reserve and Repair and Replace Total		\$70,000			
Unused capital funds (cash carried over)		\$30,000			
<u>22/23 Capital Reserve</u> (new assets & non-capital projects)					
Fish Enclosure			\$ 250,000		
Lobby Display			\$ 30,000		
22/23 Capital Reserve Total			\$ 280,000		
<u>22/23 Repair and Replace</u> (replacement assets)					
MapVision - Gen 3			\$ 70,000		
Microscope			\$ 23,000		
22/23 Repair and Replace Total			\$ 93,000		
Unused capital funds (cash carried over)			\$ 70,000		
<u>23/24 Capital Reserve</u> (new assets & non-capital projects)					
				\$ -	
				\$ -	
23/24 Capital Reserve Total					
<u>22/23 Repair and Replace</u> (replacement assets)					
MapVision - Gen 3				\$ 140,000	
23/24 Repair and Replace Total				\$ 140,000	
Unused capital funds (cash carried over)				\$ 140,000	
<u>24/25 Capital Reserve</u> (new assets & non-capital projects)					
					\$ -
24/25 Capital Reserve Total					\$ -
<u>24/25 Repair and Replace</u> (replacement assets)					
MapVision - Gen 3					\$ 140,000
V32 (Public Ed)					\$ 40,000
V36 (Spare Truck)					\$ 40,000
V39 (Joseph)					\$ 40,000
V43(Sarah)					\$ 40,000
V46(Erick)					\$ 40,000
V47(Ben)					\$ 40,000
V48(Alex)					\$ 40,000
V50(John)					\$ 40,000
Fish Tanks					\$ 25,000
24/25 Repair and Replace Total					\$ 485,000
Unused capital funds (cash carried over)					\$ 140,000

<u>Committed Reserve Funds</u>	<u>Target Level</u>	<u>As of April 30, 2024</u>	<u>Transfers²</u>	<u>Current Funded %</u>	<u>Proposed Funded %</u>
VCJPA Member Contingency Fund ¹	\$321,595	\$321,595	\$0	100%	100%
CA CLASS Enhanced: Public Health Emergency Fund	\$500,000	\$543,636	-\$43,636	109%	100%
CA CLASS: Repair and Replace Fund	\$4,319,711	\$3,291,421	\$203,815	76%	81%
CA CLASS Enhanced: Operating Reserve Fund	\$2,940,994	\$2,106,596	\$0	72%	72%
CAMP: Capital Reserve Fund ²	\$0	\$351	\$484,649	NA	NA
<u>Restricted Reserve Funds</u>					
PARS: Pension Rate Stabilization ³	\$4,670,042	\$2,584,249	\$214,943	55%	60%
Other Post Employment Benefit Fund (OPEB) ⁴	\$3,441,610	\$4,789,267		139%	139%
<u>TOTAL</u>		\$13,637,115	\$859,770		

¹ Balance as of March 31, 2024.

² - Capital Reserve transferred at start of fiscal year to also include repair and replace purchases, all other transfers occur after the fiscal year.

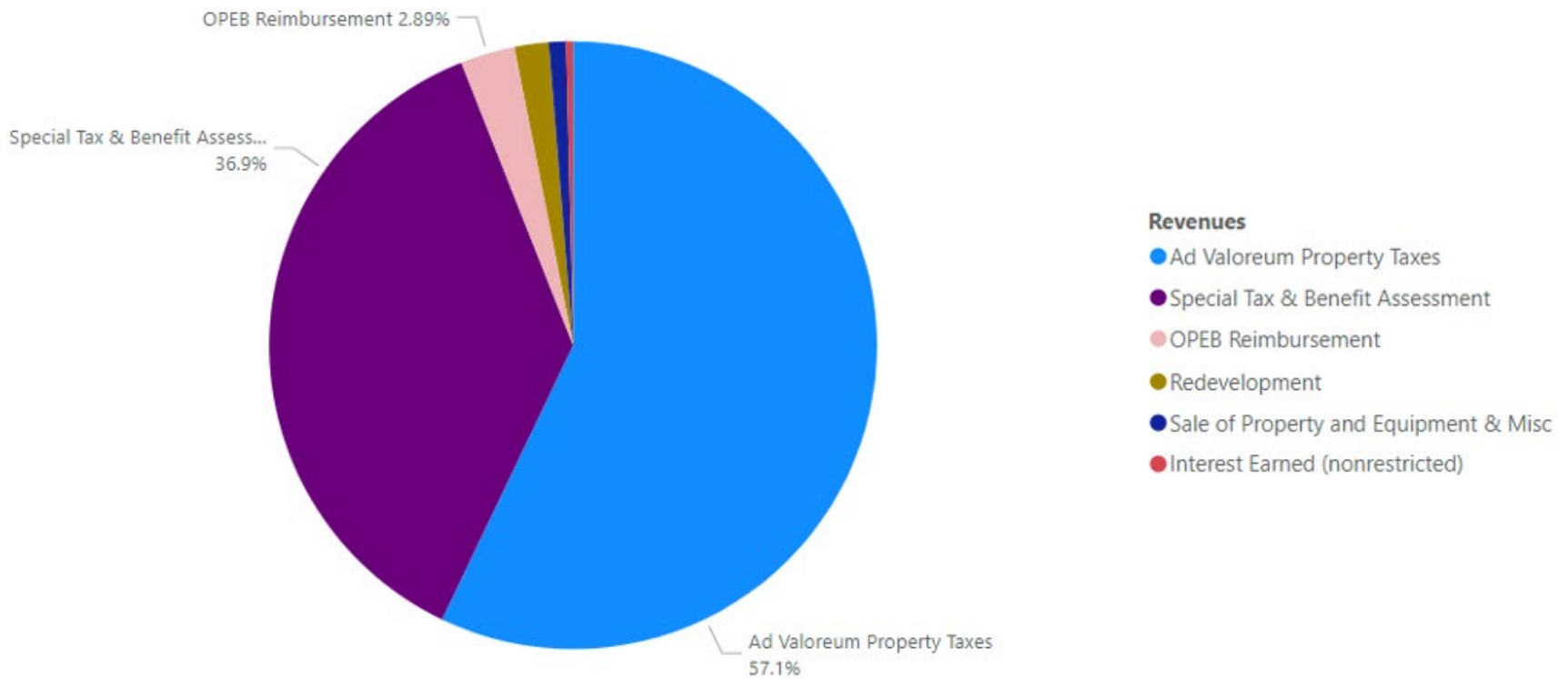
³ - Balance as of March 31, 2024. Unfunded Accrued Liability as of June 30, 2022.

⁴ - OPEB liability as of June 30, 2023.

Alameda County Mosquito Abatement District
FY 2024/25

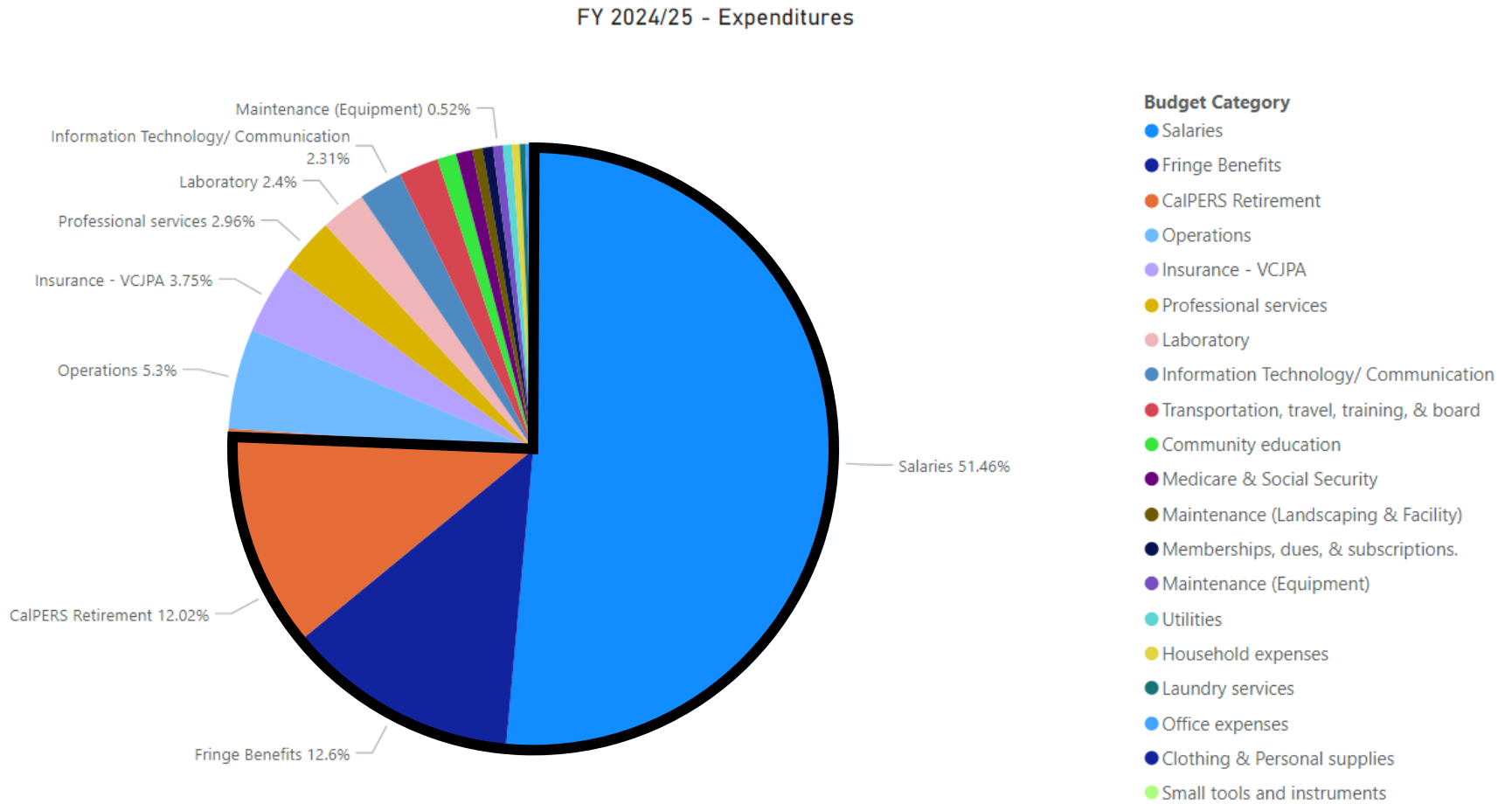
Figure 1: The District expects to receive a total revenue of \$5,473,754 for the fiscal year 2024/25. The revenue breakdown is as follows: Ad Valorem Property Taxes (\$3,125,578), Special Tax & Benefit Assessment (\$2,019,779), OPEB Reimbursement (\$158,398), Redevelopment (\$100,000), Sale of Property and Equipment & Misc (\$50,000). Interest Earned – non-restricted(\$20,000), and we anticipate a 9% increase in revenue compared to the budgeted amount for the preceding fiscal year.

FY 2024/25 - Budgeted Revenue



Alameda County Mosquito Abatement District
FY 2024/25

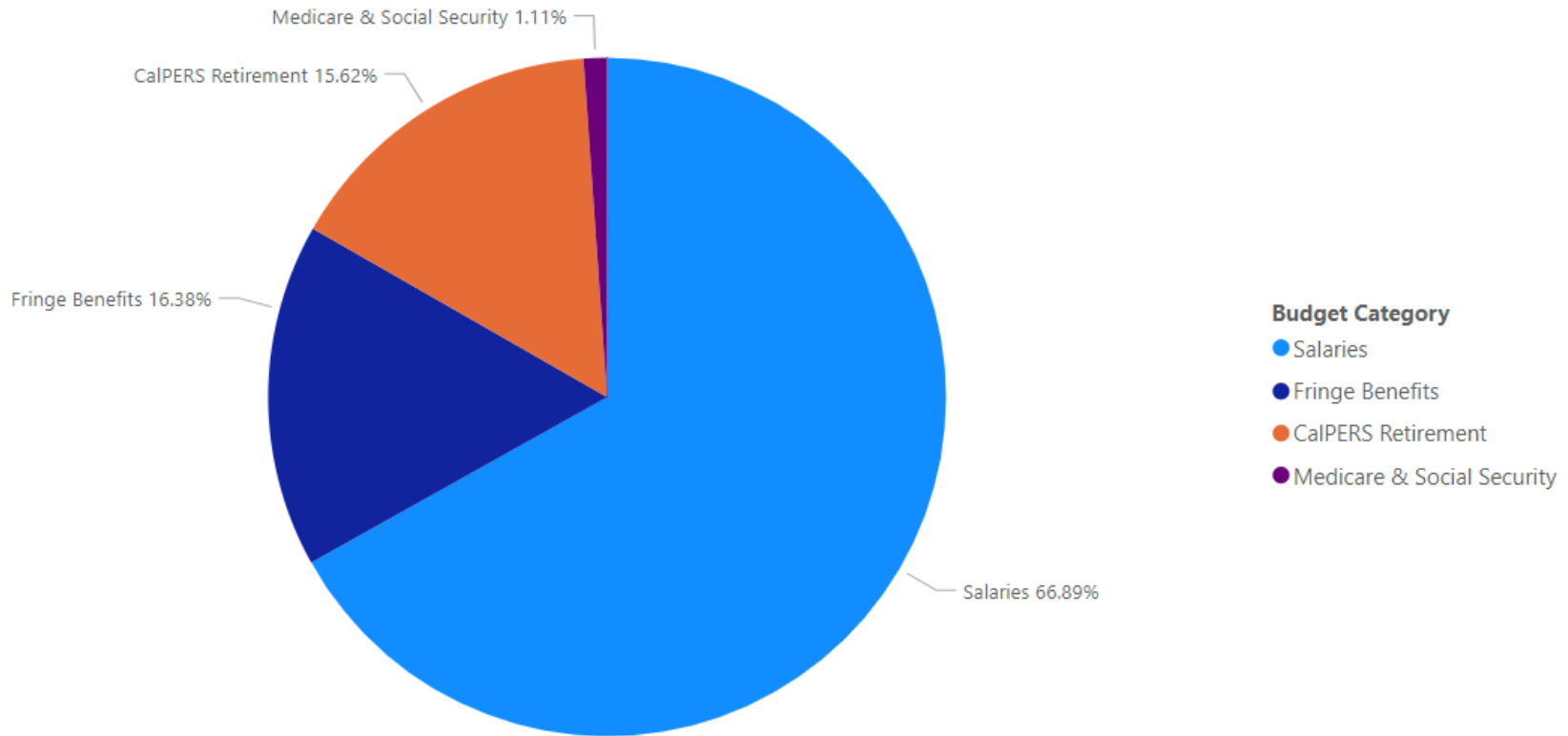
Figure 2: The pie chart below illustrates the breakdown of total expenditures amounting to \$5,461,868. Notably, there has been an 11% increase in the total expenditures compared to the previous fiscal year.



Alameda County Mosquito Abatement District
FY 2024/25

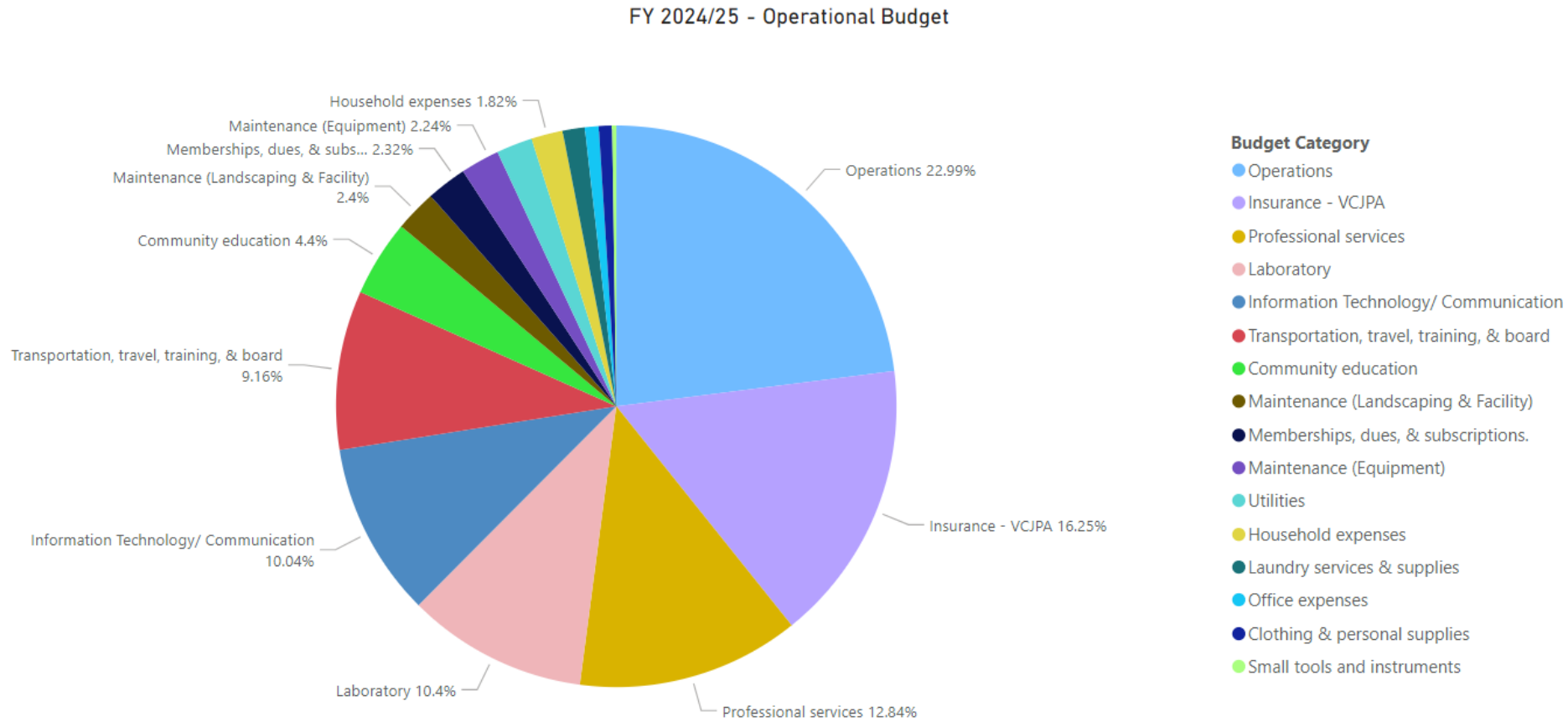
Figure 3: The pie chart below details the breakdown for Salaries (\$2,790,251), Fringe Benefits (\$683,132), CalPERS Retirement (\$651,597), and Medicare & Social Security (\$46,366). This represents a 14% increase from the previous fiscal year.

FY 2024/25 - Salaries, Fringe Benefits, CalPERS Retirement and Medicare & Social Security



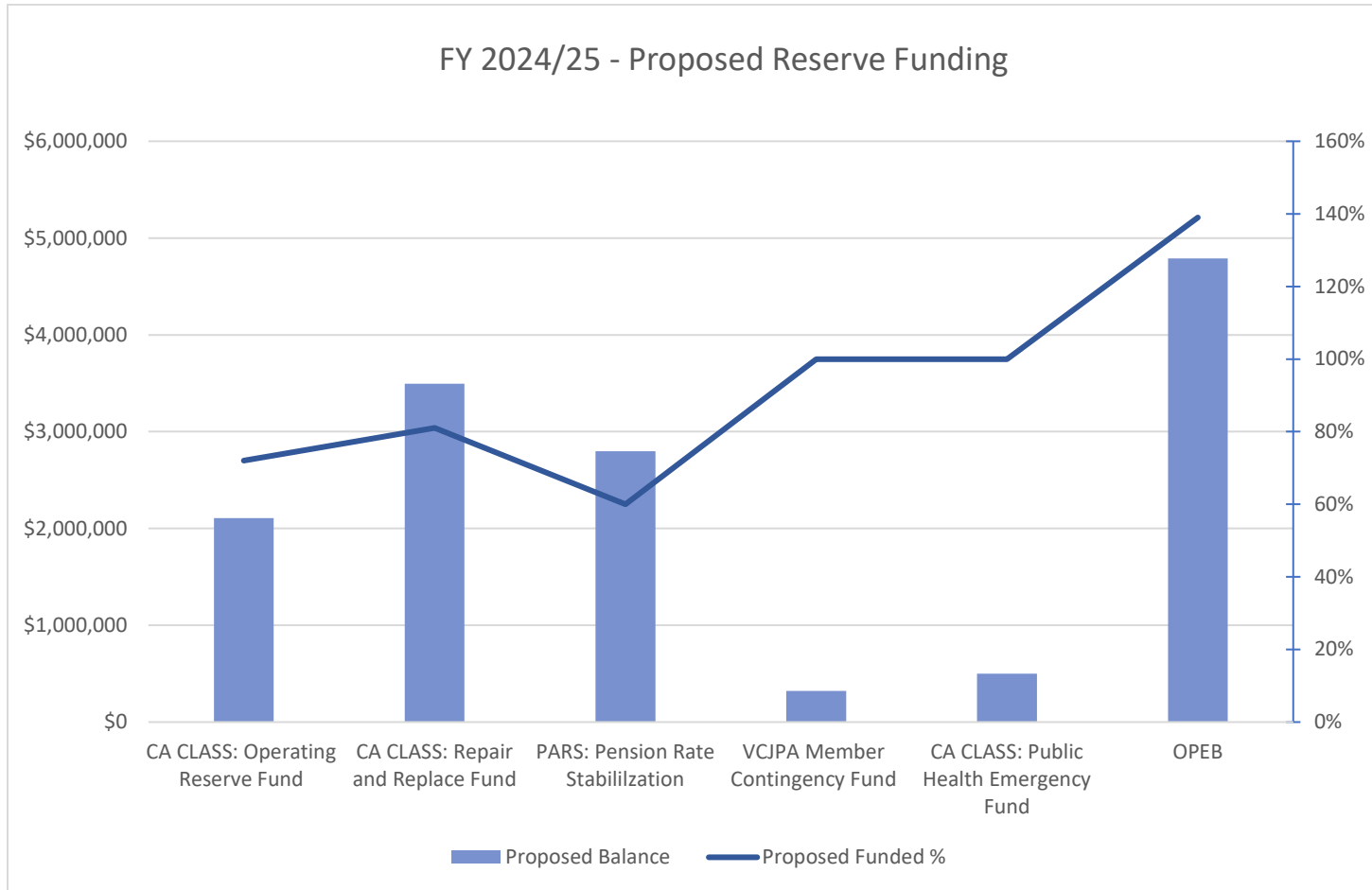
Alameda County Mosquito Abatement District
FY 2024/25

Figure 4: The pie chart below displays the breakdown of the total staff budget, which amounts to \$1,250,523. This reflects a 5% increase from the previous fiscal year.



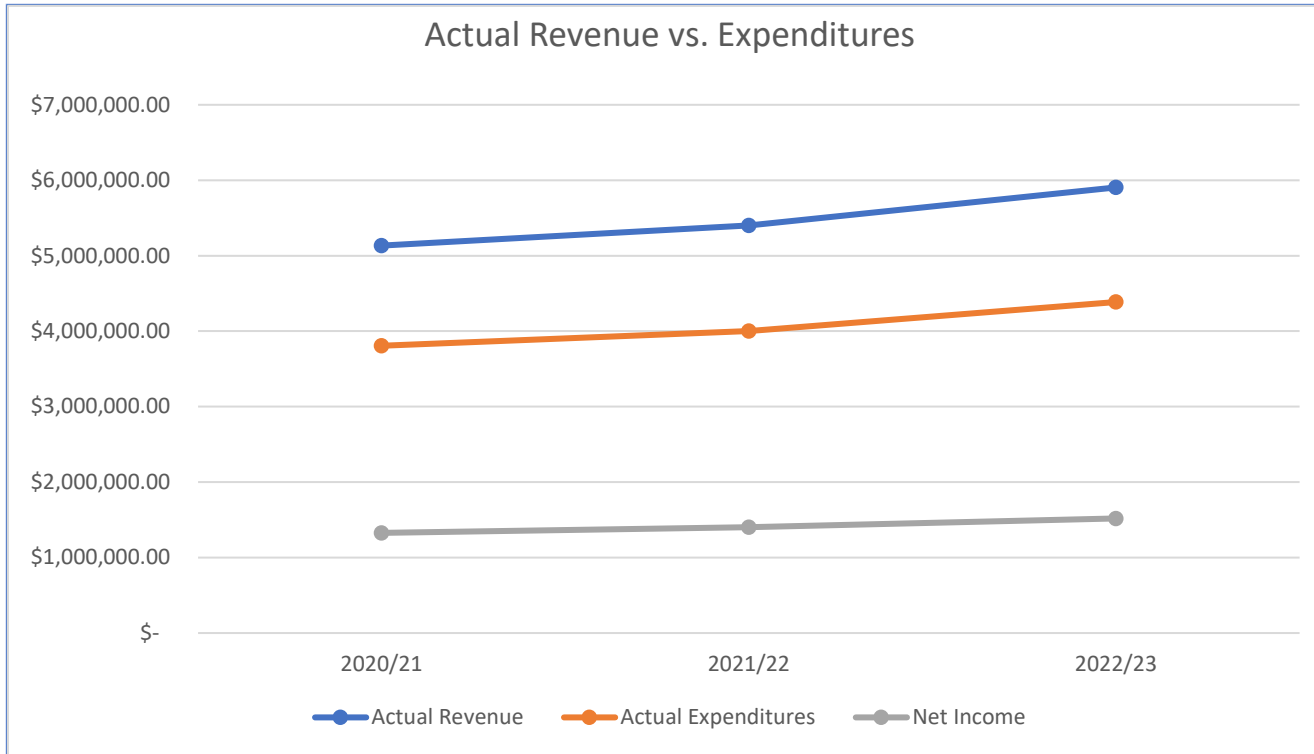
Alameda County Mosquito Abatement District
FY 2024/25

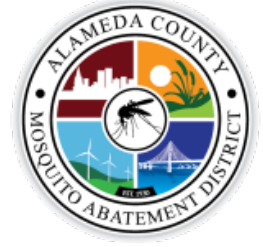
Figure 5: The chart below outlines the Proposed Reserve Funding for the fiscal year 2024/25.



Alameda County Mosquito Abatement District
FY 2024/25

Figure 6: The chart displayed below presents a comparison of actual revenue versus expenditures for the previous three fiscal years.





Alameda County

Mosquito Abatement District

Mosquito and Disease Control Assessment

Fiscal Year 2024-25
Engineer's Report

Pursuant to the Health and Safety Code, Government Code and
Article XIID of the California Constitution

Engineer of Work:



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Alameda County Mosquito Abatement District

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Introduction

Overview

In 1930, the Alameda County Mosquito Abatement District was officially formed in accordance with local authority provided by the Mosquito Abatement Act of 1915. The District's services are further supported by the California Health and Safety Codes. The District is overseen by a Board of Trustees (the "Board") comprised of fifteen members. Each City Council within the District and the Board of Supervisors of Alameda County appoint one Trustee. A Trustee serves a two or four-year term and can be reappointed.

The Alameda County Mosquito Abatement District ("District") is an independent special District in Alameda County ("County"). The District's services encompass more than 800 square miles and are provided to properties accommodating over 1.67 million residents.

The District provides control for both disease carrying mosquitoes and non-disease carrying mosquitoes within its boundaries (the "Assessment Area" or "Assessment District"). The purpose of the Alameda County Mosquito Abatement District is to reduce the risk of mosquito-borne disease and mosquito nuisance to property and the inhabitants of property within the District. The District services are available to all properties within the established boundary of the District.

The District's core services are summarized as follows:

- Early detection of public health threats through comprehensive mosquito and disease surveillance.
- Elimination and control of mosquitoes to protect public health and to diminish the nuisance and harm caused by mosquitoes.
- Protection of public health by reducing mosquitoes or exposure to mosquitoes that transmit diseases on property
- Appropriate, timely response to customer requests to prevent/control mosquitoes and the diseases they can transmit.

The District currently provides a "baseline" level of mosquito and disease control services in the County. Over the past few years, costs of providing services have exceeded revenue, and without the additional assessment, services would have deteriorated. The services provided to the Assessment Area consist of maintaining the current level of services and in some cases expanded services, as listed below, above the existing baseline level of services.

The Assessment Area is narrowly drawn to include only properties that may request and/or receive direct and more frequent service, that are located within the scope of the mosquito surveillance area, that are located within flying or traveling distance of potential mosquito sources monitored by the District, and that will benefit from a reduction in the amount of mosquitoes reaching and impacting the property as a result of the enhanced mosquito surveillance and control. The Assessment Diagram included in this report shows the boundaries of the Assessment Area.

The following is an outline of the primary services, programs and related costs that are funded by the mosquito and disease control assessment:¹

- Mosquito control and abatement
- Surveillance for mosquito-borne diseases
- Mosquito inspections
- Response to service requests
- Mosquitofish for backyard fish ponds and other appropriate habitats
- Mosquito surveillance and disease testing
- Monitor mosquito populations and survey for mosquito-borne disease agents
- Upgrading of the equipment utilized by the District
- Presentations to schools and civic groups

This Engineer's Report ("Report") defines the benefit assessment, which provides funding for these improved mosquito and disease control services for property throughout the District, as well as related costs for equipment, capital improvements and services, facilities necessary and incidental to mosquito and disease control programs.

As used within this Report and the benefit assessment ballot proceeding, the following terms are defined:

"Vector" means any animal capable of transmitting the causative agent of human disease or capable of producing human discomfort or injury, including, but not limited to, mosquitoes, flies, mites, ticks, other arthropods, and small mammals and other vertebrates (Health and Safety Code Section 2002(k)).

"Vector Control" shall mean any system of public improvements or services that is intended to provide for the surveillance, prevention, abatement, and control of vectors as defined in subdivision (k) of Section

¹ The improved mosquito and disease prevention services materially increase the usefulness, utility, livability and desirability of properties in the Assessment Area.

2002 of the Health and Safety Code and a pest as defined in Section 5006 of the Food and Agricultural Code (Government Code Section 53750(m)).

The District is the only dedicated agency controlling mosquitoes in Alameda County. There are however, other agencies dedicated to the control of other types of vectors. In any case, the California Code sections and other applicable citations within this report pertain specifically to mosquito and disease control even when the term vector is used.

The District is controlled by Mosquito Abatement and Vector Control District Law of the State of California. Following are excerpts from the Mosquito Abatement and Vector Control District Law of 2002, codified in the Health and Safety Code, Section 2000, et. seq. which serve to summarize the State Legislature's findings and intent with regard to mosquito abatement and other vector control services:

2001. (a) The Legislature finds and declares all of the following:

(1) California's climate and topography support a wide diversity of biological organisms.

(2) Most of these organisms are beneficial, but some are vectors of human disease pathogens or directly cause other human diseases such as hypersensitivity, envenomization, and secondary infections.

(3) Some of these diseases, such as mosquito borne viral encephalitis, can be fatal, especially in children and older individuals.

(4) California's connections to the wider national and international economies increase the transport of vectors and pathogens.

(5) Invasions of the United States by vectors such as the Asian tiger mosquito and by pathogens such as the West Nile virus underscore the vulnerability of humans to uncontrolled vectors and pathogens.

(b) The Legislature further finds and declares:

(1) Individual protection against the vector borne diseases is only partially effective.

(2) Adequate protection of human health against vector borne diseases is best achieved by organized public programs.

(3) The protection of Californians and their communities against the discomforts and economic effects of vector borne diseases is an essential public service that is vital to public health, safety, and welfare.

(4) Since 1915, mosquito abatement and vector control districts have protected Californians and their communities against the threats of vector borne diseases.

(c) In enacting this chapter, it is the intent of the Legislature to create and continue a broad statutory authority for a class of special districts with the power to conduct effective programs for the surveillance, prevention, abatement, and control of mosquitoes and other vectors.

(d) It is also the intent of the Legislature that mosquito abatement and vector control districts cooperate with other public agencies to protect the public health, safety, and welfare. Further, the Legislature encourages

local communities and local officials to adapt the powers and procedures provided by this chapter to meet the diversity of their own local circumstances and responsibilities.

Further the Health and Safety Code, Section 2082 specifically authorizes the creation of benefit assessments for vector control, as follows:

(a) A district may levy special benefit assessments consistent with the requirements of Article XIID of the California Constitution to finance vector control projects and programs.

This Engineer's Report (Report") was prepared by SCI Consulting Group (SCI) to describe the mosquito, disease surveillance and control services and related costs that are funded by the assessments, to establish the estimated costs for those services, to determine the special benefits and general benefits received by property from the services and to apportion the assessments to lots and parcels within the District based on the estimated special benefit each parcel receives from the services funded by the benefit assessment.

Legislative Analysis

Proposition 218

This assessment was formed consistent with Proposition 218, The Right to Vote on Taxes Act, which was approved by the voters of California on November 6, 1996, and is now Article XIIC and XIID of the California Constitution. Proposition 218 provides for benefit assessments to be levied to fund the cost of providing services, improvements, as well as maintenance and operation expenses to a public improvement which benefits the assessed property.

Proposition 218 imposes a number of important requirements, including property-owner balloting, for the formation and continuation of assessments, and these requirements are satisfied by the process used to establish this assessment. When Proposition 218 was initially approved in 1996, it allowed for certain types of assessments to be "grandfathered" in, and these were exempted from the property-owner balloting requirement.

Beginning July 1, 1997, all existing, new, or increased assessments shall comply with this article. Notwithstanding the foregoing, the following assessments existing on the effective date of this article shall be exempt from the procedures and approval process set forth in Section 4:

(a) Any assessment imposed exclusively to finance the capital costs or maintenance and operation expenses for sidewalks, streets, sewers, water, flood control, drainage systems or vector control.

Mosquito and vector control was specifically “grandfathered in,” underscoring the fact that the drafters of Proposition 218 and the voters who approved it were satisfied that funding for mosquito and vector control is an appropriate use of benefit assessments, and therefore confers special benefit to property.

Silicon Valley Taxpayers Association, Inc. v Santa Clara County Open Space District (2008) 44 Cal.4th 431

On July 14, 2008, the California Supreme Court issued its ruling in *Silicon Valley Taxpayers Association, Inc. v. Santa Clara County Open Space District* (“*Silicon Valley*”). Several of the most important elements of the ruling are:

- Benefit assessments are for special, not general benefit
- The services and/or improvements funded by assessments must be clearly defined
- Special benefits are directly received by and provide a direct advantage to property in the Assessment District

This Engineer’s Report, and the process used to establish this assessment is consistent with the *Silicon Valley* decision.

Dahms v. Downtown Pomona Property (2009) 174 Cal.App.4th 708

On June 8, 2009, the Court of Appeal amended its original opinion upholding a benefit assessment for property in the downtown area of the City of Pomona. On July 22, 2009, the California Supreme Court granted review and transferred the case back to the Court of Appeal for reconsideration in light of the Supreme Court’s discussion in the *Silicon Valley* case. In *Dahms*, the Appellate Court then upheld the assessment that was 100% special benefit (i.e. 0% general benefit) holding that the services and improvements funded by the assessments were directly provided to property in the assessment District. The Court also upheld discounts and exemptions from the assessment for certain properties.

Bonander v. Town of Tiburon (2009) 46 Cal.4th 646

On December 31, 2009, the Court of Appeal overturned a benefit assessment approved by property owners to pay for placing overhead utility lines underground in an area of the Town of Tiburon. The Court invalidated the assessments on the grounds that the assessments had been apportioned to assessed property based in part on relative costs within sub-areas of the assessment district, instead of each individual property’s proportional special benefits.

Beutz v. County of Riverside (2010) 184 Cal.App.4th 1516

On May 26, 2010, the California Court of Appeal issued its decision in *Steven Beutz v. County of Riverside* (“*Beutz*”). This decision overturned an assessment for park maintenance in Wildomar, California, primarily because the general benefits associated with improvements and services were not explicitly calculated, quantified, and separated from the special benefits.

Golden Hill Neighborhood Association v. City of San Diego (2011)199 Cal.App.4th 416

On September 22, 2011, California Court of Appeal issued its decision in *Golden Hill Neighborhood Association v. City of San Diego*. This decision overturned an assessment for street and landscaping maintenance in the Greater Golden Hill neighborhood of San Diego, California. The court described two primary reasons for its decision. First, as in *Beutz*, the court found the general benefits associated with services were not explicitly calculated, quantified and separated from the special benefits. Second, the court found that the City had failed to document the basis for the assessment on city-owned parcels.

Compliance with Current Law

This Engineer’s Report is consistent with the requirements of Article XIIC and XIID of the California Constitution and with the *Silicon Valley* decision because the Services to be funded are clearly defined; the Services are available to and will be directly provided to all benefited property in the Assessment District; the Services provide a direct advantage to property in the Assessment District that would not be received in the absence of the Assessment.

This Report is consistent with *Dahms* because, similar to the *Downtown Pomona* assessment validated in *Dahms*, the Services will be directly provided to property in the Assessment District. While *Dahms* could be used as the basis for a finding of 0% general benefits, this Engineer’s Report establishes a more generous separation and quantification of general benefits.

This Report is also consistent with *Bonander* because the Assessment has been apportioned based on the overall cost of the services and proportional special benefit to each property. Furthermore, the Assessment is consistent with *Beutz* and *Golden Hill* because the general benefits have been explicitly calculated, quantified, and excluded from the Assessment.

Assessment Process

In order to allow property owners to ultimately decide whether additional funding should be provided for the District's mosquito and disease control services, the Board authorized by Resolution the Initiation of proceedings for a benefit assessment on February 13, 2008. In March and April of 2008, the District conducted an assessment ballot proceeding pursuant to the requirements of Article XIID of the California Constitution ("The Taxpayer's Right to Vote on Taxes Act") and the Government Code. During this ballot proceeding, property owners in the District were provided with a notice and ballot for the proposed special assessment. A 45-day period was provided for balloting and a public hearing was conducted on April 30, 2008.

It was determined after the conclusion of the public input portion of the public hearing that 70.19% of the weighted ballots returned were in support of the assessment. Since the assessment ballots submitted in opposition to the proposed assessments did not exceed the assessment ballots submitted in favor of the assessments (with each ballot weighted by the proportional financial obligation of the property for which ballot was submitted), the District gained the authority to approve the levy of the assessments for fiscal year 2008-09 and to continue to levy them in future years. The authority granted by the ballot proceeding includes an annual increase in the maximum authorized assessment rate equal to the annual change in the Consumer Price Index for the San Francisco Bay Area, not to exceed 3%. In the event that the annual change in the CPI exceeds 3%, any percentage change in excess of 3% can be cumulatively reserved and can be added to the annual change in the CPI for years in which the CPI change is less than 3%. The Board took action, by Resolution No.937-1 passed on May 14, 2008, to approve the levy of the assessments.

In each subsequent year for which the assessments will be levied, the Board must preliminarily approve an updated Engineer's Report for the upcoming fiscal year at a noticed public hearing. The Engineer's Report should include a budget for the upcoming fiscal year's costs and services and an updated assessment roll listing all parcels and their proposed assessments for the upcoming fiscal year.

Upon approval of the Engineer's Report and the assessments for fiscal year 2024-25, the assessments would be submitted to the County Auditor for inclusion on the property tax roll.

General Description of the District and Services

About the Mosquito Abatement District

The Alameda County Mosquito Abatement District (the “District”) is an independently funded public agency that controls and monitors mosquitoes and the diseases they carry in Alameda County. The District protects the usefulness, desirability and livability of property and the inhabitants of property within its jurisdictional area by controlling and monitoring disease-carrying and public nuisance mosquitoes. In addition, the District regularly tests for diseases carried by mosquitoes and educates property owners and the occupants of property in the District about how to protect themselves from mosquito-borne diseases.

The District staff consists of 18 employees including a General Manager, Field Operations Supervisor, Laboratory Director, Mechanical Specialist, Regulatory & Public Affairs Director, Information Technology Director, Financial & HR Specialist, Public Outreach Coordinator, six Vector Biologists, and two Mosquito Control Technicians, a Vector Scientist, Associate Vector Scientist, and seasonal staff.

The District is governed by the Alameda County Mosquito Abatement District Board of Trustees. The Board meetings are held at 5:00 p.m. on the second Wednesday of every month, and residents are welcome to attend.

Description of Mosquito Abatement Program

As mentioned earlier, the District currently provides a “baseline” level of services in the County as permitted with the limited funding available. The Assessment provides the additional funding to operate the program and expand the services provided in the Assessment Area to an optimum level necessary to protect the usefulness, utility, desirability and livability of property within its jurisdictional area.

Introduction

Following are the services and resulting level of service for the Assessment Area. As previously noted, the District provides a baseline level of service in the County. These services are over and above the current baseline level of service. The formula below describes the relationship between the final level of service, the existing baseline level of service, and the enhanced level of service to be funded by the assessment.

<i>Final Level of Service</i>	=	<i>Current Baseline Level of Service</i>	+	<i>Proposed Enhanced Level of Service</i>
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The assessment provides funding for the continuation and enhancement of the service, surveillance, disease prevention, abatement, and control of mosquitoes within the District boundaries. Such mosquito abatement and disease prevention projects and programs include, but are not limited to, source reduction, biological control, larvicide applications, adulticide applications, disease monitoring, public education, reporting, accountability, research and interagency cooperative activities, as well as capital costs, maintenance, and operation expenses (collectively “Services”). The cost of these Services also includes capital costs comprised of equipment, capital improvements and facilities and other expenses necessary and incidental to the mosquito control program.

Vectors and Vector-Borne Diseases in the District Service Area

Mosquitoes

Mosquitoes generally occur where there is adequate vegetation for harborage and where water is standing and/or stagnant. Although mosquitoes have seasonal cycles, some species reproduce continuously while conditions are suitable. The mosquito species listed in the table below can be generally described as floodwater, permanent water, and container-breeding mosquitoes and they are currently important in the District:

GENUS & SPECIES	LARVAL HABITAT	ABUNDANCE	HOSTS	DISEASE ASSOCIATIONS
<i>Aedes dorsalis</i> (Salt marsh mosquito)	Salt marshes	All year	Humans and other mammals	Serious Pest
<i>Aedes sierrensis</i> (Tree hole mosquito)	Tree holes, Tires, Miscellaneous Containers	Spring, Summer	Humans and other large mammals	Serious pest; Vector of Canine Heartworm
<i>Aedes squamiger</i> (Winter salt marsh mosquito)	Salt marshes	Spring	Humans and other large mammals	Serious pest
<i>Aedes washinoi</i> (Woodland pool mosquito)	Temporary woodland ponds	Spring, Summer	Humans and other large mammals	Serious Pest
<i>Anopheles freeborni</i> (Western malaria mosquito)	Seepages, Streams, Lakes, Gravel Pits	Summer	Humans and other large mammals	Vector of Malaria
<i>Anopheles punctipennis</i>	Cool, shaded grassy pools in creeks and lake seepages	Summer	Humans and other large mammals	Vector of Malaria

GENUS & SPECIES	LARVAL HABITAT	ABUNDANCE	HOSTS	DISEASE ASSOCIATIONS
<i>Culex erythrothorax</i> (Tule mosquito)	Ponds, lakes, marshes with tules and cattails	Spring, Summer	Humans, Other Mammals, and Birds	Serious Pest; Vector of Encephalitis
<i>Culex pipiens</i> (House mosquito)	Storm Drain Systems, Septic Tanks, Roadside Ditches, Utility	Spring, Summer, Fall, Winter	Humans, Other Mammals, and Birds	Serious Pest; Vector of Encephalitis, West Nile Virus
<i>Culex stigmatosoma</i> (Foul water mosquito)	Foul Water, Sewage, Temporary Pools	Spring, Summer, Fall, Winter	Birds	Vector of West Nile Virus
<i>Culex tarsalis</i> (Encephalitis mosquito)	Creeks, Marshes, Temporary Pools, Roadside Ditches, Fresh Water	Spring, Summer, Fall, Winter	Birds, humans, and other mammals	Moderate Pest; Vector of Encephalitis, West Nile Virus
<i>Culiseta incidens</i> (Fish pond mosquito)	Fish Ponds, Temporary Pools, Catch Basins, Roadside Ditches	Spring, Summer, Fall, Winter	Humans and other large mammals	Serious Pest; Possible Vector of Canine Heartworm
<i>Culiseta inornata</i> (Winter salt marsh mosquito)	Marshes, Temporary Pools, Roadside Ditches	Fall, Winter, Spring	Humans and other large mammals	Serious Pest

Mosquitoes that lay their eggs in damp soil that might be flooded several years later occupy floodwater habitats. Once the area floods, most of the eggs hatch, producing a large number of mosquitoes that emerge as adults around the same time. The District has several floodwater species of concern. These include all of the *Aedes* species. Floodwater mosquitoes are most active at dawn and dusk, but they also bite during the day. *Aedes dorsalis* and *Aedes squaminger* produce multiple generations due to recurring tidal and rainwater flooding and resulting in high abundance. These species are strong flyers that can travel many miles from their source.

Mosquitoes that lay their eggs on the surface of standing water occupy permanent water habitats. Such habitats include both temporary and long-lasting standing water. Eggs are laid while mosquitoes are active and usually hatch within two to three days. *Anopheles*, *Culex*, and *Culiseta* mosquitoes inhabiting the District breed in these types of sources and have multiple generations. All of these mosquitoes are active at dawn and dusk, but *Culex* and *Culiseta* will bite well into the night. *Anopheles* and *Culex erythrothorax* can also bite during the day under shade.

Outdoor containers that hold standing water are common mosquito habitats in Alameda County. Containers include naturally occurring holes in trees, discarded buckets, cans, jars and tires; neglected swimming pools, wading pools, spas and boats; ornamental ponds, bird baths, cemetery flower cups, crumpled plastic and plugged rain gutters. *Aedes sierrensis* breeds in many species of tree holes, especially oaks, sycamores and cottonwoods, but can also inhabit artificial containers full of leaf litter. Eggs are deposited above the water line and hatch after sufficient rain accumulates to reach them. *Ae. sierrensis* normally produces one generation per year. It is an aggressive biter and can reach great abundance locally but does not fly far.

Mosquito-transmitted diseases in the District are caused by several pathogens. These include the following viruses: St. Louis encephalitis (SLE), Western equine encephalitis (WEE) and West Nile virus (WNV); the protozoan parasite of malaria, *Plasmodium falciparum* or *P. vivax*; or the nematode parasite of canine heartworm, *Dirofilaria immitis*. This region has historically had sporadic detections of WEE and SLE, two arboviruses (arthropod-borne) that have been established in California for decades. Starting in 2004, WNV was found in wild birds, sentinel chicken flocks, mosquito pools and horses. To date there have been no human cases of West Nile Virus locally acquired in Alameda County.

Malaria is not locally transmitted in California at this time, but it used to be a major health problem in the Central Valley. Trappers, miners and other immigrants introduced malaria into California in the 1800's from areas where malaria was common. Effective mosquito control and drugs to cure malaria in humans led to the eradication of malaria in California in the 1950's. Consistent reintroduction by humans from areas where the disease is endemic creates a constant threat from malaria. In addition, some strains of malaria found in the world today are resistant to drugs that helped to eradicate the disease in the 1950's. The mosquitoes that can spread malaria are still abundant in our region and are capable of redistributing this serious health threat if the virus should somehow be reintroduced to the area.

Canine heartworm is a disease that infects wild and domestic dogs and occasionally cats. Although it can be life-threatening, pet owners can protect their animals by giving them medicine that kills the parasites. Heartworm medication is available through veterinary facilities.

Mosquito-borne diseases of most concern in the District are: Western equine encephalitis (WEE), St. Louis encephalitis (SLE), West Nile virus (WNV), and malaria, which are all transmitted by indigenous mosquitoes and for which no human vaccines exist. Vaccines are available to protect horses from WEE and WNV. Among the principal threats to which the Alameda County Mosquito Abatement District currently responds are:

- Human and animal diseases associated with mosquitoes
- Annoyance and economic disruption caused by mosquitoes
- Potential introduction of invasive mosquito species and/or diseases.

Integrated Pest Management

As noted, the District's services address several types of mosquitoes and share general principles and policies. These include the identification of mosquito problems; responsive actions to control existing populations of mosquitoes, prevention of new sources of mosquitoes from developing, and the management of habitat in order to minimize mosquito production; education of land-owners and others on measures to minimize interaction with mosquitoes; and provision and administration of funding and institutional support necessary to accomplish these goals.

In order to accomplish effective and environmentally sound mosquito management, control of mosquitoes must be based on careful surveillance of their abundance, habitat (potential abundance), pathogen load, and potential contact with people and animals; the establishment of treatment criteria (thresholds); and appropriate selection from a wide range of control methods. This dynamic combination of surveillance, treatment criteria, and use of multiple control activities in a coordinated program is generally known as Integrated Pest Management (IPM).

The Alameda County Mosquito Abatement District's Mosquito Management Program, like any other IPM program, involves procedures for minimizing potential environmental impacts. The District employs IPM principles by first determining the species and abundance of mosquitoes through evaluation of public service requests and field surveys, trapping of immature and adult pest populations, and, if the populations exceed predetermined criteria, using the most efficient, effective, and environmentally sensitive means of control. For all mosquito species, public education is an important control strategy. In appropriate situations, water management or other physical control activities (historically known as "source reduction" or "physical control") can be instituted to reduce mosquito-breeding sites. The District also uses biological control such as the stocking of mosquitofish in ornamental ponds, unused swimming pools and other artificial water bodies. When these approaches are not effective or are otherwise inappropriate, materials that have been, approved and labeled by the U.S. Environmental Protection Agency and the California Department of Pesticide Regulation are used to treat specific pest-producing or pest-harboring areas. The District chooses materials that are highly specific, have the lowest impact on nontargets, selectively applied to places where mosquitoes occur. These materials are considerably more expensive than less specific pesticides and are labor intensive to apply.

The District's approach is organized into two principle sections to accomplish IPM. First, the administrative element provides leadership, expertise, public relations/education, and interface with other governmental authorities. Second, the operational and laboratory sections include technicians that perform IPM in the field. The technicians perform control and surveillance functions by responding to complaints from individual residents and by extensive examination of aquatic sites for mosquito larvae. The technicians and lab staff also monitor the treated areas to be sure that their control efforts have been successful.

The District has the capability of applying liquid and granular larvicides to treat sources of immature mosquitoes and aerosolized adulticides for area treatment of adult mosquitoes. Adulticiding is used to reduce significant populations of adult mosquitoes and to prevent or to reduce the spread of mosquito-borne disease in the environment.

Applications are made by personnel licensed by the California Department of Public Health (or under the direct supervision of certified personnel) who are trained in the proper use of the products and specialized equipment used for this type of public health pest control. All insecticide products employed by the District are used with consideration of existing environmental conditions in order to minimize the impact on non-target organisms.

General Surveillance and Control Procedures

Surveillance: Surveillance of mosquitoes in the District is accomplished by a combination of methods. First, technicians actively examine potential sites by sampling water, collecting larvae, and identifying the larvae to species. Second, a variety of trap types are placed throughout the District for collecting adult mosquitoes (e.g. visual attractant Fay-Prince and New Jersey Light traps to monitor male and female mosquito abundance, and carbon dioxide- or human scent baited traps that attract host-seeking females or the eggs deposited by mosquitoes (e.g. ovitrap cups). The traps are set throughout the year, and the collected mosquitoes or eggs are enumerated and identified to species for adults and at least to genus for eggs. The majority of the collected mosquitoes that can transmit WNV, SLE or WEE are tested for the presence of these viruses. Finally, individual residents and property owners call the District directly to report mosquitoes or to provide information about the locations of standing water that could produce mosquitoes.

Mosquito sources are scattered throughout the District. All properties within the District are within mosquito-flying range of one or more mosquito sources. Alameda County has 22 species of mosquitoes, each with a unique breeding source, and several of which are capable of vectoring diseases to humans and animals.

Mosquito populations are surveyed using a variety of field methods and traps. Surveillance is conducted in a manner based upon an equal spread of resources throughout the District boundaries, focusing on areas of likely sources. Treatment strategies are based upon the results of the surveillance program, and are specifically designed for individual areas. The surveillance traps are located and spread throughout the District in a balanced approach such that the traps measure mosquito levels throughout the District.

Viruses transmitted by mosquitoes are surveyed by testing mosquito vectors, and bird or mammal reservoirs, for WNV, SLE and WEE. The Davis Arbovirus Research and Training Lab at UC Davis or the Mosquito Lab at the District headquarters tests mosquitoes, birds or mammals using quantitative reverse transcription polymerase chain reaction or an immunoassay. The District participates in the statewide dead bird surveillance program for WNV, responding to reports of dead birds from the public and testing these birds deemed appropriate. Various County, State and private laboratories throughout California and elsewhere test humans and horses for WNV. DPH obtains and compiles results from all testing facilities and reports them to the appropriate local mosquito control agencies.

Control: The District's objective is to provide the properties a District-wide level of consistent mosquito control such that all properties would benefit from equivalent reduced levels of mosquitoes. Surveillance and monitoring are provided on a District-wide basis. The District, though, cannot predict where control measures will be applied because the type and location of control depends on the surveillance and monitoring results. However, the control thresholds and objectives are comparable throughout the District.

The District uses several techniques to control mosquito larvae and pupae (immatures), including biological, chemical, and physical control. The District uses the mosquitofish, *Gambusia affinis*, for biological control. These mosquito-eating fish work particularly well during warm months in a variety of permanent water sources. Artificial water sources are stocked at the request of the property resident or in other situations where biological control is judged to be the best action to be taken. Other methods of biological control include the use of mosquito pathogens, parasites and predators.

Chemical control agents employed by the District to control immature mosquitoes include stomach toxins bacterial derived control agents, insect growth regulators (IGR's) and other contact pesticides. Stomach toxins are products of natural bacteria that are commercially manufactured and formulated as bacterial larvicides. The District employs two agents, *Bacillus thuringiensis israelensis* (Bti) and *Bacillus sphaericus* (Bs).

The spores of these bacteria can be applied as either a liquid or a granule. The stomach toxin is activated after the spores are eaten by larvae, restricting use of these agents to the feeding stages of larval development. Bti has the advantage of specificity, only affecting mosquitoes and related groups of flies. Bs has the added advantage over Bti of effectively controlling larvae in highly polluted water and sometimes reproducing, extending the duration of its effectiveness. Another product utilized by ACMAD is Spinosad, derived from the fermentation of the naturally occurring soil bacterium, *Saccharopolyspora spinosa*. It causes the excitation of the mosquito nervous system, ultimately leading to paralysis and death. Its action on the target organism is either by contact or by ingestion. This product can be applied in liquid or granular formulations.

The IGR used by the District is methoprene. Methoprene mimics a natural insect hormone that prevents successful development of larvae. It is available as a short-lived liquid and longer-acting granules and briquets. The product is absorbed into the larva, disrupting the hormone system and preventing successful completion of the life cycle. Methoprene must be applied prior to development of fourth instar larvae to ensure effectiveness. This product can be applied in liquid or granular formulation.

Additionally, the District uses surface active agents to control immature mosquitoes. The surface active agent is an oil combined with surfactants. Surface agents are effective against immature mosquitoes when inhaled at the water surface or by physically forming a surface film that drowns the mosquito. Surface active agents have the advantage of killing both larvae and pupae and are used in situations where other materials will not work.

Chemical control agents employed by the District to control adult mosquitoes contain pyrethrin, a natural plant-based insecticide, or pyrethroids, synthetic analogues of pyrethrin. These products provide rapid knockdown and kill of adult mosquitoes.

The District uses physical control as required; its application can temporarily or permanently alter habitats so that they do not produce mosquitoes. Technicians are educated to use physical control when it is appropriate. Examples of physical control include clearing vegetation around pond or stream banks, improving drainage by maintenance and debris removal from channels and waterways, removing water from containers, and providing access for other types of control work. All physical control and source reduction activities are accomplished in a way that does not impact mature trees, threatened or endangered species, or sensitive habitat areas.

Monitoring: For the most part, monitoring is the continuation of surveillance activities. District personnel specifically check treatment sites to be sure that applications were successful. In addition to physically checking the site, traps can be utilized to evaluate the success of the program.

Public Relations, Outreach, and Education

The public health risks of West Nile Virus mosquito-borne diseases create a need for regular and extensive media contacts, outreach and education. This includes making press releases, publishing brochures, responding to requests for interviews from all media, informing other government agencies, and giving presentations. The District participates in a wide variety of special events including Home and Garden shows, the Alameda Country Fair, government information events, “Bug Days” at nature centers, or presentations to garden clubs, city councils, etc.

The District maintains a web site to provide mosquito control and related information on the internet. The District web site address is www.mosquitoes.org. The District has most of its publications on the site, Board of Trustee documents (agendas, minutes, financial, laboratory, and operational reports), specialized technical information (mosquito biology, mosquito-borne diseases, and technical reports), press releases, upcoming events, and additional general information about District services and links to other related web sites.

The District currently interacts professionally at many levels with other agencies. The District is a member of the Mosquito and Vector Control Association of California (MVCAC); employees attend meetings at both the regional and state level. District employees also attend and receive periodic continuing education programs designed to reinforce surveillance and control protocols and learn about new and emerging technologies. The District is a member of the American Mosquito Control Association; District staff participates in national programs relating to mosquito and disease control. The District is also an active member in the California Special Districts Association (CSDA), the Entomological Society of America (ESA), and the Society of Vector Ecologists (SOVE).

Research and Testing

The District cooperates with and conducts research in collaboration with other academic and government agencies located in California (e.g. University of California and California State University). The outcomes of this research presented at scientific conferences and published in scientific journals.

Service Requests

The District responds to service requests within its boundaries. Any property owner, business or resident in the District may contact the District to request mosquito control related service or inspection and a District field technician will respond promptly to the particular property to evaluate the property and situation and to perform appropriate surveillance and control services. The District responds to all service requests in a timely manner, (typically, within 24 hours), regardless of location, within its boundaries.

Estimate of Cost

Figure 1 – Cost Estimate – FY 2024-25

Alameda County Mosquito Abatement District	
Mosquito and Disease Control Assessment	
Mosquito Control Services and Related Expenditures	
Mosquito Control and Disease Prevention Operations	\$4,171,346
Materials, Utilities and Supplies ¹	\$1,250,523
Capital Expenditures	\$485,000
Contingency	\$40,000
Total Mosquito Control Services and Related Expenditures	\$5,946,869
Total Benefits of Mosquito and Disease Control	\$5,946,869
Single Family Equivalent Units (SFEs)	472,859
Benefit Received per SFE Unit	\$12.58
Less	
Contributions from Other Sources²	
Revenue from property taxes/ other sources	(\$4,764,721)
Total Mosquito & Disease Control Services and Incidentals	\$1,182,148
Budget Allocation to Property	
Total Assessment Budget³	\$1,182,148
	Total SFE Units ⁴ 472,859
	Assessment Rate per SFE⁵ \$2.50

Consolidated ER Notes:

1. Includes assessment administration costs including county collection charges for placement on the annual property tax bills.
2. Contributions from other sources to cover the costs of any general benefits and special benefits not funded by the assessments.
3. The assessment amounts are rounded down to the even penny for purposes of complying with the collection requirements from the County Auditor. Therefore, the total assessment amount for all parcels subject to the assessments may vary slightly from the net amount to be assessed.
4. SFE Units means Single Family Equivalent Benefit Units. See method of assessment in the following Section for further definition.
5. The assessment rate per SFE is the total amount of assessment per Single Family Equivalent benefit unit.

Method of Assessment

This section of the Report explains the benefits to be derived from the Services provided for property in the District, and the methodology used to apportion the total assessment to properties within the Mosquito and Disease Control Assessment area.

The Mosquito and Disease Control Assessment area consists of the Assessor Parcels within the Alameda County Mosquito Abatement District.

The method used for apportioning the assessment is based upon the proportional special benefits to be derived by the properties in the District over and above general benefits conferred on real property in the Assessment District. Special benefit is calculated for each parcel in the Assessment District using the following process:

1. Identification of total benefit to the properties derived from the Services
2. Calculation of the proportion of these benefits that are special vs. general
3. Determination of the relative special benefit within different areas within the Assessment District
4. Determination of the relative special benefit per property type and property characteristic
5. Calculation of the specific assessment for each individual parcel based upon special vs. general benefit; location, property type and property characteristics

Discussion of Benefit

In summary, the assessments can only be levied based on the special benefit to property. This benefit is received by property over and above any general benefits. This special benefit is received by property over and above any general benefits from the additional Services. With reference to the engineering requirements for property related assessments, under Proposition 218 an Engineer must determine and prepare a report evaluating the amount of special and general benefit received by property within the Assessment District as a result of the improvements or services provided by a local agency. That special benefit is to be determined in relation to the total cost to that local entity of providing the service and/or improvements.

Proposition 218 as described in Article XIID of the California Constitution has confirmed that assessments must be based on the special benefit to property:

"No assessment shall be imposed on any parcel which exceeds the reasonable cost of the proportional special benefit conferred on that parcel."

The below benefit factors, when applied to property in the Assessment Area, confer special benefits to property and ultimately improve the safety, utility, functionality and usability of property in the Assessment Area. These are special benefits to property in the Assessment Area in much the same way that storm drainage, sewer service, water service, lighting, sidewalks and paved streets enhance the safety, utility and functionality of each parcel of property served by these improvements, providing them with more utility of use and making them safer and more usable for occupants.

It should also be noted that Proposition 218 included a requirement that existing assessments in effect upon its effective date were required to be confirmed by either a majority vote of registered voters in the Assessment Area, or by weighted majority property owner approval using the new ballot proceeding requirements. However, certain assessments were excluded from these voter approval requirements. Of note is that in California Constitution Article XIII D Section 5(a) this special exemption was granted to assessments for sidewalks, streets, sewers, water, flood control, drainage systems and vector control. The Howard Jarvis Taxpayers Association explained this exemption in their Statement of Drafter's Intent:

"This is the "traditional purposes" exception. These existing assessments do not need property owner approval to continue. However, future assessments for these traditional purposes are covered."²

Therefore, the drafters of Proposition 218 acknowledged that mosquito control assessments were a "traditional" and therefore acknowledged and accepted use.

Since all assessments, existing before or after Proposition 218 must be based on special benefit to property, the drafters of Proposition 218 inherently found that mosquito and disease control services confer special benefit on property. Moreover, the statement of drafter's intent also acknowledges that any new or increased mosquito control assessments after the effective date of Proposition 218 would need to comply with the voter approval requirements it established. This is as an acknowledgement that additional assessments for such "traditional" purposes would be established after Proposition 218 was in effect. Therefore, the drafters of Proposition 218 clearly recognized mosquito and

² Howard Jarvis Taxpayers Association, "Statement of Drafter's Intent", January 1997.

disease control assessments as a “traditional” use of assessments, acknowledged that new mosquito and disease assessments may be formed after Proposition 218 and inherently were satisfied that mosquito control services confer special benefit to properties.

The Legislature also made a specific determination after Proposition 218 was enacted that mosquito control services constitute a proper subject for special assessment. Health and Safety Code section 2082, which was signed into law in 2002, provides that a district may levy special assessments consistent with the requirements of Article XIID of the California Constitution to finance mosquito and disease control projects and programs. The intent of the Legislature to allow and authorize benefit assessments for mosquito and disease control services after Proposition 218 is shown in the Assembly and Senate analysis the Mosquito Abatement and Vector Control District Law where it states that the law:

Allows special benefit assessments to finance vector control projects and programs, consistent with Proposition 218.³

Therefore, the State Legislature unanimously found that mosquito and disease control services are a valuable and important public service that can be funded by benefit assessments. To be funded by assessments, mosquito and disease control services must confer special benefit to property.

Mosquito and Disease Control Is a Special Benefit to Properties

As described below, this Engineer’s Report concludes that mosquito and disease control is a special benefit that provides direct advantages to property in the Assessment District. For example, the assessment provides reduced levels of mosquitoes on property throughout the Assessment District. Moreover, the assessment will reduce the risk of the presence of diseases on property throughout the Assessment District, which is another direct advantage received by property in the Assessment District. Moreover, the assessment funds Services that improve the use of property and reduce the nuisance and harm created by mosquitoes on property throughout the Assessment District. These are tangible and direct special benefits that are received by property throughout the specific area covered by the Assessment.

The following section, Benefit Factors, describes how and why mosquito control services specially benefit properties in the Assessment Area. These benefits are particular and distinct from its effect on property in general or the public at large.

³ Senate Bill 1588, Mosquito Abatement and Vector Control District Law, Legislative bill analysis

Benefit Factors

In order to allocate the assessments, the Engineer identified the types of special benefit arising from the aforementioned mosquito and disease control Services and that would be provided to property within the District. The following benefit factors have been established that represent the types of special benefit to parcels resulting from the Services financed with the assessment proceeds. These types of special benefit are as follows:

Reduced mosquito populations on property and as a result, enhanced desirability, utility, usability and functionality of property in the Assessment District.

The assessments provide enhanced services for the control and abatement of nuisance and disease-carrying mosquitoes. These Services will materially reduce the number of mosquitoes on properties throughout the Assessment District. The lower mosquito populations on property in the Assessment District is a direct advantage to property that will serve to increase the desirability and “usability” of property. Clearly, properties are more desirable and usable in areas with lower mosquito populations and with a reduced risk of mosquito-borne disease. This is a special benefit to residential, commercial, agricultural, industrial and other types of properties because all such properties will directly benefit from reduced mosquito populations and properties with lower mosquito populations are more usable, functional and desirable.

Excessive mosquitoes in the area can materially diminish the utility and usability of property. For example, prior to the commencement of mosquito control and abatement services, properties in many areas in the State were considered to be nearly uninhabitable during the times of year when the mosquito populations were high.⁴ The prevention or reduction of such diminished utility and usability of property caused by mosquitoes is a clear and direct advantage and special benefit to property in the Assessment District.

The State Legislature made the following finding on this issue:

“Excess numbers of mosquitoes and other vectors spread diseases of humans, livestock, and wildlife, reduce enjoyment of outdoor living

⁴ Prior to the commencement of modern mosquito control services, areas in the State of California such as the Alameda County, San Mateo Peninsula, Napa County, Lake County and areas in Marin and Sonoma Counties had such high mosquito populations that they were considered to be nearly unlivable during certain times of the year and were largely used for part-time vacation cottages that were occupied primarily during the months when the natural mosquito populations were lower.

spaces, both public and private, reduce property values, hinder outdoor work, reduce livestock productivity; and mosquitoes and other vectors can disperse or be transported long distances from their sources and are, therefore, a health risk and a public nuisance; and professional mosquito and vector control based on scientific research has made great advances in reducing mosquito and vector populations and the diseases they transmit.”⁵

Mosquitoes emerge from sources throughout the Assessment District, and with an average flight range of two miles, mosquitoes from known sources can reach all properties in the Assessment District. These sources include standing water in rural areas, such as marshes, pools, wetlands, ponds, drainage ditches, drainage systems, tree holes and other removable sources such as old tires and containers. The sources of mosquitoes also include numerous locations throughout the urban areas in the Assessment District. These sources include underground drainage systems, containers, unattended swimming pools, leaks in water pipes, tree holes, flower cups in cemeteries, over-watered landscaping and lawns and many other sources. By controlling mosquitoes at known and new sources, the Services will materially reduce mosquito populations on property throughout the Assessment District.

A recently increasing source of mosquitoes is unattended swimming pools:

“Anthropogenic landscape change historically has facilitated outbreaks of pathogens amplified by peridomestic vectors such as Cx. pipiens complex mosquitoes and associated commensals such as house sparrows. The recent widespread downturn in the housing market and increase in adjustable rate mortgages have combined to force a dramatic increase in home foreclosures and abandoned homes and produced urban landscapes dotted with an expanded number of new mosquito habitats. These new larval habitats may have contributed to the unexpected early season increase in WNV cases in Bakersfield during 2007 and subsequently have enabled invasion of urban areas by the highly competent rural vector Cx. tarsalis. These factors can increase the spectrum of competent avian hosts, the efficiency of enzootic amplification, and the risk for urban epidemics.”⁶

⁵ Assembly Concurrent Resolution 52, chaptered April 1, 2003

⁶ Riesen William K. (2008). Delinquent Mortgages, Neglected Swimming Pools, and West Nile Virus, California. Emerging Infectious Diseases. Vol. 14(11).

Increased safety of property in the Assessment District.

The Assessments result in improved year-round proactive Services to control and abate mosquitoes that otherwise would occupy properties throughout the Assessment District. Mosquitoes are transmitters of diseases, so the reduction of mosquito populations makes property safer for use and enjoyment. In absence of the assessments, these Services would not be provided, so the Services funded by the assessments make properties in the Assessment District safer, which is a distinct special benefit to property in the Assessment District.⁷ This is not a general benefit to property in the Assessment District or the public at large because the Services are tangible mosquito and disease control services that are provided directly to the properties in the Assessment District and the Services are over and above what otherwise would be provided by the District or any other agency.

This finding was confirmed in 2003 by the State Legislature:

“Mosquitoes and other vectors, including but not limited to, ticks, Africanized honey bees, rats, fleas, and flies, continue to be a source of human suffering, illness, death, and a public nuisance in California and around the world. Adequately funded mosquito and vector control, monitoring and public awareness programs are the best way to prevent outbreaks of West Nile Virus and other diseases borne by mosquitoes and other vectors.”⁸

Also, the Legislature, in Health and Safety Code Section 2001, finds that:

“The protection of Californians and their communities against the discomforts and economic effects of vectorborne diseases is an essential public service that is vital to public health, safety, and welfare.”

Reductions in the risk of new diseases and infections on property in the Assessment District.

Mosquitoes have proven to be a major contributor to the spread of new diseases such as West Nile Virus, among others. A highly mobile population combined with migratory bird patterns can introduce new mosquito-borne diseases into previously unexposed areas.

⁷ By reducing the risk of disease and increasing the safety of property, the Services will materially increase the usefulness and desirability of certain properties in the Assessment Area.

⁸ Assembly Concurrent Resolution 52, chaptered April 1, 2003

“Vector-borne diseases (including a number that are mosquito-borne) are a major public health problem internationally. In the United States, dengue and malaria are frequently brought back from tropical and subtropical countries by travelers or migrant laborers, and autochthonous transmission of malaria and dengue occasionally occurs. In 1998, 90 confirmed cases of dengue and 1,611 cases of malaria were reported in the USA and dengue transmission has occurred in Texas.”⁹

“During 2004, 40 states and the District of Columbia (DC) have reported 2,313 cases of human WNV illness to CDC through ArboNET. Of these, 737 (32%) cases were reported in California, 390 (17%) in Arizona, and 276 (12%) in Colorado. A total of 1,339 (59%) of the 2,282 cases for which such data were available occurred in males; the median age of patients was 52 years (range: 1 month--99 years). Date of illness onset ranged from April 23 to November 4; a total of 79 cases were fatal.”¹⁰ (According to the Centers for Disease Control and Prevention on January 19, 2004, a total of 2,470 human cases and 88 human fatalities from WNV have been confirmed).

A study of the effect of aerial spraying conducted by the Sacramento-Yolo Mosquito and Vector Control District (SYMVCD) to control a West Nile Virus disease outbreak found that the SYMVCD’s mosquito control efforts materially decreased the risk of new diseases in the treated areas:

After spraying, infection rates decreased from 8.2 (95% CI 3.1–18.0) to 4.3 (95% CI 0.3–20.3) per 1,000 females in the spray area and increased from 2.0 (95% CI 0.1–9.7) to 8.7 (95% CI 3.3–18.9) per 1,000 females in the untreated area. Furthermore, no additional positive pools were detected in the northern treatment area during the remainder of the year, whereas positive pools were detected in the untreated area until the end of September (D.-E.A. Elnaiem, unpub. data). These independent lines of evidence corroborate our conclusion that actions taken by SYMVCD were effective in disrupting the WNV transmission cycle and reducing human illness and potential deaths associated with WNV.¹¹

⁹ Rose, Robert. (2001). Pesticides and Public Health: Integrated Methods of Mosquito Management. Emerging Infectious Diseases. Vol. 7(1); 17-23.

¹⁰ Center for Disease Control. (2004). West Nile Virus Activity --- United States, November 9--16, 2004. Morbidity and Mortality Weekly Report. 53(45); 1071-1072.

¹¹ Carney, Ryan. (2008), Efficiency of Aerial Spraying of Mosquito Adulticide in Reducing the Incidence of West Nile Virus, California, 2005. Emerging Infectious Diseases, Vol 14(5)

The Services funded by the assessments help prevent on a year-round basis the presence of mosquito-borne diseases on property in the Assessment District. This is another tangible and direct special benefit to property in the Assessment District that would not be received in absence of the assessments.

Protection of economic activity on property in the Assessment District.

As demonstrated by the SARS outbreak in China and outbreaks of Avian Flu, outbreaks of pathogens can materially and negatively impact economic activity in the affected area. Such outbreaks and other public health threats can have a drastic negative effect on tourism, business and residential activities in the affected area. The assessments help to prevent the likelihood of such outbreaks in the District.

Mosquitoes hinder, annoy and harm residents, guests, visitors, farm workers, and employees. A mosquito-borne disease outbreak and other related public health threats would have a drastic negative effect on agricultural, business and residential activities in the Assessment District.

The economic impact of diseases is well documented. According to a study prepared for the Centers for Disease Control and Prevention, economic losses due to the transmission of West Nile Virus in Louisiana was estimated to cost over \$20 million over approximately one year:

*The estimated cost of the Louisiana epidemic was \$20.1 million from June 2002 to February 2003, including a \$10.9 million cost of illness (\$4.4 million medical and \$6.5 million nonmedical costs) and a \$9.2 million cost of public health response. These data indicate a substantial short-term cost of the WNV disease epidemic in Louisiana.*¹²

Moreover, a study conducted in 1996-97 of La Crosse Encephalitis (LACE), a human illness caused by a mosquito-transmitted virus, found a lifetime cost per human case at \$48,000 to \$3,000,000 and found that the disease significantly impacted lifespans of those who were infected. Following is a quote from the study which references the importance and value of active mosquito control services of the type that would be funded by the assessments:

¹² Zohrabian A, Meltzer MI, Ratard R, Billah K, Molinari NA, Roy K, et al. West Nile Virus economic impact, Louisiana, 2002. Emerging Infectious Disease, 2004 Oct. Available from <http://www.cdc.gov/ncidod/EID/vol10no10/03-0925.htm>

*The socioeconomic burden resulting from LACE is substantial, which highlights the importance of the illness in western North Carolina, as well as the need for active surveillance, reporting, and prevention programs for the infection.*¹³

The Services funded by the assessments help prevent the likelihood of such outbreaks on property in the Assessment District and will reduce the harm to economic activity on property caused by existing mosquito populations. This is another direct advantage received by property in the Assessment District that would not be received in absence of the assessments.

Protection of Assessment District's agriculture, tourism, and business industries.

The agriculture, tourism and business industries will benefit from reduced levels of harmful or nuisance mosquitoes. Conversely, any outbreaks of emerging mosquito-borne pathogens such as West Nile Virus could also materially negatively affect these industries. Diseases transmitted by mosquitoes can adversely impact business and recreational functions.

*A study prepared for the United States Department of Agriculture in 2003 found that over 1,400 horses died from West Nile Virus in Colorado and Nebraska and that these fatal disease cases created over \$1.2 million in costs and lost revenues. In addition, horse owners in these two states spent over \$2.75 million to vaccinate their horses for this disease. The study states that "Clearly, WNV has had a marked impact on the Colorado and Nebraska equine industry."*¹⁴

*Pesticides for mosquito control impart economic benefits to agriculture in general. Anecdotal reports from farmers and ranchers indicate that cattle, if left unprotected, can be exsanguinated by mosquitoes, especially in Florida and other southeast coastal areas. Dairy cattle produce less milk when bitten frequently by mosquitoes*¹⁵

¹³ Utz, J. Todd, Apperson, Charles S., Maccormack, J. Newton, Salyers, Martha, Dietz, E. Jacquelin, Mcpherson, J. Todd, Economic And Social Impacts Of La Crosse Encephalitis In Western North Carolina, Am J Trop Med Hyg 2003 69: 509-518

¹⁴ S. Geiser, A. Seitzinger, P. Salazar, J. Traub-Dargatz, P. Morley, M. Salman, D. Wilmot, D. Steffen, W. Cunningham, Economic Impact of West Nile Virus on the Colorado and Nebraska Equine Industries: 2002, April 2003, Available from

http://www.aphis.usda.gov/vs/ceah/cnabs/nahms/equine/wnv2002_CO_NB.pdf

¹⁵ Jennings, Allen. (2001). USDA Letter to EPA on Fenthion IRED. United States Department of Agriculture, Office of Pest Management Policy. March 8, 2001.

The assessments serve to protect the businesses and industries and the employees and residents that benefit from these businesses and industries. This is a direct advantage and special benefit to property in the Assessment District.

Reduced risk of nuisance and liability on property in the Assessment District.

In addition to mosquito-borne disease risks, uncontrolled mosquito populations create a nuisance and health risk (e.g. allergic reactions, secondary infections from mosquito bites) for the occupants of property in the Assessment District. Properties in the Assessment District, therefore, benefit from the reduced nuisance factor that is created by the Services. Agricultural and rangeland properties also benefit from the reduced nuisance factor and harm to livestock and employees from lower mosquito populations.

Agricultural, range, golf course, cemetery, open space and other such lands in the Assessment District contain large areas of mosquito habitat and are therefore a significant source of mosquito populations. In addition, residential and business properties in the Assessment District can also contain significant sources.¹⁶ It is conceivable that sources of mosquitoes could be held liable for the transmission of diseases or other harm. According to CA Health and Safety Code 2061:

2061 (a) Whenever a public nuisance exists on any property within a district or on any property that is located outside the district from which vectors may enter the district, the board of trustees may notify the owner of the property of the existence of the public nuisance.

(b) The notice required by subdivision (a) shall do all of the following:

(1) State that a public nuisance exists on the property, describe the public nuisance, and describe the location of the public nuisance on the property.

(2) Direct the owner of the property to abate the nuisance within a specified time.

(3) Direct the owner of the property to take any necessary action within a specified time to prevent the recurrence of the public nuisance.

(4) Inform the owner of the property that the failure to comply with the requirements of the notice within the specified times may result in the district taking the necessary actions, and that the owner shall be liable for paying the costs of the district's actions.

(5) Inform the owner of the property that the failure to comply with the requirements of the notice within the specified times may result in the

¹⁶ Sources of mosquitoes on residential, business, agricultural, range and other types of properties include removable sources such as containers that hold standing water.

*imposition of civil penalties of up to one thousand dollars (\$1,000) per day for each day that the public nuisance continues after the specified times.
(6) Inform the owner of the property that before complying with the requirements of the notice, the owner may appear at a hearing of the board of trustees at a time and place stated in the notice.*

The Services serve to protect the businesses and industries in the Assessment District. This is a direct advantage and a special benefit to property in the Assessment District.

Improved marketability of property.

As described previously, the Services specially benefit properties in the Assessment District by making them more useable, livable and functional. The Services also make properties in the Assessment District more desirable, and more desirable properties also benefit from improved marketability. This is another tangible and direct special benefit to property which will not be enjoyed in absence of the Services.¹⁷

Benefit Finding

In summary, the special benefits described in this Report and the expansion of Services in the Assessment District directly benefit and protect the real properties in the Abatement District in excess of the assessments for these properties. Therefore, the assessment engineer finds that the cumulative special benefits to property from the Services are reasonably equal to or greater than the annual assessment amount per benefit unit.

General Versus Special Benefit

Article XIII C of the California Constitution requires any local agency proposing to increase or impose a benefit assessment to “separate the general benefits from the special benefits conferred on a parcel.” The rationale for separating special and general benefits is to ensure that property owners subject to the benefit assessment are not paying for general benefits. The assessment can fund the special benefits to property in the Assessment Area but cannot fund any general benefits. Accordingly, a separate estimate of the special and general benefit is given in this section.

¹⁷ If one were to compare two hypothetical properties with similar characteristics, the property with lower mosquito infestation and reduced risk of mosquito-borne disease will clearly be more desirable, marketable, and usable.

In other words:

$\textit{Total Benefit} = \textit{General Benefit} + \textit{Special Benefit}$
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There is no widely-accepted or statutory formula for general benefit from mosquito and disease control services. General benefits are benefits from improvements or services that are not special in nature, are not “particular and distinct” and are not “over and above” benefits received by other properties. General benefits are conferred to properties located “in the district,¹⁸” but outside the narrowly-drawn Assessment District and to “the public at large.” *Silicon Valley* provides some clarification by indicating that general benefits provide “an indirect, derivative advantage” and are not necessarily proximate to the improvements and services funded by the assessments.

A formula to estimate the general benefit is listed below:

$\begin{aligned} & 1.) \textit{Benefit to Real Property Outside the Assessment District} \\ + & 2.) \textit{Benefit to Real Property Inside the Assessment District that is} \\ & \textit{Indirect and Derivative} \\ + & 3.) \textit{Benefit to the Public at Large} \\ \hline = & \textit{General Benefit} \end{aligned}$

¹⁸ *Silicon Valley* explains as follows:

OSA observes that Proposition 218’s definition of “special benefit” presents a paradox when considered with its definition of “district.” Section 2, subdivision (i) defines a “special benefit” as “a particular and distinct benefit over and above general benefits conferred on real property located in the district or to the public at large.” (Art. XIII D, § 2, subd. (i), italics added.) Section 2, subdivision (d) defines “district” as “an area determined by an agency to contain all parcels which will receive a special benefit from a proposed public improvement or property-related service.” (Art. XIII D, § 2, subd. (d), italics added.) In a well-drawn district — limited to only parcels receiving special benefits from the improvement — every parcel within that district receives a shared special benefit. Under section 2, subdivision (i), these benefits can be construed as being general benefits since they are not “particular and distinct” and are not “over and above” the benefits received by other properties “located in the district.”

Special benefit, on the other hand, is defined in the state constitution as “a particular and distinct benefit over and above general benefits conferred on real property located in the district or to the public at large.” The *Silicon Valley* decision indicates that a special benefit is conferred to a property if it “receives a direct advantage from the improvement (e.g., proximity to a park).” In this assessment, the overwhelming proportion of the benefits conferred to property is special, since the advantages from the mosquito and disease control/protection funded by the Assessments are directly received by the properties in the Assessment District and are only minimally received by property outside the Assessment District or the public at large.

Proposition 218 twice uses the phrase “over and above” general benefits in describing special benefit. (Art. XIID, sections 2(i) & 4(f).) There currently are some mosquito and disease control related services being provided to the Assessment District area. Consequently, there currently are some mosquito control related benefits being provided to the Assessment District and any new and extended service provided by the District would be over and above this baseline. Arguably, all of the Services funded by the assessment therefore are a special benefit because the additional Services would particularly and distinctly benefit and protect the Assessment District over and above the previous baseline benefits and service.

Nevertheless, arguably some of the Services would benefit the public at large and properties outside the Assessment District. In this report, the general benefit is conservatively estimated and described, and then budgeted so that it is funded by sources other than the assessment.

In the 2009 *Dahms* case, the court upheld an assessment that was 100% special benefit on the rationale that the services funded by the assessments were directly provided to property in the assessment district. Similar to the assessments in Pomona that were validated by *Dahms*, the Assessments described in this Engineer’s Report fund mosquito and disease control services directly provided to property in the assessment area. Moreover, as noted in this Report, the Services directly reduce mosquito and vector populations on all property in the assessment area. Therefore, *Dahms* establishes a basis for minimal or zero general benefits from the Assessments. However, in this report, the general benefit is more conservatively estimated and described, and then budgeted so that it is funded by sources other than the assessment.

Calculating General Benefit

Without this assessment the District would lack the funds to extend the additional Services to the Assessment District. The only additional service that is being provided is the vector control program assessment-funded Services. Consistent with footnote 8 of *Silicon Valley*, and for the reasons described above, the District has determined that all parcels in the Assessment District receive a shared direct advantage and special benefit from the Services. The Services directly and particularly serve and benefit each parcel, and are not a mere indirect, derivative advantage. As explained above, Proposition 218 relies on the concept of “over and above” in distinguishing special benefits from general benefits. As applied to an assessment proceeding concurrent with the annexation this concept means that all mosquito and disease control services, which provide direct advantage to property in the Assessment District, are over and above the baseline and therefore are special.

Nevertheless, the Services provide a degree of general benefit, in addition to the predominant special benefit. This section provides a conservative measure of the general benefits from the assessments.

Benefit to Property Outside the District

Properties within the Assessment District receive almost all of the special benefits from the Services because the Services funded by the Assessments are provided directly to protect property within the Assessment District from mosquitoes and mosquito-borne diseases. However, properties adjacent to, but just outside of, the District boundaries may receive some benefit from the Services in the form of reduced mosquito populations on property outside the Assessment District. Since this benefit, is conferred to properties outside the district boundaries, it contributes to the overall general benefit calculation and will not be funded by the assessment.

A measure of this general benefit is the proportion of Services that would affect properties outside of the Assessment District. Each year, the District will provide some of its Services in areas near the boundaries of the Assessment District. By abating mosquito populations near the borders of the Assessment District, the Services could provide benefits in the form of reduced mosquito populations and reduced risk of disease transmission to properties outside the Assessment District. If mosquitoes were not controlled inside the Assessment District, more of them would fly from the Assessment District. Therefore, control of mosquitoes within the Assessment District provides some benefit to properties outside the Assessment District but within the normal flight range

of mosquitoes, in the form of reduced mosquito populations and reduced mosquito-borne disease transmission. This is a measure of the general benefits to property outside the Assessment District because this is a benefit from the Services that is not specially conferred upon property in the assessment area.

The mosquito potential outside the Assessment District is based on studies of mosquito dispersion concentrations. Mosquitoes can travel up to two miles, on average, so this destination range is used. Based on studies of mosquito destinations, relative to parcels in the Assessment District average concentration of mosquitoes from the Assessment District on properties within two miles of the Assessment District is calculated to be 6%.¹⁹ This relative mosquito population reduction factor within the destination range is combined with the number of parcels outside the Assessment District and within the destination range to measure this general benefit and is calculated as follows:

Mosquitoes may fly up to 2 miles from their breeding source.

38,786 parcels within 2 miles of, but outside of the District, MAY receive some mosquito and disease protection benefit

6% portion of relative benefit that is received of the

436,350 Parcels in the District

Calculation:

Total Benefit = 38,786 parcels * 6% = 2,327 parcels equivalents

Percentage of overall parcel equivalents = 2,327 / 436,350 = **0.53%**

Therefore, for the overall benefits provided by the Services to the Assessment District, it is determined that 0.53% of the benefits would be received by the parcels within two miles of the Assessment District boundaries. Recognizing that this calculation is an approximation, this benefit will be rounded up to 1.0%.

¹⁹ Tietze, Noor S., Stephenson, Mike F., Sidhom, Nader T. and Binding, Paul L., "Mark-Recapture of *Culex Erythrothorax* in Santa Cruz County, California", Journal of the American Mosquito Control Association, 19(2):134-138, 2003.

Benefit to Property *Inside* the District that is *Indirect and Derivative*

The “indirect and derivative” benefit to property within the Assessment District is particularly difficult to calculate. As explained above, all benefit within the Assessment District is special because the mosquito and disease control services in the Assessment District would provide direct service and protection that is clearly “over and above” and “particular and distinct” when compared with the level of such protection under current conditions. Further the properties are within the Assessment District boundaries and this Engineer’s Report demonstrates the direct benefits received by individual properties from mosquito and disease control services.

In determining the Assessment District area, the District was careful to limit it to an area of parcels that will directly receive the Services. All parcels directly benefit from the surveillance, monitoring and treatment provided on an equivalent basis throughout the Assessment District in order to maintain the same improved level of protection against mosquitoes and reduced mosquito populations throughout the area. The surveillance and monitoring sites are spread on a balanced basis throughout the area. Mosquito control and treatment is provided as needed throughout the area based on the

surveillance and monitoring results. The shared special benefit - reduced mosquito levels and reduced presence of mosquito-borne diseases - is received on an equivalent basis by all parcels in the Assessment District. Furthermore, all parcels in the Assessment District directly benefit from the ability to request service from the District and to have a District field technician promptly respond directly to the parcel and address the owner’s or resident’s service need.

The *Silicon Valley* decision indicates that the fact that a benefit is conferred throughout the Assessment District area does not make the benefit general rather than special, so long as the Assessment district is narrowly drawn and limited to the parcels directly receiving shared special benefits from the service. This concept is particularly applicable in situations involving a landowner-approved assessment-funded extension of a local government service to benefit lands previously not receiving that particular service. The District therefore concludes that, other than the small general benefit to properties outside the Assessment District (discussed above) and to the public at large (discussed below), all of the benefits of the Services to the parcels within the Assessment District are special benefits and it is not possible or appropriate to separate any general benefits from the benefits conferred on parcels in the Assessment District.

Benefit To The Public At Large

With the type and scope of Services provided to the Assessment District, it is very difficult to calculate and quantify the scope of the general benefit conferred on the public at large. Because the Services directly serve and benefit all of the property in the Assessment Area, any general benefit conferred on the public at large is small. Nevertheless, there is some indirect general benefit to the public at large.

The public at large uses the public highways, streets and sidewalks, and when traveling in and through the Assessment Area they will benefit from the Services. A fair and appropriate measure of the general benefit to the public at large therefore is the amount of highway, street and sidewalk area within the Assessment Area relative to the overall land area. An analysis of maps of the Assessment Area shows that approximately 6% of the land area in the Assessment Area is covered by highways, streets and sidewalks. This 6% therefore is a fair and appropriate measure of the general benefit to the public at large within the Assessment Area

Summary of General Benefits

Using a sum of the measures of general benefit for the public at large and land outside the Assessment Area, we find that approximately 7.0% of the benefits conferred by the Mosquito and Disease Control Assessment may be general in nature and should be funded by sources other than the Assessment.

General Benefit Calculation

$$\begin{aligned}
 & 1.0\% \quad (\text{Outside the Assessment District}) \\
 + & 0.0\% \quad (\text{Property within the Assessment District}) \\
 + & \underline{6.0\%} \quad (\text{Public at Large}) \\
 = & 7.0\% \quad (\text{Total General Benefit})
 \end{aligned}$$

Although this analysis supports the findings that 7.0% of the assessment may provide general benefit only, this number is increased by the Assessment Engineer to 10% to conservatively ensure that no assessment revenue is used to support general benefit. This additional amount allocated to general benefit also covers general benefit to parcels in the Assessment Area if it is later determined that there is some general benefit conferred on those parcels.

The Mosquito and Disease Control Assessment total mosquito abatement, disease control, and capital improvement is \$5,946,869. Of this total budget amount, the District will contribute over 80% of the total budget from sources other than the Mosquito and Disease Control Assessment. This contribution offsets any general benefits from the Mosquito and Disease Control Assessment Services.

Zones of Benefit

The District's mosquito and disease control programs, projects and Services that are funded by the Mosquito and Disease Control Assessment are provided in all areas within the District. Parcels of similar type in the District would receive similar mosquito abatement benefits on a per parcel and land area basis. Therefore, zones of benefit are not justified.

The *Silicon Valley* decision indicates:

In a well-drawn district — limited to only parcels receiving special benefits from the improvement — every parcel within that district receives a shared special benefit. Under section 2, subdivision (i), these benefits can be construed as being general benefits since they are not “particular and distinct” and are not “over and above” the benefits received by other properties “located in the district.”

We do not believe that the voters intended to invalidate an assessment district that is narrowly drawn to include only properties directly benefiting from an improvement. Indeed, the ballot materials reflect otherwise. Thus, if an assessment district is narrowly drawn, the fact that a benefit is conferred throughout the district does not make it general rather than special. In that circumstance, the characterization of a benefit may depend on whether the parcel receives a direct advantage from the improvement (e.g., proximity to park) or receives an indirect, derivative advantage resulting from the overall public benefits of the improvement (e.g., general enhancement of the district's property values).

In the Assessment Area, the advantage that each parcel receives from the Services is direct and the boundary for the Service Area is narrowly drawn so the Service Area includes parcels that receive similar levels of benefit from the Services. Therefore, the even spread of assessment for similar properties in the narrowly drawn Service Area within the Program is indeed consistent with the *Silicon Valley* decision.

Method of Assessment

As previously discussed, the Assessments fund enhanced, comprehensive, year-round mosquito control, disease surveillance and control Services that will reduce mosquito populations on property and will clearly confer special benefits to properties in the Assessment Area. These benefits can also partially be measured by the occupants on property in the Improvement District because such parcel population density is a measure of the relative benefit a parcel receives from the Improvements. Therefore, the apportionment of benefit is partially based the population density of parcels. It should be noted that many other types of “traditional” assessments also use parcel population densities to apportion the assessments. For example, the assessments for sewer systems, roads and water systems are typically allocated based on the population density of the parcels assessed.

Moreover, assessments have a long history of use in California and are in large part based on the principle that any benefits from a service or improvement funded by assessments that is enjoyed by tenants and other non-property owners ultimately is conferred directly to the underlying property.²⁰

With regard to benefits and source locations, the assessment engineer determined that since mosquitoes readily fly from their breeding locations to all properties in their flight range and since mosquitoes are actually attracted to properties occupied by people or animals, the benefits from mosquito control extend beyond the source locations to all properties that would be a “destination” for mosquitoes. In other words, the control and abatement of mosquito populations ultimately confers benefits to all properties that are a destination of mosquitoes, rather than just those that are sources of mosquitoes.

²⁰ For example, in *Federal Construction Co. v. Ensign* (1922) 59 Cal.App. 200 at 211, the appellate court determined that a sewer system specially benefited property even though the direct benefit was to the people who used the sewers: “Practically every inhabitant of a city either is the owner of the land on which he resides or on which he pursues his vocation, or he is the tenant of the owner, or is the agent or servant of such owner or of such tenant. And since it is the inhabitants who make by far the greater use of a city’s sewer system, it is to them, as lot owners or as tenants, or as the servants or agents of such lot owners or tenants, that the advantages of actual use will redound. But this advantage of use means that, in the final analysis, it is the lot owners themselves who will be especially benefited in a financial sense.”

Although some primary mosquito sources may be located outside of residential areas, residential properties can and do generate their own, often significant, populations of mosquitoes and other organisms. For example, storm water basins in residential areas are a common source of mosquitoes. Since the typical flight range for a female mosquito, on average is 2 miles, most homes in the Assessment Area are within the flight zone of many mosquito sources. Moreover, there are many other common residential sources of mosquitoes, such as miscellaneous backyard containers, neglected swimming pools, leaking water pipes and tree holes. Clearly, there is a potential for mosquito sources on virtually all types of property. More importantly, all properties in the Assessment Area are within the destination range of mosquitoes and most properties are actually within the destination range of multiple mosquito source locations.

Because the Services are provided throughout the Assessment District with the same level of control objective in each zone, mosquitoes can rapidly and readily fly from their breeding locations to other properties over a large area, and because there are current or potential breeding sources literally everywhere in the Assessment District, the Assessment Engineer determined that all similar properties in the Assessment District have generally equivalent mosquito “destination” potential and, therefore, receive equivalent levels of benefit throughout the Assessment District.

In the process of determining the appropriate method of assessment, the Engineer considered various alternatives. For example, a fixed assessment amount per parcel for all residential improved property was considered but was determined to be inappropriate because agricultural lands, commercial property and other property also receive benefits from the assessments. Likewise, an assessment exclusively for agricultural land was considered but deemed inappropriate because other types of property, such as residential and commercial, also receive the special benefit factors described previously.

A fixed or flat assessment was deemed to be inappropriate because larger residential, commercial and industrial properties receive a higher degree of benefit than other similarly used properties that are significantly smaller. (For two properties used for commercial purposes, there is clearly a higher benefit provided to a property that covers several acres in comparison to a smaller commercial property that is on a 0.25 acre site. The larger property generally has a larger coverage area and higher usage by employees, customers, tourists and guests that would benefit from reduced mosquito populations, as well as the reduced threat from diseases carried by mosquitoes. This benefit ultimately flows to the property.) Larger commercial, industrial and apartment parcels, therefore, receive an increased benefit from the assessments.

In conclusion, the assessment engineer determined that the appropriate method of assessment apportionment should be based on the type and use of property, the relative size of the property its relative population and usage potential, and its destination potential for mosquitoes. This method is further described below.

Assessment Apportionment

The special benefits derived from the Mosquito and Disease Control Assessment are conferred on property and are not based on a specific property owner's occupancy of property or the property owner's demographic status, such as age or number of dependents. However, it is ultimately people who do or could use the property and who enjoy the special benefits described above. The opportunity to use and enjoy property within the Assessment District without the excessive nuisance, diminished "livability" or the potential health hazards brought by mosquitoes and the diseases they carry is a special benefit to properties in the Assessment District. This benefit can be in part measured by the number of people who potentially live on, work at, visit or otherwise use the property, because people ultimately determine the value of the benefits by choosing to live, work and/or recreate in the area, and by choosing to purchase property in the area.²¹

In order to apportion the cost of the Services to property, each property in the Assessment District is assigned a relative special benefit factor. This process involves determining the relative benefit received by each property in relation to a single-family home, or, in other words, on the basis of Single-Family Equivalents (SFE). This SFE methodology is commonly used to distribute assessments in proportion to estimated special benefit. For the purposes of this Engineer's Report, all properties are designated a SFE value, which is each property's relative benefit in relation to a "benchmark" parcel in the Assessment District. The "benchmark" property is the single family detached dwelling on a parcel of less than one acre. This benchmark parcel is assigned one Single Family Equivalent benefit unit or one SFE.

The special benefit conferred upon a specific parcel is derived as a sum function of the applicable special benefit type (such as improved safety (i.e. disease risk reduction) on a parcel for a mosquito assessment) and a parcel-specific attributes (such as the number of residents living on the parcel for a mosquito assessment) which supports that special

²¹ It should be noted that the benefits conferred upon property are related to the average number of people who could potentially live on, work at or otherwise could use a property, not how the property is currently used by the present owner.

benefit. Calculated special benefit increases accordingly with an increase in the product of special benefit type and supportive parcel-specific attribute.

The calculation of the special benefit per parcel is summarized in the following equation:

$$\text{Special Benefit}_{(\text{per parcel})} = \sum f(\text{Special Benefits, Property Specific Attributes}^1)_{(\text{per parcel})}$$

¹. Such as use, property type, and size.

Residential Properties

Certain residential properties in the Abatement District that contain a single residential dwelling unit and are on a lot of less than or equal to one acre are assigned one Single Family Equivalent or 1.0 SFE. Traditional houses, zero-lot line houses, and town homes are included in this category of single-family residential property.

Single family residential properties in excess of one acre receive additional benefit relative to a single-family home on up to one acre, because the larger parcels provide more area for mosquito sources and the mosquito and disease control Services. Therefore, such larger parcels receive additional benefits relative to a single-family home on less than one acre and are assigned 1.0 SFE for the residential unit and an additional rate equal to the agricultural rate described below of 0.0021 SFE per one-fourth acre of land area in excess of one acre. Mobile home parcels on a separate parcel and in excess of one acre also receive this additional acreage rate.

Other types of properties with residential units, such as agricultural properties, are assigned the residential SFE rates for the dwelling units on the property and are assigned additional SFE benefit units for the agricultural-use land area on the property.

Properties with more than one residential unit are designated as multi-family residential properties. These properties, along with condominiums, benefit from the Services in proportion to the number of dwelling units that occupy each property, the average number of people who reside in each property and the average size of each property in relation to a single-family home in the District. This Report analyzed Alameda County population density factors from the 2000 US Census as well as average dwelling unit size for each property type. After determining the Population Density Factor and Square Footage Factor for each property type, an SFE rate is generated for each residential property structure, as indicated in Figure 2 below.

The SFE factor of 0.46 per dwelling unit for multifamily residential properties applies to such properties with two to four units (duplex, triplex, fourplex). Properties in excess of 5 units typically offer on-site management, monitoring and other control services that tend to offset some of the benefits provided by the Mosquito Abatement District. Therefore, the benefit for properties in excess of 5 units is determined to be .32 SFE per unit for the first 20 units and 0.10 SFE per each additional unit in excess of 20 dwelling units.

Figure 2– Residential Assessment Factors

Type of Residential Property	Total Population	Occupied Households	Persons per Household	Pop. Density Equivalent	SqFt Factor	Proposed Rate
Single Family Residential	866,596	284,662	3.04	1.00	1.00	1.00
Condominium	103,373	37,417	2.76	0.91	0.66	0.60
Duplex, Triplex, Fourplex	144,626	57,815	2.50	0.82	0.56	0.46
Multi-Family Residential (5+ Units)	286,957	136,173	2.11	0.69	0.47	0.32
Mobile Home on Separate Lot	13,464	6,660	2.02	0.66	0.41	0.27

Source: 2000 Census, Alameda County, and property dwelling size information from the Alameda County Assessor data and other sources.

Commercial/Industrial Properties

Commercial and industrial properties receive relatively lower levels of benefit in comparison to a single-family home because they are generally open and operated for more limited times and employees of indoor businesses tend to spend less time outdoors. Since the hours of operation and the potential exposure to mosquitoes are measures of relative benefit, commercial and industrial properties receive lower relative levels of benefit. Therefore, commercial and industrial properties are determined to receive 0.50 SFE of benefit per one-quarter acre (10,890 square feet) of land area.

The SFE values for various commercial and industrial land uses are further defined by using average employee densities because the special benefit factors described previously are also related to the average number of people who work at commercial/industrial properties.

To determine employee density factors, this Report utilizes the findings from the San Diego County Association of Governments Traffic Generators Study (the “SANDAG Study”) because these findings were approved by the State Legislature which determined the SANDAG Study to be a good representation of the average number of employees per acre of land area for commercial and industrial properties. As determined by the SANDAG

Study, the average number of employees per acre for commercial and industrial property is 24. As presented in Figure 3, the SFE factors for other types of businesses are determined relative to their typical employee density in relation to the average of 24 employees per acre of commercial property.

Self-storage and golf course property benefit factors are similarly based on average usage densities. Figure 3 below lists the benefit assessment factors for such business properties.

Figure 3 – Commercial/Industrial Benefit Assessment Factors

<i>Type of Commercial/ Industrial Land Use</i>	<i>Average Employees Per Acre ¹</i>	<i>SFE Units per Fraction Acre ²</i>	<i>SFE Units per Acre After 5</i>
Commercial	24	0.500	0.500
Office	68	1.420	1.420
Shopping Center	24	0.500	0.500
Industrial	24	0.500	0.500

¹ Source: San Diego Association of Governments Traffic Generators Study, University of California, Davis and other studies and sources.

² The SFE factors for commercial and industrial parcels indicated above are applied to each fourth acre of building area or portion thereof. (Therefore, the SFE rate for any assessable parcel with 10,890 square feet or less in these categories is the SFE Units listed above.)

Agricultural, Rangeland, and Cemetery Properties

Utilizing research and agricultural employment reports from UC Davis and the California Employment Development Department and other sources, this Report calculated an average usage density of 0.05 people per acre for agriculture property, 0.01 for rangelands and timber and .10 for cemeteries. Since these properties typically are a source of mosquitoes and/or are typically closest to other sources of mosquitoes, it is reasonable to determine that the benefit to these properties is twice the usage density ratio of commercial and industrial properties. The SFE factors per 0.25 acres of land area are shown in the following Figure 4 below.

Figure 4 – Other Land Benefit Assessment Factors

<i>Other Types of Land Use</i>	<i>Average Employees Per Acre ¹</i>	<i>SFE Units per 1/4 Acre ²</i>
Self-Storage or Parking Lot	1.00	0.021
Wineries	12.00	0.250
Golf Course	3.00	0.063
Cemeteries	0.10	0.050
Agriculture / Vineyards	0.05	0.0021
Timberland / Dry Rangeland	0.01	0.00042

¹. Source: San Diego Association of Governments Traffic Generators Study, University of California, Davis and other studies and sources.

². The SFE factors for commercial and industrial parcels indicated above are applied to each fourth acre of land area or portion thereof. (Therefore, the minimum assessment for any assessable parcel in these categories is the SFE Units listed herein.)

Other Properties

Article XIIID stipulates that publicly owned properties must be assessed unless those properties are reasonably determined to receive no special benefit from the assessment. All properties that are specially benefited are assessed. Publicly owned property that is used for purposes similar to private residential, commercial, industrial or institutional uses is benefited and assessed at the same rate as such privately owned property.

Other public properties such as watershed parcels, parks, open space parcels are determined to, on average, receive similar benefits as a single-family home. Therefore, such parcels are assessed an SFE benefit factor of 1. Miscellaneous, small and other parcels such as roads, right-of-way parcels, and common areas typically do not generate significant numbers of employees, residents, customers or guests and have limited economic value. These miscellaneous parcels receive minimal benefit from the services and are assessed an SFE benefit factor of 0.

Church parcels, institutional properties, and property used for educational purposes typically generate employees on a less consistent basis than other non-residential parcels. Many of these properties with higher population factors provide on-site management, monitoring and other control services that tend to offset some of the benefits provided by the District. Therefore, these parcels are determined to, on average, receive similar benefits as a single-family home. Therefore, such parcels are assessed an SFE benefit factor of 1.

Miscellaneous, small and other parcels such as roads, right-of-way parcels, and common areas typically do not generate significant numbers of employees, residents, customers or guests and have limited economic value. These miscellaneous parcels receive minimal benefit from the Services and are assessed an SFE benefit factor of 0.

Duration of Assessment

It is proposed that the Assessment be levied for fiscal year 2024-25 and continued every year thereafter, so long as mosquitoes remain in existence and the Alameda County Mosquito Abatement District requires funding from the Assessment for its Services in the District. As noted previously, if the Assessment and the duration of the Assessment are approved by property owners in an assessment ballot proceeding, the Assessment can continue to be levied annually after the Alameda County Mosquito Abatement District Board of Trustees approves an annually updated Engineer's Report, budget for the Assessment, Services to be provided, and other specifics of the Assessment. In addition, the District Board of Trustees must hold an annual public hearing to continue the Assessment.

Appeals and Interpretation

Any property owner who feels that the assessment levied on the subject property is in error as a result of incorrect information being used to apply the foregoing method of assessment, may file a written appeal with the Manager of the Alameda County Mosquito Abatement District or his or her designee. Any such appeal is limited to correction of an assessment during the then current fiscal year or, if before July 1, the upcoming fiscal year. Upon the filing of any such appeal, the General Manager or his or her designee will promptly review the appeal and any information provided by the property owner. If the General Manager or his or her designee finds that the assessment should be modified, the appropriate changes shall be made to the assessment roll. If any such changes are approved after the assessment roll has been filed with Alameda County for collection, the General Manager or his or her designee is authorized to refund to the property owner the amount of any approved reduction. Any dispute over the decision of the General Manager, or his or her designee, shall be referred to the District Board of Trustees. The decision of the District Board of Trustees shall be final.

Assessment

WHEREAS, the Alameda County Mosquito Abatement District Board of Trustees contracted with the undersigned Engineer of Work to prepare and file a report presenting an estimate of costs of Services, a diagram for the benefit assessment area, an assessment of the estimated costs of Services, and the special and general benefits conferred thereby upon all assessable parcels within the Alameda County Mosquito Abatement District - Mosquito and Disease Control Assessment;

NOW, THEREFORE, the undersigned, by virtue of the power vested in me under Article XIII D of the California Constitution, the Government Code and the Health and Safety Code and the order of the Alameda County Mosquito Abatement District Board of Trustees, hereby make the following determination of an assessment to cover the portion of the estimated cost of the Services, and the costs and expenses incidental thereto to be paid by the Mosquito and Disease Control Assessment.

The District has evaluated and estimated the costs of extending and providing the Services to the Assessment District. The estimated costs are summarized in Figure 1 and detailed in Figure 5, below.

The amount to be paid for the Services and the expenses incidental thereto, to be paid by the Alameda County Mosquito Abatement District for fiscal year 2024-25 is generally as follows:

Figure 5– Summary Cost Estimate – FY 2024-25

Mosquito Abatement & Disease Control Services	\$4,171,346
Materials, Utilities and Supplies	\$1,250,523
Capital Equipment and Fixed Assets	\$485,000
Contingency	\$40,000
Total Mosquito Control Services & Expenditures	\$5,946,869
Less Contributions from Other Sources:	(\$4,764,721)
Net Amount To Assessments	\$1,182,148
General Contribution to Total Mosquito Control Services & Expenditure:	80.12%

An Assessment Diagram is hereto attached and made a part hereof showing the exterior boundaries of the assessment area. The distinctive number of each parcel or lot of land in the Mosquito and Disease Control Assessment is its Assessor Parcel Number appearing on the Assessment Roll.

I do hereby determine and apportion the net amount of the cost and expenses of the Services, including the costs and expenses incidental thereto, upon the parcels and lots of land within the Mosquito and Disease Control Assessment, in accordance with the special benefits to be received by each parcel or lot, from the Services, and more particularly set forth in this Engineer's Report.

The assessment determination is made upon the parcels or lots of land within the assessment area in proportion to the special benefits to be received by the parcels or lots of land, from the Services.

The assessment is subject to an annual increase tied to the Consumer Price Index-U for the San Francisco Bay Area as of December of each succeeding year (the "CPI"), with a maximum annual increase not to exceed 3%. Any change in the CPI in excess of 3% shall be cumulatively reserved as the "Unused CPI" and shall be used to increase the maximum authorized assessment rate in years in which the CPI is less than 3%. The maximum authorized assessment rate is equal to the maximum assessment rate in the first fiscal year the assessment was levied adjusted annually by the minimum of 1) 3% or 2) the change in the CPI plus any Unused CPI as described above.

The change in the CPI from December 2022 to December 2023 was 2.6245%. Therefore, the maximum assessment rate for fiscal year 2024-25 is the maximum rate for fiscal year 2022-23 (\$7.31) plus 3% was used to increase the maximum authorized assessment rate. Consequently, the maximum authorized Assessment rate for fiscal year 2024-25 is \$7.53 per single-family equivalent benefit unit. The estimate of cost and budget in this Engineer's Report proposes assessments for fiscal year 2024-25 at the rate of \$2.50, which is below the maximum authorized assessment rate.


Each parcel or lot of land is described in the Assessment Roll by reference to its parcel number as shown on the Assessor's Maps of the County of Alameda for the fiscal year 2024-25. For a more particular description of the property, reference is hereby made to the deeds and maps on file and of record in the office of the County Assessor of the County of Alameda.

I hereby place opposite the Assessor Parcel Number for each parcel or lot within the Assessment Roll, the proposed amount of the assessment for the fiscal year 2024-25 for each parcel or lot of land within the Alameda County Mosquito Abatement District-Mosquito and Disease Control Assessment.²²

Dated: May 1, 2024



Engineer of Work

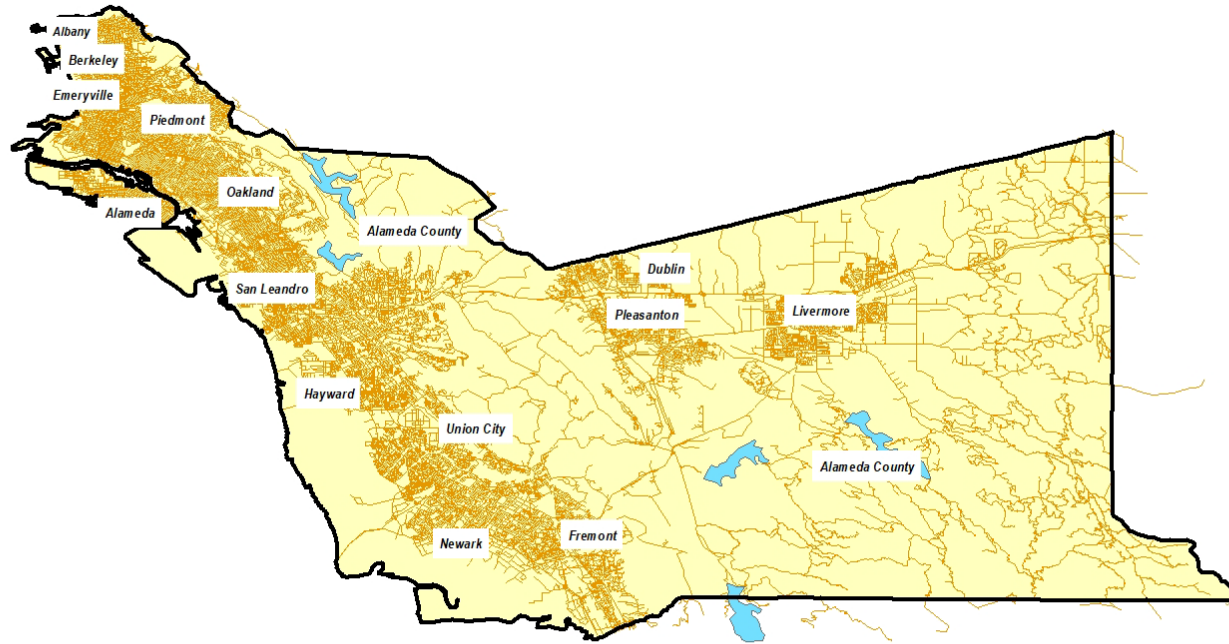
By  _____
John Bliss, License No. C52091

²² Each parcel has a uniquely calculated assessment based on the estimated level of special benefit to the property as determined in accordance with this Engineer's Report.

Assessment Diagram

The Alameda County Mosquito Abatement District, Mosquito and Disease Control Assessment area includes all properties within the boundaries of the Alameda County Mosquito Abatement District.

The boundaries of the Mosquito and Disease Control Assessment Area are displayed on the following Assessment Diagram.



Note:
 REFERENCE IS HEREBY MADE TO THE MAPS AND DEEDS
 OF RECORD IN THE OFFICE OF THE ASSESSOR OF THE
 COUNTY OF ALAMEDA FOR A DETAILED DESCRIPTION OF
 THE LINES AND DIMENSIONS OF ANY PARCELS SHOWN
 HEREIN. THOSE MAPS SHALL GOVERN FOR ALL DETAILS
 CONCERNING THE LINES AND DIMENSIONS OF SUCH PARCELS.
 EACH PARCEL IS IDENTIFIED IN SAID MAPS BY ITS
 DISTINCTIVE ASSESSOR'S PARCEL NUMBER.

SCI Consulting Group
 4745 Mangels Blvd.
 Fairfield, CA 94534

**ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT
 MOSQUITO AND DISEASE CONTROL ASSESSMENT DIAGRAM**

Assessment Roll

Reference is hereby made to the Assessment Roll in and for the assessment proceedings on file in the office of the Alameda County Mosquito Abatement District, as the Assessment Roll is too voluminous to be bound with this Report.

RESOLUTION NO. 1125-1

A RESOLUTION INTENTION TO CONTINUE ASSESSMENTS FOR FISCAL YEAR 2024-25, PRELIMINARILY APPROVING THE ENGINEER'S REPORT, AND PROVIDING FOR NOTICE OF HEARING FOR THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT MOSQUITO AND DISEASE CONTROL ASSESSMENT

WHEREAS, on May 14th, 2008 by its Resolution No. 937-1, the Board of Trustees of the Alameda County Mosquito Abatement District (the "Board") authorized the levy of assessments for the Mosquito and Disease Control Assessment (the "Assessment") pursuant to the provisions of the Health and Safety Code section 2080 et seq. and Article XIID of the California Constitution; and

WHEREAS, such mosquito and disease control services provide tangible health benefits, reduced nuisance benefits and other special benefits to the public and properties within the areas of such services; and

WHEREAS, the purpose of the Assessment is for mosquito control projects and programs including projects, programs, public improvements and services intended to provide for the surveillance, prevention, abatement and control of mosquitoes and the diseases they carry throughout its boundaries ("Services"); and

WHEREAS, the Alameda County Mosquito Abatement District ("the District") is authorized, pursuant to the authority provided in Health and Safety Code Section 2082 and Article XIID of the California Constitution, to levy assessments for mosquito and disease control services; and

WHEREAS, the Assessment was authorized by an assessment ballot proceeding conducted in 2008 and approved by 70.19% of the weighted ballots returned by property owners, and such assessments were levied by the Board by Resolution No. 937-1, passed on May 14, 2008;

WHEREAS, an annual adjustment to the Assessment rate equal to the change in the Consumer Price Index-U for the San Francisco Bay Area as of December of each succeeding year (the "CPI"), with a maximum annual adjustment not to exceed 3%, was also authorized by the assessment ballot proceeding conducted in 2008;

NOW, THEREFORE, BE IT RESOLVED by the Board of Trustees of the Alameda County Mosquito Abatement District that:

1. SCI Consulting Group, the Engineer of Work, has prepared an Engineer's Report in accordance with Article XIID of the California Constitution and Section 2082, et. seq., of the Health and Safety Code (the "Report"). The Report has been made, filed with the secretary of the board and duly considered by the Board and is hereby deemed sufficient and preliminarily approved. The Report shall stand as the Engineer's Report for all subsequent proceedings under and pursuant to the foregoing resolution.
2. It is the intention of this Board to levy and collect the continued assessments for the Mosquito and Disease Control Assessment for fiscal year 2024-25 for the proposed projects and services set forth in the Report. Within the Service Area, the proposed projects, services and programs are generally described as surveillance, disease prevention, abatement, and control of mosquitoes within the District boundaries. Such mosquito control and disease prevention projects and programs include, but are not limited to, source reduction, biological control, larvicide applications, adulticide applications, disease monitoring, public education, reporting, accountability, research and interagency cooperative activities, as well as capital costs, maintenance, and operation expenses and incidental expenses (collectively "Services"). The cost of these Services also includes capital costs comprised of equipment, capital improvements and facilities necessary and incidental to the District's mosquito and disease control program.

3. The change in the CPI from December 2022 to December 2023 was 2.6245%. Therefore, the maximum assessment rate for fiscal year 2024-25 is the maximum rate for fiscal year 2022-23 (\$7.31) plus 3% was used to increase the maximum authorized assessment rate. Consequently, the maximum authorized Assessment rate for fiscal year 2024-25 is \$7.53 per single-family equivalent benefit unit. The estimate of cost and budget in this Engineer's Report proposes assessments for fiscal year 2024-25 at the rate of \$2.50, which is below the maximum authorized assessment rate.
4. The estimated fiscal year 2024-25 cost of providing the Services is \$1,182,148. This cost results in a proposed assessment rate for fiscal year 2024-25 of TWO DOLLARS AND FIFTY CENTS (\$2.50) per single-family equivalent benefit unit. Reference is hereby made to the Report for a full and detailed description of the proposed assessments upon assessable lots and parcels of land.
5. The Board of Trustees will hold a public hearing on June 12, 2023, at 5:00 p.m. to consider the ordering of the Services, and the levy of the assessments for fiscal year 2024-25. Members of the public may join the meeting in person at the Alameda County Mosquito Abatement District office located at 23187 Connecticut Street, Hayward, California or remotely via teleconference at <https://us02web.zoom.us/j/87358392693>
6. The secretary of the board shall cause a notice of the hearing to be given by publishing a notice, at least ten (10) days prior to the date of the hearing above specified, in a newspaper circulated in the District.

PASSED and ADOPTED by the Board of Trustees of the Alameda County Mosquito Abatement District, State of California on May 8, 2024, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

President, Board of Trustees, Alameda County Mosquito Abatement District

ATTEST:

Secretary, Board of Trustees, Alameda County Mosquito Abatement District

RESOLUTION NO. 1125-2

A RESOLUTION BY THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT APPROVING THE HAYWARD AREA SHORELINE PLANNING AGENCY JOINT POWERS AUTHORITY AGREEMENT, JOINING AS A TRUSTEE AGENCY.

WHEREAS, the District was invited by the Hayward Area Shoreline Planning Agency (HASPA) to join the Joint Powers Authority (JPA) at the 1094th meeting of the Board of Trustees held on September 8, 2021; and

WHEREAS, the Board of Trustees voted to accept the invitation from HASPA to join the JPA Board and Technical Advisory Committee on October 13, 2021 paying up to \$12,000 in annual membership dues, assigning existing staff to the advisory committee, and appointing Trustee Hentschke as the District representative to HASPA; and

WHEREAS, the District participated in the collaborative revision process of the amended JPA Agreement; and

WHEREAS, entering into the Hayward Area Shoreline Planning Agency Joint Powers Authority Agreement aligns with the District 2024-2026 Strategic Plan Priority to proactively mitigate and adapt to climate change impacts on ACMAD by reducing carbon emissions, planning for climate extremes, and coordinating with stakeholders.

NOW, THEREFORE, BE IT RESOLVED the Alameda County Mosquito Abatement District hereby approves the Amended and Restated Hayward Area Shoreline Planning Agency Joint Exercise of Powers Agreement, joining as a Trustee agency of HASPA, appointing Trustee Hentschke as District representative until replaced, Trustee _____ as alternate until replaced, and assigning Erika Castillo to the HASPA technical advisory committee, superseding the District action of October 13, 2021,

PASSED and ADOPTED by the Board of Trustees of the Alameda County Mosquito Abatement District, State of California on May 8, 2024, by the following vote:

AYES:

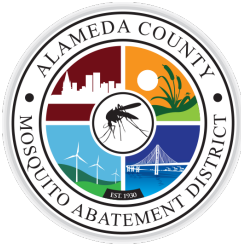
NOES:

ABSENT:

ABSTAIN:

President, Board of Trustees, Alameda County
Mosquito Abatement District

ATTEST: _____
Secretary, Board of Trustees, Alameda County
Mosquito Abatement District



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Victor Aguilar

San Leandro

Subru Bhat

Union City

Ryan Clausnitzer

General Manager

Staff report on approval of the HASPA JPA Agreement, joining as a Trustee agency.

Background: The Hayward Area Shoreline Planning Agency (HASPA) is a Joint Powers Authority (JPA) consisting of three trustee agencies: the East Bay Regional Park District (EBRPD), the City of Hayward, and the Hayward Area Recreation and Park District (HARD). Formed in 1970, HASPA's original purpose, which has been fulfilled, was to study, plan, and adopt policies concerning the land uses in the Hayward Shoreline area, to develop a comprehensive plan for the governing bodies of the original parties, so that the plans and actions of each party would be compatible with those of the other parties. The goal of an expanded HASPA is to promote public health and climate adaptation measures, protect critical infrastructure at the shoreline, and maintain public access, as detailed in the Hayward Regional Shoreline Adaptation Master Plan.

On October 13th, 2021, the ACMAD Board of Trustees voted to accept the invitation from HASPA to join the JPA with the following conditions: 1) will pay up to \$12,000 in annual membership dues, 2) will assign existing staff to the technical advisory committee, and 3) will appoint Trustee Hentschke as representative to HASPA.

Since 2022, staff at the trustee agencies have worked collaboratively with ACMAD to negotiate a new JPA Agreement. Feedback from ACMAD's trustee representative, management, staff, and legal counsel has been incorporated into the new JPA agreement. Notable adjustments made to the JPA agreement include a tiered membership structure based on the size of the trustee agency operating budget for the purpose of assessing dues and the option for weighted voting. The final draft of the JPA agreement was approved at the April 11, 2024, HASPA meeting.

Participation in HASPA aligns with ACMADs 2024-2026 Strategic Plan Goals to "ensure projects that will help the shoreline be more resilient to climate change impacts include in the design and monitoring plan language that addresses the risks of mosquito production" and "establish new agency partnerships that should be leveraged to amplify our mission of mosquito control."

Recommendation: Based on the criteria described above, staff recommends approving the HASPA Joint Powers Authority Agreement, appointing Trustee Hentschke as District representative until replaced, naming an alternate representative, and assigning Erika Castillo to the HASPA technical advisory committee, superseding the District action of October 13, 2021.

Attachments:

1. HASPA overview presentation
2. Amended and Restated Hayward Area Shoreline Planning Agency Joint Exercise of Powers Agreement
3. Schedule C: Annual Dues Table/Weighted Voting Chart
4. Minutes of the October 13th, 2021, ACMAD Board of Trustees Regular Meeting



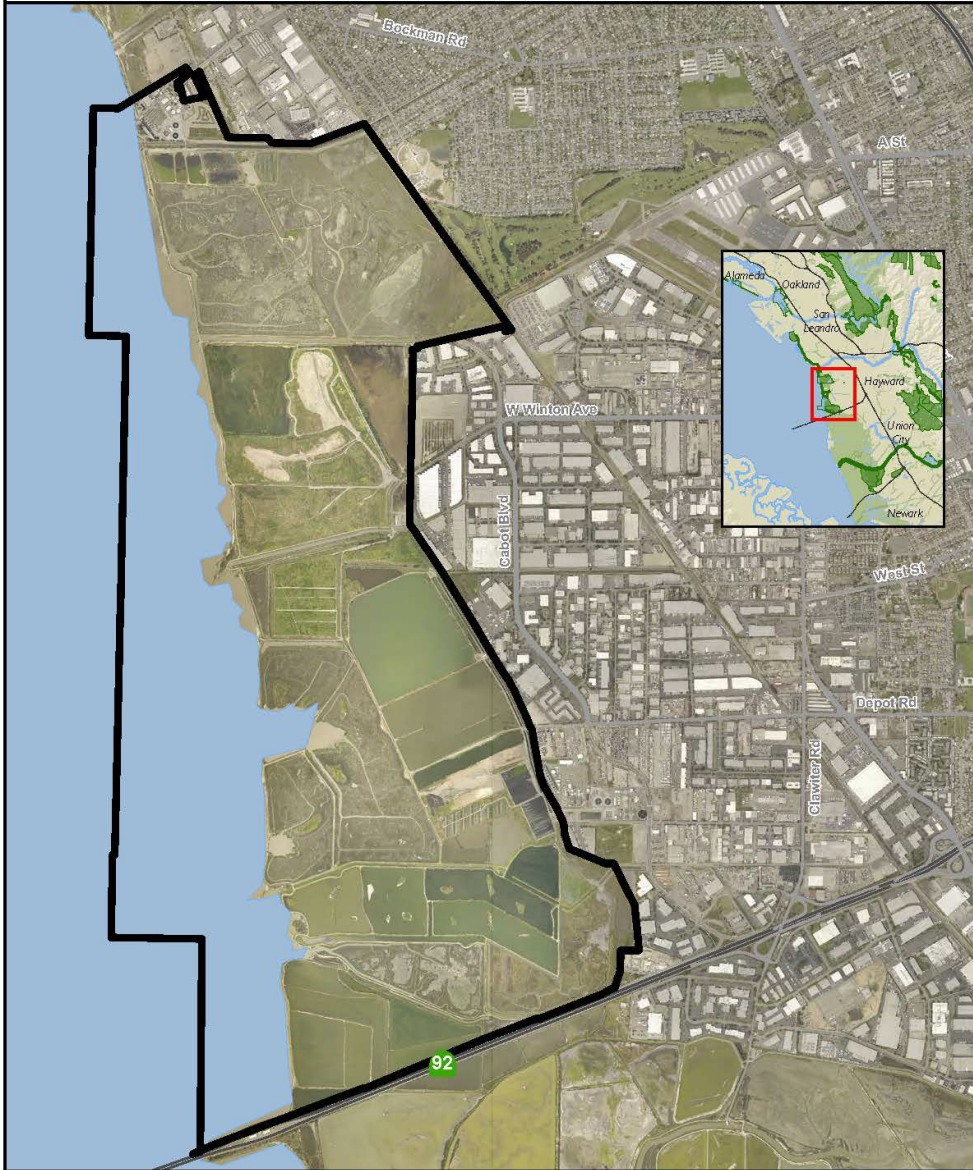
Hayward Area Shoreline Planning Agency (HASPA)

*A New Mission, A New
Agreement*

Alameda County Mosquito Abatement District
Board of Trustees meeting - May 8, 2024

Erika Castillo, *Regulatory & Public Affairs Director*
HASPA Technical Advisory Committee Member





HASPA Boundary

- North of Hayward – San Mateo Bridge (SR-92)
- South of unincorporated San Lorenzo
- West of Union Pacific Railroad tracks
- Includes SF Bay shoreline

A complex mix of different public agency ownership



SCAPE
ARCADIS
CONVEY
RE:FOCUS
SFEI

HAYWARD REGIONAL SHORELINE ADAPTATION MASTER PLAN

**FOR THE HAYWARD AREA SHORELINE PLANNING
AGENCY (HASPA)**

PART OF A JOINT POWERS AGREEMENT OF THE CITY OF HAYWARD, HAYWARD AREA RECREATION AND PARK
DISTRICT, AND EAST BAY REGIONAL PARK DISTRICT

HAYWARD REGIONAL SHORELINE MASTER PLAN

**FINAL PRODUCT
SUBMITTED FEBRUARY 2021**



HASPA Master Plan

- Supported by CalTrans Grant
- Adopted by HASPA in 2021
- Ambitious program of 20 capital projects
- \$1 Billion cost
- Implementation Plan was general, not specific

https://www.hayward-ca.gov/sites/default/files/210510_Hayward%20Shoreline%20Adapatation%20Master%20Plan_Document_Pages.pdf

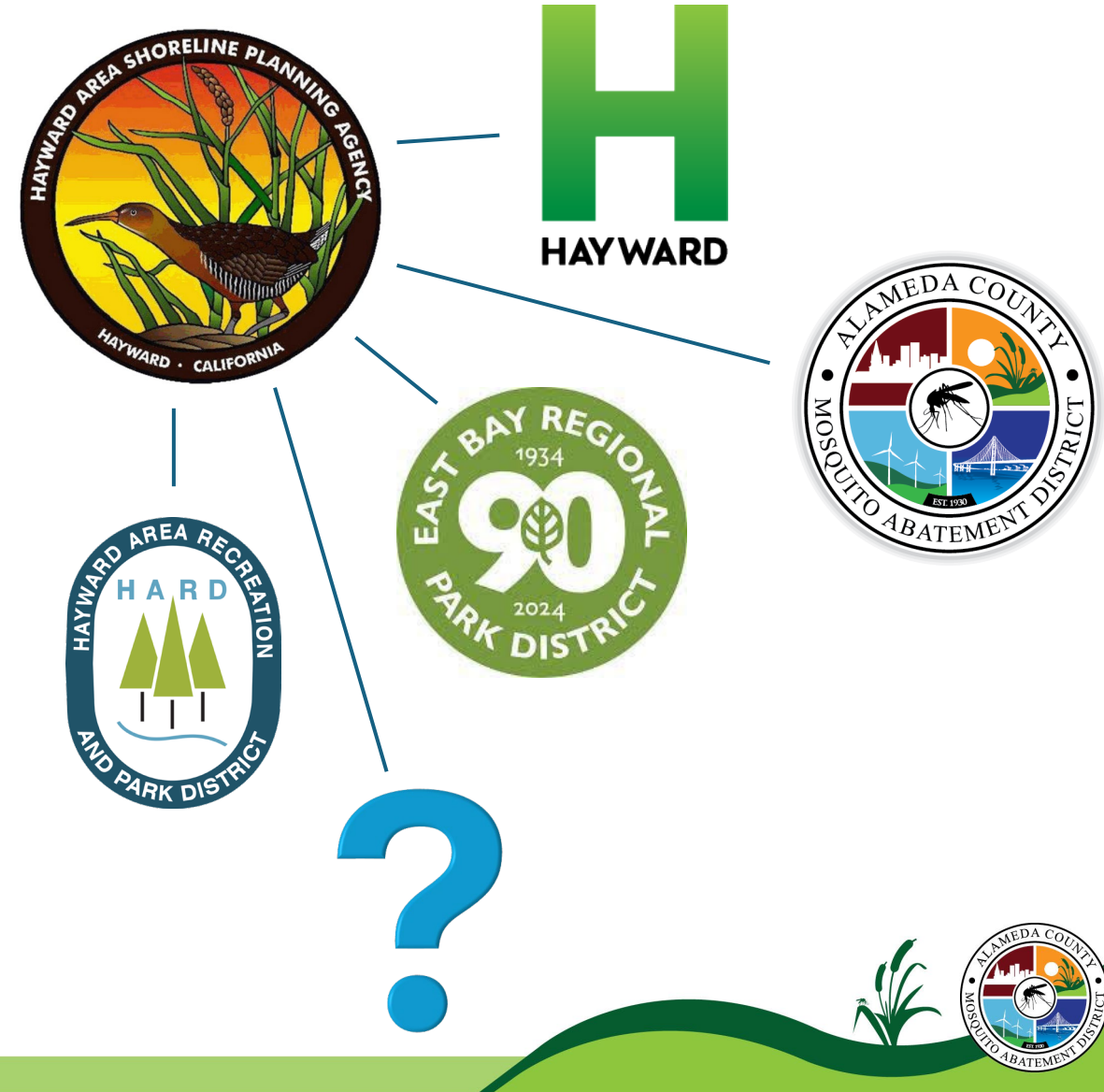


HASPA Joint Powers Authority (JPA) Agreement

- Negotiations of parties since 2022
- Close collaboration of agency staff
- New agreement replaces 1970's – era JPA

Goals:

- Expand the number of HASPA agencies
- Encourage more agencies to join HASPA in the future
- Prepare HASPA as a “sub-regional” agency for climate adaptation for Hayward Shoreline
- Implement the projects in the Master Plan
- Apply for and accept climate adaptation grant funds



HASPA JPA Agreement – Tiers

Agency	Weighted Voting %	Example Annual Dues Allocation
ACMAD (Tier 1)	10%	\$10,600
HARD (Tier 3)	30%	\$31,800
Hayward (Tier 3)	30%	\$31,800
EBRPD (Tier 3)	30%	\$31,800
TOTALS	100%	Example Annual Budget Total: \$106,000

Tier 1 agencies have an annual operating budget of less than \$10 million and Tier 3 agencies have an annual operating budget over \$30 million. The tiers described above are fixed and may not be modified except by amendment to the Agreement.





Questions?



**AMENDED AND RESTATED HAYWARD AREA SHORELINE PLANNING AGENCY
JOINT EXERCISE OF POWERS AGREEMENT**

July 1, 2024

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DRAFT

TABLE OF SCHEDULES

Schedule A: Service Area Map

Schedule B: HASPA Boundary Map

Schedule C: Annual Dues Table/Weighted Voting Chart

Schedule C-1: Example Annual Dues Table

DRAFT

**AMENDED AND RESTATED HAYWARD AREA SHORELINE PLANNING AGENCY
JOINT EXERCISE OF POWERS AGREEMENT**

THIS AGREEMENT, dated for convenience as of July 1, 2024, is made and entered into by and among the East Bay Regional Park District, a special district (hereinafter referred to as “Regional Park District”), the Alameda County Mosquito Abatement District, a mosquito control district (hereinafter referred to as “ACMAD”), the Hayward Area Recreation and Park District, a California special district (hereinafter referred to as “HARD”); and the City of Hayward, a municipal corporation (hereinafter referred to as “Hayward”) (collectively “Parties” and individually “Party”); each duly organized and existing in the County of Alameda under the constitution and laws of the State of California.

WITNESSETH:

WHEREAS, the Hayward Area Shoreline Planning Agency (hereinafter referred to as “HASPA” or “Agency”), is a joint powers authority consisting of representatives from the Regional Park District, ACMAD, HARD, and Hayward;

WHEREAS, HASPA was formed pursuant to the December 7, 1970 Joint Exercise of Powers Agreement (hereinafter the “Agreement”);

WHEREAS, the Agreement was subsequently extended on October 7, 1975, November 13, 1979, June 10, 1985, September 11, 1990, September 21, 1995, August 25, 2000, July 1, 2005, June 30, 2010, June 30, 2015, December 1, 2015, January 1, 2021, January 1, 2022, June 30, 2022, and May 11, 2023;

WHEREAS, HASPA's original purpose, which has been fulfilled, was to study, plan, and adopt policies concerning the land uses in the Shoreline area, in order to develop a comprehensive plan for the governing bodies of the original parties so that the plans and actions of each party are compatible with those of the other parties;

WHEREAS, the Hayward Shoreline faces serious impacts to public health, infrastructure, and resources caused by sea level rise, groundwater intrusion, and storm surge (“Climate Change Impacts”);

WHEREAS, HASPA adopted the Hayward Regional Shoreline Adaptation Master Plan, which creates a framework for a region-wide response to Climate Change Impacts;

WHEREAS, the Parties wish to continue HASPA and its powers and functions in addressing the new mission of responding to Climate Change Impacts by promoting public health and climate adaptation measures, protecting critical infrastructure at the shoreline, and maintaining public access to the shoreline, as more particularly described herein;

WHEREAS, Climate Change Impacts create a unique challenge to the preservation of open space resources at the shoreline. Climate adaptation measures facilitate the conservation and restoration of park lands and habitat for threatened species in the East Bay;

WHEREAS, the coastal inundation and flooding exacerbated by sea level rise increase the breeding habitat for mosquitoes and warmer temperatures associated with climate change can accelerate mosquito development. Engaging in preventative climate change efforts is a crucial way to combat and prevent the transmission of vector-borne diseases which will further ACMAD’s mission of improving the health and comfort of Alameda County residents;

WHEREAS, HARD is a recreational and park district established under Public Resources Code Section 5780 *et seq.* empowered to, among other things, acquire, operate, maintain, and improve recreational facilities and open space, which includes the authority to respond to Climate Change Impacts by implementing climate adaptation measures to safeguard its property;

WHEREAS, the City of Hayward, pursuant to Section 200 of the City Charter and Article XI, Section 5 of the California Constitution, may make and enforce all laws and regulations in

respect to municipal affairs, and pursuant to Article XI, Section 7 of the California Constitution may exercise its police powers to make and enforce ordinances and regulations to promote the public health, safety, and welfare, which includes development and implementation of climate adaptation measures to address Climate Change Impacts along the Hayward Shoreline, including sea level rise and/or inundation;

WHEREAS, the Parties desire that this Agreement supersede and supplant all previous iterations of the Agreement set forth above;

NOW, THEREFORE, in consideration of the mutual promises and agreements contained herein, the Parties agree as follows:

Section 1. Definitions

- a. “Agency” means HASPA.
- b. “Agreement” means this Amended and Restated Joint Exercise of Powers Agreement.
- c. “HASPA Board” means the Hayward Area Shoreline Planning Agency Board of Trustees, being the governing body of HASPA.
- d. “Controller” means the public officer performing the functions of auditor or controller as determined pursuant to the Act.
- e. “Hayward Shoreline” or “Service Area” means all areas of the City of Hayward and all areas of the unincorporated land in the Alameda County that are west of the Southern Pacific Railroad tracks and are between the boundaries of the City of San Leandro on the north and the City of Fremont on the south and all areas where the 100 year inundation line is currently shown on FEMA maps, as shown in Schedule A.

- f. “Manager” or “Managing Agency” means the Party, individual, or independent contractor, designated by the HASPA Board to act for and on behalf of the Agency, as the agent or representative of the Agency, pursuant to and within the scope of authority provided in this Agreement and delegated by the HASPA Board, as further described in Section 6.
- g. “Supporting Agency” means a Party that contracts for a project within the Service Area that is not otherwise supported by annual dues.
- h. “Surcharge” means funds required for any expenditure that is approved by the HASPA Board, but is not itemized in the annual budget.
- i. “Treasurer” means the public officer designated and performing the functions of as determined pursuant to Section 6505.5 or Section 6505.6 of the Act.

Section 2. Authority and Purpose

This Agreement is made pursuant to Chapter 5, of Division 7, Title 1 of the California Government Code (Sections 6500 *et seq.*; the "Act") and relates to the joint exercise of powers held by each of the Parties and as otherwise granted by the Act. The purpose of this Agreement is to jointly exercise the common powers of the Parties to address Climate Change Impacts on the Hayward Shoreline by promoting and implementing climate adaptation measures on the Hayward Shoreline through shoreline planning activities, collaboration to advance projects, and seeking funding for projects.

Section 3. Creation of HASPA

The Agency is a public agency separate from the Parties. The Agency will exercise the powers set forth in this Agreement. No debt, liability, or obligation of the Agency will constitute a debt, liability, or obligation of the Parties, except as expressly provided in this Agreement.

Section 4. Powers

To the greatest extent permitted by law and in the manner provided herein, the Agency will exercise the powers which are common to each Party, or as otherwise permitted under the Act, and all incidental, implied, expressed, or necessary powers to accomplish the purposes of this Agreement. The Agency is hereby authorized, in its own name, to perform all acts necessary to fulfill the purposes of this Agreement, including but not limited to any or all of, the following:

- a. to make and enter into contracts;
- b. to employ agents and employees;
- c. to apply for and accept grants, advances and contributions
- d. to receive, accept, and expend or disburse monies by contract or otherwise for purposes consistent with this Agreement;
- e. to employ or contract for the services of planners, financial advisors, consultants, contractors, fiscal agents, and such other persons as the HASPA Board deems necessary and to establish compensation, salaries, and other benefits for such persons as are necessary to implement this Agreement;
- f. to make plans and conduct studies;
- g. to acquire, hold or dispose of property;
- h. to sue and be sued in its own name;
to incur debts, liabilities or obligations and issue indebtedness;
- i. to prepare and adopt a general budget for HASPA's functions;
- j. to explore shoreline protection in conjunction with climate adaptation;
- k. to develop and adopt bylaws and policies for the conduct of the business of the Agency;

- l. to insure itself and the Parties from loss, liability, and claims arising out of or in any way connected with the performance of this Agreement; and
- m. To enter into joint exercise of powers agreements pursuant to the Act.

For the purposes of California Government Code Section 6509, the powers of the Agency will be exercised subject to the restrictions upon the manner of exercising such powers as are imposed on the City of Hayward, a charter city.

Section 5. Organization

a. HASPA Board

The Agency will be governed by the HASPA Board, which will exercise all powers and authority on behalf of the Agency except as otherwise provided herein. The HASPA Board is composed of representatives from each Party, who are known as trustees. Each Party to this Agreement will appoint one member of its governing body to be a trustee and will appoint a second member of its governing body to be an alternate trustee to serve in the absence of that Party's trustee. Each trustee and alternate will serve at the pleasure of his or her governing body, but in no event will either a trustee or alternate trustee serve on the HASPA Board if he or she is no longer a member of the governing body of a Party. Each trustee (or alternate trustee serving the absence of the trustee) is allocated one vote on any matter before the HASPA Board. In accordance with the Bylaws, the trustees will elect from among themselves, and establish the terms of office for, a Chair and such other officers, as they deem necessary or desirable.

b. Voting

1. Majority Vote and Weighted Voting. Generally, the affirmative vote of a majority of the total membership of the HASPA Board is required to adopt any action. However, any trustee may call for any motion to be subject to

weighted voting. The call for weighted voting must be made before the motion is made. The weighted percentage of each trustee's vote will be as set forth in Schedule C. An affirmative vote of at least 51% is required to adopt any motion subject to weighted voting, subject to the consent requirement in Section 8(a) if applicable.

c. JPA Amendments.

Unless explicitly provided in the Agreement, the HASPA Board and the governing boards of the Parties must unanimously approve all amendments to the Agreement, including any amendments to the Agreement that effect the rights, obligations, or status of the Parties to this Agreement, add new parties to the Agreement, or alter the authority and purpose of the Agency.

d. Certain JPA Amendments Delegated to the Board.

The Parties have delegated to the HASPA Board the authority to make any revision to the provisions of the Agreement related to the operations of the Agency, which is necessary to affect the purpose of the Agency.

e. Certain JPA Amendments Delegated to the Manager/Managing Agency.

In addition, the Parties have delegated to the Manager/Managing Agency the authority to make such administrative revisions to the Agreement as described in Section 12.

f. Meetings

All meetings of the HASPA Board are public meetings and will be held subject to the requirements of the Ralph M. Brown Act, Section 54950 *et seq.* of the California Government Code, other applicable laws of the State of California, and the bylaws of the HASPA Board. A majority of the trustees will constitute a quorum.

g. Bylaws

The HASPA Board may adopt, and from time to time amend, bylaws of the HASPA Board as necessary or convenient in the determination of the HASPA Board to achieve its purposes. The bylaws may set forth how meetings of the HASPA Board will be conducted.

Section 6. Managing Agency/Manager

a. Managing Agency

If the HASPA Board designates a Party as the Managing Agency, the duties of the Managing Agency will alternate among the Tier 3 Parties as set forth in Schedule C. The Tier 3 Parties will rotate the Managing Agency role as needed.

b. Manager

The HASPA Board may employ a staff member of one of the Parties or other individual to manage the Agency, or it may contract for the services of the Manager. In such case, the HASPA Board will prescribe the duties, compensation, and terms and conditions of employment, or of the contract, of the Manager. At a minimum, the Manager will coordinate the business of the Agency, hire and direct any Agency employees, attend HASPA Board meetings, prepare, distribute and maintain agendas and minutes of the HASPA Board meetings and official actions of the Agency, and carry out other duties as may be assigned by the HASPA Board. The Manager will serve at the pleasure of the HASPA Board. In the event the HASPA Board employs or contracts for the services of a Manager, the Managing Agency will be responsible for supporting tasks such as administration of the contract for the services of a Manager and use of office resources.

Section 7. Employees

a. Agency Employees

The Agency may directly employ officers, agents, or employees, but none of the officers, agents, or employees directly employed by the Agency will be deemed, by reason of their employment by the Agency, to be employed by any Party or to be subject to any of the requirements of any Party. Any officer, employee, or agent of the Agency may also be an officer, employee, or agent of any Party, provided that the HASPA Board or Manager determines that the two positions are compatible.

b. Officers, Employees, Agents of the Parties

All privileges and immunities from liability, all exemptions from laws, ordinances and rules, and all pension, relief, disability, worker's compensation, and other benefits which apply to the activities of officers, agents, or employees of a Party when performing their respective functions will apply to them to the same degree and extent while engaged in the performance of any of the functions and other duties under this Agreement.

Section 8. Budget and Finance

a. Budget

The Agency may adopt a budget for activities consistent with its powers and may require the contribution of funds from the Parties for the expenditures included in that budget. As opportunities arise, the Board may approve the imposition of Surcharges to fund expenses that are not otherwise included in the adopted budget. Generally, Surcharges will be allocated to each Party in accordance with the percentages in Schedule C. However, at the request of any Party, the Board may consider a different allocation for the Surcharge. At the Board's discretion, such allocation may be among all of the Parties or only a portion of the Parties. The intent of any such alternative allocation is to give Supporting Agencies and/or any Party that may receive unique benefits from the expense the opportunity to contribute at a higher level than the

applicable percentage in Schedule C. If a Party's Surcharge allocation is higher than the percentage in Schedule C, the Party must consent in writing to the Surcharge allocation. The Board's decision on any allocation will be final.

b. Dues

On July 1 of each year, each Party will pay the annual dues to the Agency. The total amount of annual dues will equal the total adopted budget for that fiscal year. Each Party's allocation of the annual dues will be based on the percentages set forth in Schedule C.

c. Funding and Agency Financial Commitments

The Agency may apply for and receive grants and other funding from outside sources to support its purpose. The Agency may be the responsible fiscal agency for the funding or an appropriate Party may be selected. The Agency may not make any financial commitment that requires revenues in excess of those available to it.

Section 9. Treasurer, Controller, Accountability, and Access to Property

a. Treasurer

Pursuant to Government Code Section 6505.5, the treasurer of the Managing Agency, or other duly authorized staff person, is the Treasurer of the Agency. Alternatively, pursuant to Government Code Section 6505.6, the HASPA Board may appoint one of the Agency's officers or employees as Treasurer of the Agency. The Treasurer will be the depositary, and have custody of all the money of the Agency from whatever source. The Treasurer will:

1. Receive and receipt for all money of the Agency and place it in the treasury of the Treasurer to the credit of HASPA.
2. Be responsible upon his or her official bond for the safekeeping and disbursement of all Agency money and personal property.

3. Pay, when due, out of money of the Agency, all sums due from the Agency, or any portion thereof, only upon warrants of the public officer performing the functions of Controller of the Agency.
4. Verify and report in writing on the first day of July, October, January, and April of each year to the Agency, and to each of the Parties, the amount of money held for HASPA, the amount of receipts since the last report, and the amount paid out since the last report.
5. Invest all of the Agency's funds not currently required in the manner provided by law including but not limited to Government Code sections 6509.5 and 53601 and collect interest thereon for account of the Agency.
6. Have the powers, duties, and responsibilities of the treasurer as specified in the Act, including, without limitation, Sections 6505 and 6505.5 thereof.

b. Controller

Pursuant to Government Code Section 6505.5, the auditor of the Managing Agency, or other duly authorized staff person, is the Controller of HASPA. Alternatively, pursuant to Government Code Section 6505.6, the HASPA Board may appoint one of the Agency's officers or employees as Controller of the Agency. If an appointment is made pursuant to Government Code Section 6505.6, the offices of the Treasurer and Controller may be held by the separate individuals or the offices may be held by the same individual. The Controller will draw warrants to pay demands against the Agency when the demands have been duly authorized by the HASPA Board. The Controller will have the powers, duties, and responsibilities specified in the Act, including, without limitation, Sections 6505 and 6505.5 thereof.

c. Accountability of Funds

There will be strict accountability of all HASPA funds and report of all receipts and disbursements and compliance with the Act. The Controller will either make or arrange for a contract with a certified public accountant or public accountant to make an annual audit of the accounts and records of the Agency.

d. Access to Property and Funds

As provided in Section 6505.1 of the Act, the Treasurer is hereby designated as the person who has charge of, handles, and has access to the property of the Agency. The HASPA Board will require such person to file an official bond in an amount to be fixed by the HASPA Board and the cost of said bond will be paid by the Agency.

Section 10. Term, Termination, and Withdrawal of a Party

a. Term

This Agreement is effective as of the date of execution by the last Party hereto and will continue in full force and effect until terminated by mutual agreement of the Parties.

b. Termination

Upon mutual agreement of the Parties to terminate the Agreement, the Agency will liquidate any assets. After the discharge of all enforceable liabilities, the liquidated assets will be divided as agreed to by the Parties. In terminating this Agreement, the Parties agree to apportion any employee retirement obligations of the Agency equally among all Parties. All Parties will comply with all legal requirements related to the Agency's pension liabilities and obligations as specified in the Act and the Public Employees Retirement Law (California Government Code Section 20000 et seq.).

c. Withdrawal

Any Party may withdraw from the Agency by reaching an agreement with the remaining Parties, whereby the remaining Party(ies) acquires all of the rights in this Agreement and in the Agency and assumes all liability, including bonded indebtedness, of the withdrawing Party.

d. Reinstatement

A Party, subsequent to its filing of its notice of withdrawal or its actual withdrawal from the Agency, may seek reinstatement as a member of the Agency in accordance with the procedures for adding a new party as set forth in Section 14.

Section 11. Elections

For the purpose of holding any election within the Agency's boundaries, the HASPA Board may call and hold an election to submit propositions to the electors of the Agency in the same manner as the board of supervisors of a county may call and hold county elections, and the electors of the Agency will have the right to petition for referendum on any ordinance enacted by the HASPA Board in the same manner as the electors of a county, except that all computations referred to in those sections and the officers of the county mentioned in those sections will be construed to refer to comparable computations and officers of the Agency. For the purposes of any such election or referendum petition, the electors residing within the boundaries of the Agency who would be qualified to vote for candidates for Governor at any general election will be the electors of the Agency.

Section 12. Boundaries and Service Area

The boundary of the Agency will be the consolidated boundaries of all Parties, as may be amended from time to time. The current boundaries are shown in Schedule B. In the event the Agency's boundaries change, the Managing Agency or Manager will prepare an updated Schedule B, which will be automatically incorporated into this Agreement. For clarity, HASPA

generally will exercise the common powers described in this Agreement within the Service Area, as shown in Schedule A. In the event the Service Area changes (e.g. due to the withdrawal of a Party, updates to the FEMA maps), the Managing Agency or Manager will prepare an updated Schedule A, which will be automatically incorporated into this Agreement. The Managing Agency or Manager will inform the Board of updates to Schedule A or B.

Section 13. Amendments

The Parties authorize the HASPA Board to approve amendments to the Agreement as described in section 5(d) and the trustees are each authorized to execute any such amendments on behalf of their respective agencies. All other amendments to this Agreement require approval by unanimous vote of the total membership of the HASPA Board and a writing approved and executed by the governing bodies of all Parties.

Section 14. New Parties

A new party may be added to this Agreement by forwarding a duly adopted resolution of its governing body to the Manager or Managing Agency. If approved by the HASPA Board, the addition of the new party will be effective upon approval of the amendment by the governing bodies of all Parties.

Section 15. Dispute Resolution

In the event of any dispute, the Parties will promptly meet and confer, first at a staff level and then elevated to a meeting of the HASPA Board, in a good faith attempt to resolve the dispute. In connection with such negotiations, the Party asserting the dispute must provide the other with a written description of the nature of the dispute, along with reasonable supporting documentation. If a dispute cannot be resolved by the Parties independently, they may agree to submit such dispute to non-binding mediation by a mutually agreed-upon neutral third Party with

offices in the San Francisco Bay Area. The cost of mediation will be shared equally. In the alternative, a Party may choose to resolve questions or disputes arising under the Agreement through arbitration or judicial determination.

Section 16. Severability

If any one or more of the covenants or agreements set forth in this Agreement should be contrary to any provision of law or contrary to the policy of law to such an extent as to be unenforceable in any court of competent jurisdiction then such covenant or covenants, or such agreement or agreements, will be null and void and will be deemed separable from the remaining covenants and agreements and will in no way affect the validity of remaining portions of this Agreement.

Section 17. Counterparts.

This Agreement may be separately executed in any number of counterparts, and each counterpart signature page and the remainder of this Agreement will constitute the original Agreement. Facsimile, electronic, or digital signatures will be treated in all respects as having the same effect as an original signature.

Section 18. Successors; Assignment

This Agreement will be binding upon and inure to the benefit of the successors of the Parties. No Party may assign any right or obligation hereunder without the consent of the others.

Section 19. Governing Law

This Agreement will be governed by, and construed and enforced in accordance with, the laws of the State of California, without giving effect to conflict of law provisions.

Section 20. Joint Drafting

All Parties participated in the drafting of this Agreement and the Agreement will not be construed against any Party as the drafter.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be duly executed and attested by their respective officers, duly authorized to so act, on the dates set forth.

SIGNATURE BLOCKS ON FOLLOWING PAGES

DRAFT

Schedule C: Annual Dues Table/Weighted Voting Chart¹

Agency	Weighted Voting %
ACMAD (Tier 1)	10%
HARD (Tier 3)	30%
Hayward (Tier 3)	30%
EBRPD (Tier 3)	30%
TOTALS	100%

¹ *The weighted voting allocation described in this Schedule C is based on the agencies' annual operating budgets. Tier 1 agencies have an annual operating budget of less than \$10 million and Tier 3 agencies have an annual operating budget over \$30 million. The tiers described above are fixed and may not be modified except by amendment to the Agreement.*

Schedule C-1: Example Annual Dues Table
For illustrative purposes only

Agency	Weighted Voting %	Example Annual Dues Allocation
ACMAD (Tier 1)	10%	\$10,600
HARD (Tier 3)	30%	\$31,800
Hayward (Tier 3)	30%	\$31,800
EBRPD (Tier 3)	30%	\$31,800
TOTALS	100%	Example Annual Budget Total: \$106,000

MINUTES

1095th MEETING OF THE BOARD OF TRUSTEES OF THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT

October 13th, 2021

TIME: 5:00 P.M.
PLACE: *Zoom Teleconference Only*
TRUSTEES: P. Robert Beatty, President, City of Berkeley
Subru Bhat, Vice-President, City of Union City
Victor Aguilar, Secretary, City of San Leandro
Cathy Roache, County-at-Large
Wendi Poulson, City of Alameda
Preston Jordan, City of Albany
Shawn Kumagai, City of Dublin
City of Emeryville, vacant
George Young, City of Fremont
Elisa Márquez, City of Hayward
Steven Cox, City of Livermore
Eric Hentschke, City of Newark
Jan O. Washburn, City of Oakland
Andrew Mingst, City of Piedmont
Julie Testa, City of Pleasanton

1. Board President Beatty called the regularly scheduled board meeting to order at 5:01 P.M.
2. Trustees Beatty, Bhat, Aguilar, Roache, Jordan, Kumagai, Young, Márquez, Cox, Hentschke, Washburn, Mingst, and Testa were present on the Zoom conference. Trustee Poulson was absent.
3. Board President Beatty invited members of the public to speak on any issue relevant to the District. Regulatory and Public Affairs Director Erika Castillo was present to comment and support discussion on several items. Information Technology Director Robert Ferdan was present for technical support. Vector Biologist Jeremy Sette was present to record the minutes. No public comments were submitted.
4. Approval of the minutes of the 1094th meeting held September 8th, 2021.
Motion: Trustee Aguilar moved to approve the minutes.
Second: Trustee Testa
Vote: motion carries: unanimous.
5. Resolution 1095-1 Authorizing Remote Teleconference Meetings of the Legislative Bodies of the Alameda County Mosquito Abatement District Pursuant to Brown Act Provisions.
Discussion:
The General Manager gave a background of the CSDA sponsored bill, AB 361, which guided resolution 1095-1 and fielded the following discussion. President Beatty asked for

clarification on which months the resolution would be addressing (from this date until mid-November).

Motion: Trustee Aguilar moved to approve Resolution 1095-1.

Second: Trustee Washburn

Vote: motion carries: unanimous.

6. Accept the invitation to join the Hayward Area Shoreline Planning Agency (HASPA) and appoint a Trustee representative and assigned staff member.

Discussion:

Trustee Marquez, a current member of the Hayward Area Shoreline Planning Agency (HASPA), recused herself from voting on the item to avoid any conflict of interest and disconnected for the remainder of the item. The General Manager gave a brief background of the District's interest in accepting an invitation to join HASPA and fielded the following discussion. President Beatty asked when ACMAD would be paying HASPA membership dues (next fiscal year). Trustee Cox asked what the membership dues would be contributing towards (administrative support with details yet to be determined) and asked for clarification regarding the role of the staff member (to attend meetings and support the assigned Trustee) and Board member (to review and vote on projects). President Beatty asked if Regulatory and Public Affairs Director Erika Castillo could elaborate on ACMAD's interest in joining HASPA (Castillo emphasized the importance of joining HASPA to be involved with decision making that could address any potential mosquito control related issues). The General Manager explained that the District would not pay any amount beyond the stated amount without Board approval. Trustee Cox asked for clarification regarding the role of the different agencies involved in HASPA and does the work overlap with Alameda County Flood Control projects (current members are only landowners, the expansion strategy will also include interested parties including ACMAD, and additional land owners such as the Alameda County Flood Control District). Trustee Washburn mentioned the additional costs that could be borne if ACMAD did not join and asked if the District could leave HASPA at any time (funds are approved by the ACMAD Board along with membership responsibility). Trustee Washburn agreed with the General Manager and Castillo's assessment and encouraged joining the agency. Trustee Jordan stated that the membership could be viewed as an insurance policy against any challenges that may arise. President Beatty asked if Trustee Hentschke was willing, able, and interested to be nominated as the Board representative to the agency (Trustee Hentschke replied, yes) and expressed interest in joining HASPA. Castillo gave details regarding the structure of HASPA and past District involvement with the agency along with the benefit of collecting data to support our mission (which was seconded by President Beatty). Vice-President Bhat expressed his interest in joining. Trustee Cox asked about clarification on how the administrative costs derived from the District's responsibility with the agency would be addressed and expressed apprehension regarding the cost of dedicating staff (the General Manager agreed with Trustee Cox's concerns and expects those details to be updated as a formal member of HASPA. The General Manager reminded the Board that any further monetary requests or changes in the agreement will be brought to them before action is taken). Secretary Aguilar asked if the assigned Trustee will be receiving a stipend (the General Manager and Castillo were not clear and will get back to Secretary Aguilar). Trustee Roache clarified that the current motion and second on the table would approve the staff recommendation. Trustee Jordan asked to add in a proviso that the Board vote on joining for now, until the agency's MOU is reviewed. Trustee Washburn noted that the Board will review and vote on the dues and expenditures when the Board votes on the next year's budget regardless. President Beatty asked for clarification on what the Board was currently voting on: (the motion on the table is to accept the staff recommendation): *1) accepting HASPA's invitation to join, 2) will pay up to \$12,000 in annual membership dues, 3) will assign existing staff to the advisory committee, and 4) will appoint Trustee Hentschke as District representative to HASPA.*

Motion: Trustee Roache moved to approve the staff recommendation listed above

Second: Trustee Washburn

Vote (roll call)

AYES: 10 (Beatty, Bhat, Aguilar, Roache, Kumagai, Young, Hentschke, Washburn, Mingst, Testa)

NOES: 2 (Cox, Jordan)

ABSENT: 2 (Poulson, Marquez)

ABSTAIN: 0

Motion passes: 10-2

7. First reading of revisions to District policy.

Discussion:

The General Manager invited Trustee Marquez back to the meeting. The General Manager stated that Castillo is also the President of the District's Employee Association and reviewed the proposed changes of District policy with staff. The General Manager summarized the proposed edits of District policy and fielded the following discussion. President Beatty asked for clarification on changes to committees (explained). President Beatty asked if the Personnel Committee was formed annually (only on an as-needed basis). President Beatty asked if the Board should review the edits and send in any comments to the General Manager know for the November packet (yes please, by October 22nd). Trustee Jordan asked if the General Manager could further explain 405.5 (Lab Director Eric Haas-Stapleton reviewed the UAS policy and recommended the following changes based off changes to aviation law) and asked the importance of having a Visual Observer (often used, but not required for all missions). Regulatory and Public Affairs Director Castillo further referenced current laws regarding UAS. Trustee Jordan suggested consistency in the UAS sections between plural and singular flight crew and that he will send his comments to the General Manager. Trustee Cox suggested replacing pronouns he/she with them/they and asked the cost of adding an additional holiday (it is an additional cost and the General Manager clarified that it was a managerial request, rather than coming from the employee association request). President Beatty asked if Admissions Day was a state holiday (yes, for state employees) and if Lincoln's Birthday was a Federal Holiday (no). Trustee Jordan commented on the already high number of current District holidays and expressed interest in moving the Juneteenth holiday addition to the MOU discussion as a possible swap, if requested. Vice-President Bhat recommended substituting Lincoln's Birthday for Juneteenth, if that is requested by staff. Trustee Marquez suggested consulting with an employee attorney before deciding on how to proceed with the holiday discussion. Trustee Roache noted that Juneteenth is a federal ,but not currently a state, holiday. The General Manager encouraged the Board to send in any policy comments by the 22nd of October, if possible, and will reach out to an attorney regarding the holiday policy.

8. Financial Reports as of September 30th, 2021.

Discussion:

The General Manager presented the Financial Reports and fielded the following discussion. President Beatty noted that assets and capital are increasing over the past three years (the General Manager explained any positive net income are being invested in reserve accounts).

9. Presentation of the Monthly Staff Report.

Discussion:

The General Manager gave the monthly staff report and fielded the following discussion. President Beatty asked how many days traps were placed in the mosquito abundance graph

at the Don Edwards National Wildlife Refuge (Regulatory and Public Affairs Director Castillo answered that the “number of traps placed” referenced the number of days/traps were placed at the site) and noted the numbers of variables involved in the data. Trustee Jordan agreed with the multiple variables that affect this type of chart and asked if WNV positive birds were found in certain locations annually (anecdotally, WNV positive birds move between from west to east county year to year but generally, it varies) and asked if the District was working on identifying the owner of the south county source (yes, staff is looking into a long-term solution). Trustee Jordan suggested contacting the county assessor for information regarding ownership of property (Information Technology Director Robert Ferdan discussed how owner information has been integrated into our field database technology, which is a unique feature to our District). Castillo gave the Public Education staff report. Group Chat messages were added during this item including Trustee Marquez- “Turning off my camera, sorry I need to eat before my next Zoom at 7.” Secretary Aguilar- “Hi, all! I am doing the same. I have another meeting at 7 that I have to Chair”. Vice-President Bhat- “Bon Appetit!” President Beatty- “Please feel free to eat and turn off your camera”.

10. Presentation of the Manager’s Report.

Discussion:

The General Manager presented the Manager’s Report and fielded the following discussion. The General Manager asked Board members to let him know if they did not want to be reappointed to the Board. President Beatty asked how long the Trustee appointments were for (two or four years).

11. Board President Beatty asked for reports on conferences and seminars attended by Trustees. None.

12. Board President Beatty asked for announcements from the Board. Trustee Jordan enjoyed the PBS NewsHour story that he, and Secretary Aguilar, shared with the General Manager and asked if staff felt that this information could be a useful public information tool (the information in the story was presented fairly and should be shared with the public). The General Manager announced that the District will host Assemblymember Quirk, UC Davis staff, and MVCAC leadership at the District on November 8th at 2pm and if any Trustees would like to attend, please let him know. Trustee Testa noted that she was not notified of the WNV positive bird in her area and asked if there was an announcement given to Board members regarding WNV positive birds (Castillo answered that Constant Contact sent out an update that may have ended up in Trustee Testa’s spam folder but will confirm that all Board members are on the current outgoing list).

13. Board President Beatty asked trustees for items to be added to the agenda for the next Board meeting. The General Manager noted that a resolution to meet remotely in December will be before the Board in November.

14. The meeting adjourned at 6:59 P.M.

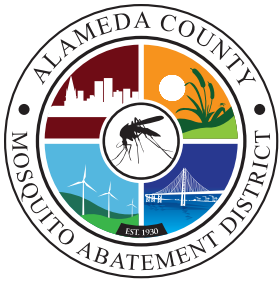
Respectfully submitted,

Approved as written and/or corrected
at the 1096th meeting of the Board of

Victor Aguilar, Secretary
BOARD OF TRUSTEES

Trustees held November 10th, 2021

P. Robert Beatty, President
BOARD OF TRUSTEES



ALAMEDA COUNTY

MOSQUITO ABATEMENT DISTRICT

91st and 92nd Annual Report 2022–2023



Dedicated to the Memory of

James N. Doggett
Trustee
1977 - 2020
Passed Away 4/7/22



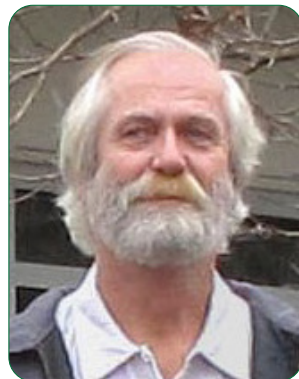
George Young
Trustee
2013 - 2023
Passed Away 10/20/23



Jan O. Washburn
Trustee
1993 - 2024
Passed Away 1/21/24



Lyle Cain
Employee
2000 - 2014
Passed Away 11/21/22



Melvin Mello
Employee
1953 - 1978
Passed Away 1/25/24



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ADAPTING TO CHANGES AT ACMAD: IT HELPS TO HAVE A PLAN



Six weeks before writing this, the Alameda County Mosquito Abatement District (ACMAD) Board of Trustees conducted a strategic planning workshop leading to the approval of a plan on January 10th. This was our third strategic plan in our 94 years of history and like the two plans prior, the process of completing the plan is as valuable as the plan

itself. Every three years, all staff members and the Board work together to identify the District's values, priorities, weaknesses, and strengths. They encourage data to support decisions, employ wisdom to learn from success and failures, and leave space for the unexpected. (I doubt mosquitoes are as organized, and yet, they persist).

The theme of our last biennial report was *Controlling Mosquitoes During a Pandemic*. Since then, we tackled a record rain and West Nile virus year in 2022 immediately after rezoning our eight operational work zones and incorporating two new hires. One of those new employees, Alex Roache, was lucky enough to respond to the State's first West Nile virus positive mosquito a few weeks after moving into his zone. The other new employee, Danny Sharkey, found himself in the middle of a West Nile virus hotspot in his first season leading to more adult control operations in his zone in one month than ACMAD has done in decades. With proper training and planning, Danny, and Alex, along with the rest of the operational staff (John, Neil, Nick, Sarah, Ben, Erick, and Joseph), responded very well to *improving the health and comfort of Alameda County residents by controlling mosquitoes and limiting the transmission of mosquito-borne diseases*. Read Joseph's report on this further on page 8.

According to Sun Tzu, "...intelligence is the key to war..." We would fail in our war against mosquitoes if not for the intelligence obtained by our District laboratory staff which includes Dereje, Miguel, and Eric. Besides the routine trapping and testing for native and invasive

mosquitoes, the lab also responds to travel related mosquito-borne diseases, tests dead birds for the presence of arboviruses, undertakes quality-control testing of new products and equipment, and conducts novel research. The Lab Director, Eric Haas-Stapleton PhD, who is also the District's lead Unmanned Air System (UAS) pilot, will write more about the District lab activities in his report on page 10.

As most sources of mosquito production occur on private property that is difficult to access, it is important that the public helps control mosquitoes through our education and outreach program, which Erika and Judi will report on starting on page 13. Mosquito work on public land requires permissions and environmental considerations which will also be reported in this section.

To effectively execute these programs you need reliable equipment, accessible information technology, and adequate funding. Mark, Robert, and Michelle will report on how ACMAD prepares and adapts in their reports, beginning on page 16.

Finally, we cannot complete our mission without the leadership from our Board of Trustees, who represent all 1.6 million residents of Alameda County and whom we lost three members since the last biennial report: Trustees Doggett, Young, and Washburn. These Trustees gave a combined 84 years of public service to ACMAD and along with retired employees Lyle Cain and Melvin Mello this report is dedicated to their memory.

Ryan Clausnitzer
General Manager

GOVERNING BOARD

The fourteen city councils within Alameda County plus the County Board of Supervisors each appoint one Trustee to represent its constituency on the fifteen-member governing board of the Alameda County Mosquito Abatement District for a fixed term of two or four years. The principal acts granting district authority are found in section 2000 of the California Health and Safety Code. Members of the Board of Trustees possess a variety of skills and expertise in academia, agriculture, business, education, electrical engineering, entomology, environmental health, geology, insurance, government, human resources, legal, mechanical engineering, parks and recreation, pharmaceuticals, politics, and scientific research.

Trustees serve without compensation, rather, they receive a maximum stipend of \$100 per month for attending business meetings of the Board. The regular Board meetings are held on the second Wednesday of each month at the District office, 23187 Connecticut Street, Hayward at 5:00 p.m. and the meetings are open to the public. Remote meeting attendance is allowed under certain conditions.



TRUSTEES FOR THE YEARS 2022 & 2023

Trustee	Representing	Years of Service
Cathy Roache	County-at-large	5
Tyler Savage	Alameda	2
Preston Jordan	Albany (2022)	2
Robin López	Albany (2023)	1
Robert Beatty	Berkeley	8
Steve Kumagai	Dublin (2022)	3
Kashef Qaadri	Dublin (2023)	1
Courtney Welch	Emeryville	2
George Young	Fremont	11
Elisa Marquez	Hayward (2022)	8
George Syrop	Hayward (2023)	1
Steve Cox	Livermore	4
Jan O. Washburn	Oakland (Berkeley)	7 (23)
Eric Hentschke	Newark	8
Hope Salzer	Piedmont	2
Julie Testa	Pleasanton (2022)	3
Valerie Arkin	Pleasanton (2023)	1
Victor Aguilar	San Leandro	5
Subru Bhat	Union City	6



Serving
Alameda County's
1.6M
residents

14 Cities
+ Unincorporated
Alameda County

15 Board
Members

103
YEARS of
District Service combined

DISTRICT PERSONNEL



Alameda County Mosquito Abatement District staff

Name of Employee	Position	Years of Service
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SUPPORT STAFF

Ryan Clausnitzer	General Manager	8.5
Erika Castillo	Regulatory & Public Affairs Director	21.5
Robert Ferdan	Information Technology Director	8.5
Judith Pierce Davison	Public Outreach Coordinator	3.5
Michelle Robles	Financial & HR Specialist	7.5
Mark Wieland	Mechanical Specialist	9

OPERATIONS STAFF

Joseph Huston	Field Operations Supervisor	32.5
Nick Appice	Vector Biologist	9.5
John Busam	Vector Biologist	21.5
Cornelius Campbell	Vector Biologist	20
Erick Gaona	Vector Biologist	4
Sarah Lawton	Vector Biologist	8
Tom McMahon	Vector Biologist	21
Alex Roache	Mosquito Control Technician	1
Ben Rusmisel	Vector Biologist	8
Jeremy Sette	Vector Biologist	7.5
Danny Sharkey	Mosquito Control Technician	1

LABORATORY STAFF

Eric Haas-Stapleton	Laboratory Director	8.5
Dereje Alemayehu	Vector Scientist	24.5
Miguel Barretto	Associate Vector Scientist	5.5



Lab staff



Office staff



Operations staff

Seasonal Employees

2022–Alex Roache, Pamela Wilde, Anam Safoora, Andrew Burns

2023–Annika Olson

18

FULL-TIME
EMPLOYEES

PROFESSIONAL ENGAGEMENT

The District is one of over 60 agencies that conduct mosquito control and one of over 2,000 special districts, in California. The District participates in the activities of the California Special Districts Association (CSDA), the Mosquito and Vector Control Association of California (MVCAC), and the American Mosquito Control Association (AMCA). There, we promote the innovative work of our District, coordinate common activities, and increase the knowledge and abilities of staff and trustees. The following is a list of District employees who have participated in regional, statewide, or national activities either by committee, have spoken or presented, or are an officer chosen by their peers:

MEMBERSHIPS

Ryan Clausnitzer

President, Alameda County Special District Association

Vice-Chair, California CLASS JPA

President, CSDA (2022)

Ex Officio Member: CSDA Audit, Bylaws, Fiscal, Member Services, Professional Development Committees (2022)

Member, CSDA Legislative, Fiscal, Executive Committees (2023)

CSDA Appointee to National Special District Coalition

Executive Committee member, East Bay Economic Development Agency

Member, MVCAC Legislative Committee

Erika Castillo

Member, AMCA Endangered Species Subcommittee

Chair, MVCAC Regulatory Affairs Committee

Board Member, San Francisco Bay Joint Venture

Member, San Francisco Bay Restoration Authority Advisory Committee

Member, Wetlands Regional Monitoring Program (WRMP) People and Wetlands Workgroup

Vice Chair, WRMP Steering Committee

Robert Ferdan - CGCIO

Member, Cal Office of Emergency Services Security Integration

Member, Municipal Information Systems Association of California (MISAC) Artificial Intelligence Task Force

MISAC Mentorship Program

Member, MISAC Security Committee

Member, Multi-State Information Sharing and Analysis Center (MS-ISAC) – Department of Homeland Security

Member, MVCAC Information Technologies Committee

Member, Public Technology Institute (PTI)

Eric Haas-Stapleton, PhD

Member, MVCAC CalSurv Steering Committee

Chair, MVCAC Drone Committee

Member, MVCAC Information Technologies Committee

Member, MVCAC Laboratory Technologies Committee

Member, MVCAC Vector Control Research Committee

Joseph Huston

Member, MVCAC Trash Capture Sub-Committee

Judith Pierce

Member, MVCAC Public Education Committee (2023)

Coordinator, National Mosquito and Vector Control Educators Group

Sarah Lawton

Chair, AMCA Young Professionals (2022)

Past-Chair, AMCA Young Professionals (2023)

Mark Wieland

Member, Alameda County Emergency Managers Association



California Special Districts Association

Districts Stronger Together



MVCAC
Mosquito and Vector Control Association of California

PUBLICATIONS

Haas-Stapleton EJ, Rochlin I, 2022. Wetlands and mosquito control in the twenty-first century. *Wetlands Ecology and Management*. <https://doi.org/10.1007/s11273-022-09860-w>

Hager KM, Gaona E, Kistler AL, Ratnasiri K, Retallack H, Barretto M, Wheeler SS, Haas-Stapleton EJ, 2022. Quantitative reverse transcription PCR assay to detect a genetic marker of pyrethroid resistance in *Culex* mosquitoes. *PLOS ONE*. <https://doi.org/10.1371/journal.pone.0252498>

Sy ND, Wheeler SS, Reed M, Haas-Stapleton EJ, Reyes T, Bear-Johnson M, Kluh S, Cummings R, Su T, Xiong Y, Shi Q, Gan J, 2022. Pyrethroid insecticides in urban catch basins: A potential secondary contamination source for urban aquatic systems. *Environmental Pollution*. <https://doi.org/10.1016/j.envpol.2022.120220>

Wieland M, Huston J, Clausnitzer R, Haas-Stapleton EJ, 2022. Mr. Mister: Rockin' the *Aedes* of the San Francisco Bay Salt Marshes. *Journal of the American Mosquito Control Association*. <https://doi.org/10.2987/22-7082>



9 MVCAC presentations

3 Partner presentations

2022 MVCAC

Barretto M, Fang Y, Haas-Stapleton EJ, Kelley K, MVCAC Laboratory Technologies Committee, 2022. Evaluating three kits to isolate RNA for arbovirus testing. Presented at the 2022 Annual Meeting of the Mosquito and Vector Control Association of California. Sacramento, CA.

Estus E, Clausnitzer, Haas-Stapleton EJ, 2022. Equitable, effective practices for mosquito abatement in Alameda County: challenges and solutions. Presented at the 2022 Annual Meeting of the Mosquito and Vector Control Association of California. Sacramento, CA.

Haas-Stapleton EJ, 2022. A panoply of drone uses for mosquito control. Presented at the 2022 Annual Meeting of the Mosquito and Vector Control Association of California. Sacramento, CA.

Wieland M, Huston J, Clausnitzer R, Haas-Stapleton EJ, 2022. Mr. Mister: rockin the *Aedes* of the San Francisco Bay salt marshes. Presented at the 2022 Annual Meeting of the Mosquito and Vector Control Association of California. Sacramento, CA.

2023 MVCAC

Daniels, M, Ferdan R, Fisher D, Haas-Stapleton EJ, Ngo L, Scholl M, Shephard S, 2023. Panel discussion of inspection and enforcement of unmaintained swimming pools. 2023 Annual Meeting of the Mosquito and Vector Control Association of California. Anaheim, CA.

Gaona E, Lawton S, Clausnitzer R, Huston J, Haas-Stapleton EJ, 2023. Resistance in the marsh: Methoprene and *Aedes dorsalis*. 2023 Annual Meeting of the Mosquito and Vector Control Association of California. Anaheim, CA.

Lawton S, Robles M, Wieland M, Huston J, Clausnitzer R, Haas-Stapleton EJ, 2023. Teamwork, tech, and taxes to tackle tidal mosquitoes. 2023 Annual Meeting of the Mosquito and Vector Control Association of California. Anaheim, CA.

Mihaylo S, Haas-Stapleton EJ, Huston J, Clausnitzer R, 2023. Measuring and distributing workload in mosquito abatement: Analysis for Alameda County Mosquito Abatement District. 2023 Annual Meeting of the Mosquito and Vector Control Association of California. Anaheim, CA.

Safoora AM, Alemayehu D, Barretto M, Haas-Stapleton, 2023. Testing artificial intelligence accuracy in mosquito identification. 2023 Annual Meeting of the Mosquito and Vector Control Association of California. Anaheim, CA.

PRESENTATIONS TO PARTNERS

City Council Meetings

January – April 2023

District Update

Ryan Clausnitzer

San Francisco Department of the Environment – California Department of Public Health and California Department of Pesticide Regulation continuing education (2022)

Invited presentation: Implementing sustainable IPM at Alameda County Mosquito Abatement District.

Eric Haas-Stapleton

UC Berkeley: Introduction to Comparative Virology (2022 and 2023)

Guest Lecture: West Nile and Zika viruses

Eric Haas-Stapleton

OPERATIONAL DATA

	2019	2020	2021	2022	2023
PHYSICAL CONTROL OPERATIONS					
Maintenance of ditches (linear feet)	15,752	24,798	4,834	0	0
MOSQUITOFISH OPERATIONS					
Total number of sites stocked with <i>Gambusia</i>	610	598	554	464	466
Total number of fish planted	7,612	6,752	6,087	5,247	4,211
CHEMICAL CONTROL OPERATIONS					
Evergreen 25-5 adulticide (gallons)	0	0	0	0	6.65
SURFACE AGENTS					
BVA2 larvicidal oil (gallons)	462	347	510	543	938
BIORATIONAL LARVICIDES					
Bacillus thuringiensis israelensis (Bti)					
Vectobac 12AS liquid concentrate (gallons)	211	276	411	1331	953
Vectobac GS (pounds)	0	140	351	737	680
Vectobac G granular (pounds)	5,953	5,283	7,919	728.2	8,485
Bacillus sphaericus (Bs)					
Vectolex FG/CG (pounds)	352	251.5	118	0.5	0
Bacillus thuringiensis israelensis and Bacillus sphaericus					
Vectomax WSP (pounds)	4.4	6.4	0.92	1.12	0.63
Vectomax FG (pounds)	2,082	1,574	1,465	2,280	3,882
Spinosad					
Natular XRT (pounds)	999	694	548	263	1,520
Natular G30 (pounds)	53.25	774	565	317	142
Methoprene					
Altosid Liquid Larvicide 20% (gallons)	10.2	6.4	7	8.8	7.1
Altosid Briquets (each)	1,131	825	897	766	547
Altosid XR Briquets (each)	3,576	3,998	1,380	1,209	1,356
Altosid Pellets (pounds)	761	916	1,011	501	505
Pyriproxyfen					
SumiLarv .05G (pounds)	0	0	697	914	0.11
MetaLarv S-PT (pounds)	0	0	0	0	17

OPERATIONS REPORT

Planning and preparedness, both short-term and long-term, are critical to success. Being ready for expected situations as well as for unpredictable events offers the ability to address situations both rapidly and effectively. This understanding has long been a key component of the Alameda County Mosquito Abatement District (ACMAD) operations program. Some aspects of operations remain consistent year to year, however, variables such as rainfall, virus activity, and introduced non-native mosquito species cannot be accurately predicted.

The years 2022 and 2023 were a complete contrast for ACMAD operations. Below-average rainfall was recorded for 2022, West Nile virus was not detected in our county, all operations staff had some if not many years of experience in their zones, and our aerial unmaintained swimming pool surveillance program was working effectively. Conversely, 2023 began with multiple atmospheric rivers resulting in one of the highest rainfall years on record. We also observed significantly higher numbers of West Nile virus positive birds and mosquitoes during 2023, relative to the prior years since the virus first arrived in California during the early 2000s. The addition of two new operations technicians, representing a twenty-five percent turnover in our staff, newly configured operations zones, and an aerial unmaintained swimming pool surveillance program that never got off the ground and the result was two dramatically different years for operations.

The District centers its operations program on the principles of Integrated Vector Management (IVM). This entails using physical, biological, biorational, and chemical control strategies (refer to operational data table). Our technicians focus on controlling larval mosquitoes in aquatic sites before they emerge as adults. This requires an intimate understanding of the biology and habitats of our twenty-two native mosquito species. Our mosquito control program is designed to limit the number of adult mosquitoes with the potential to spread disease and cause nuisance biting to both humans and animals. Since the environments we work in are home to many plant and animal species, some of which are threatened or endangered, using materials, equipment, and techniques that have the least impact on other organisms is paramount to our program.

Each year, operations staff manage thousands of acres to eliminate mosquito larvae. The principal biorational mosquito control products, bacteria specific to mosquitoes and insect growth regulators, are rotated regularly to prevent resistance (see operational data table). Physical control where we improve the landscape to limit mosquito reproduction is reliant on permits and is conducted with hand tools to remove sediment from ditches that increase water circulation and prevent standing water. Mosquitofish perform a vital biological function for long-term mosquito control and are used in ornamental ponds, unmaintained swimming pools, and livestock watering troughs. We employ surfactants that coat the water surface to prevent mosquito larvae and pupae from breathing.



Finally, chemical control materials are utilized to kill adult mosquitoes when their abundance and disease-vectoring potential reach critical levels. Higher than average West Nile virus positive mosquitoes during 2023 motivated our use of chemical control materials, the first time since 2018. **Figure 1** depicts the number of acres where bacteria, insect growth regulators, surfactants, and chemicals were applied for the two years combined.

Operations staff use a range of specialized equipment to conduct control measures. These include right-hand drive Jeeps, amphibious Argos, blowers, backpacks, aerosolizers/misters, and unmanned aircraft systems (UAS/drones). During 2023, the District purchased a new application UAS to access mosquito reproduction sites that present challenges with existing ground-based equipment. Although much of our monitoring and application efforts are still conducted on the ground, UAS offers the opportunity to increase efficiency and reduce environmental impacts.

Requests for service received from the public and responded to by operations staff fall into several categories: requests for mosquito fish, reports of a mosquito problem or standing water, requests for an insect identification, and reports of a dead bird. Operations staff responded to 1,840 requests for service falling into these categories in this two-year period. **Figure 2** depicts the percentages of these requests responded to in the 2022-2023 period. Requests for service are typically responded to within a twenty-four-hour period and are the main point of contact between operations staff and the public. They present the opportunity to find and eliminate mosquito breeding sites and to educate the public on mosquito prevention solutions. These requests also help us expand our geographic scope for assessing mosquito abundance and help locate difficult to access mosquito reproduction sites on private properties. The dead bird program is a critical component of ACMAD's West Nile virus monitoring program. These birds are tested by our lab and provide key information for areas to focus operations efforts. **Figure 3** depicts the number of requests for service received by each city or unincorporated region of Alameda County during 2022 and 2023.

Operations at ACMAD continues to maintain an IVM program centered around biorational control of mosquito larvae, striving to be responsible stewards of the environments we work in. We investigate, test, and utilize novel equipment and methodologies that help us achieve that goal. All this while monitoring mosquito sites county-wide, controlling native mosquito species, and preparing for the arrival of invasive mosquito species.

Figure 1. Product Applied by Acres.

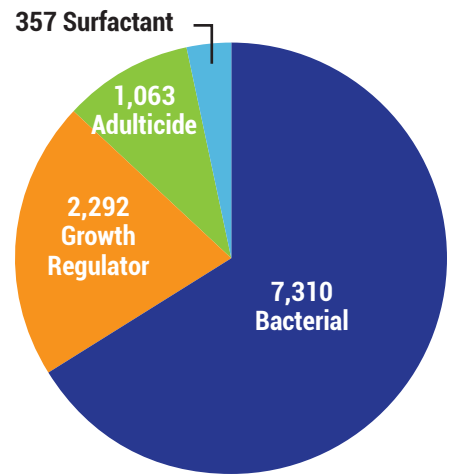


Figure 2. Service Requests by Type.

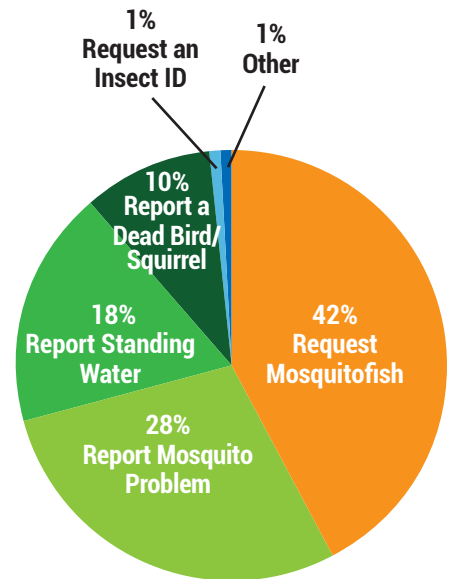
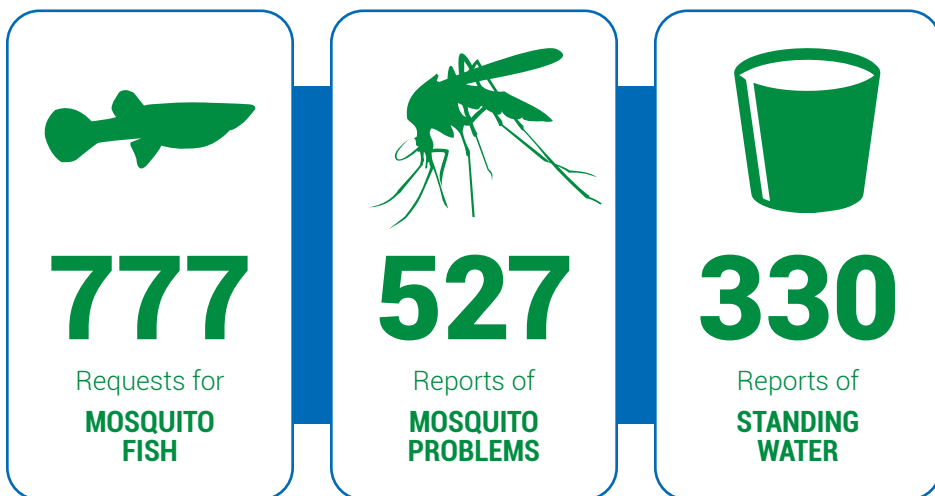
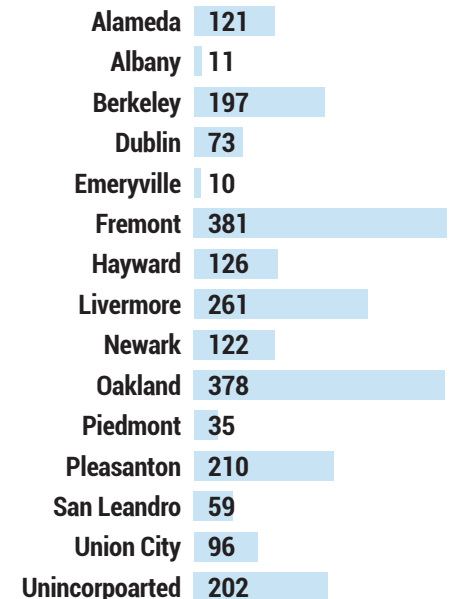


Figure 3. Service Requests by City.



LABORATORY REPORT

Our Mosquito Laboratory team is dedicated to monitoring adult mosquito populations and mosquito-borne diseases across Alameda County throughout the year. During 2022-23, our Mosquito Laboratory team was armed with a strategic preplanning approach, enabling us to pivot and adapt swiftly to unforeseen challenges such as welcoming new staff, navigating one of the wettest years on record, and operating with limited assistance from seasonal personnel. This foundation of preparedness was key to ensuring our continued vigilance in monitoring mosquito populations and mosquito-borne diseases in the county.

We employ various traps and lures specifically designed for mosquitoes, with the Encephalitis Virus Survey (EVS) trap being our primary tool for assessing mosquito abundance and disease prevalence. During 2022 and 2023, we monitored over 200 sites with EVS traps (see **Figure 4** for a map of trap sites). Whenever the weather allowed, we checked these sites bi-weekly to gather data on the types and numbers of mosquitoes in our region. This routine helps us understand the diversity and population dynamics of mosquitoes, laying the groundwork for our disease prevention strategies.

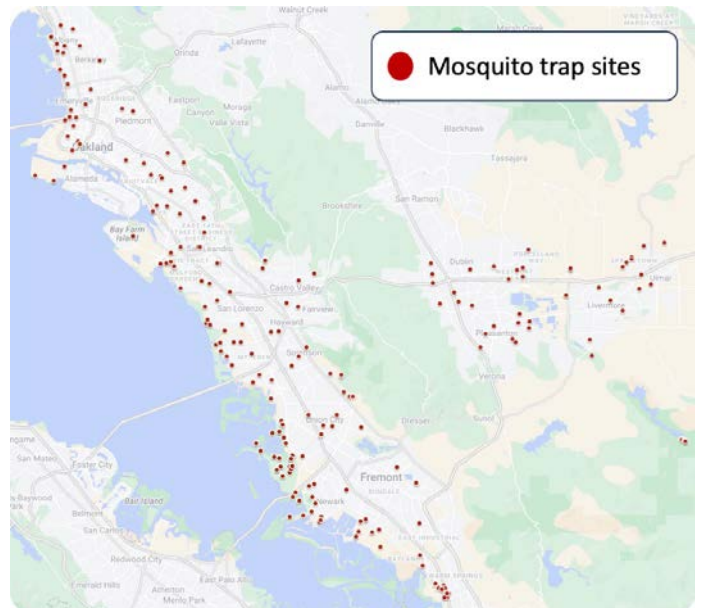


Figure 4. Mosquito Trap Sites. Red circles show the sites in Alameda County that were monitored for mosquito abundance and West Nile virus using Encephalitis Virus Survey traps that were baited with light, carbon dioxide and a lure that mimics the scent of people to attract *Aedes aegypti* mosquitoes.



8,087 EVS traps
set in 2022-2023

212,756
Adult mosquitoes
captured



We also deployed additional traps in response to reports of birds and trapped mosquitoes that were infected with West Nile virus, as well as travel-related cases of dengue, Zika, chikungunya, and malaria reported by our partners at the Alameda County Public Health Department. This effort resulted in 8,087 EVS traps placed in the field during the 2022-2023 period, capturing 212,756 adult mosquitoes that we identified to species (see Figure 5 for weekly trends of mosquito abundance). The number of mosquitoes collected during 2022 (dark blue line) were typically lower than the five-year average (grey bars), while the abundance for 2023 (light blue line) was higher than the 2022 and the five-year average (Figure 5). The increased abundance during 2023 likely resulted from the intense rainfall during the early months of that year. Notably, nearly 80% of the mosquitoes caught in traps were species that can spread West Nile virus to people (see Figure 6 for species distribution; *Culex tarsalis* (48%), *Culex erythrothorax* (27%), and *Culex pipiens* (5%)). We tested the vector-competent mosquitoes for West Nile virus in our laboratory using quantitative reverse-transcription PCR, processing 1,618 tubes of mosquitoes. Fortunately, only 22 of these tubes contained infected mosquitoes, all detected last year (see Figure 7 for a map of where the infected mosquitoes were collected). When alerted by the public about deceased birds, which can be indicators of West Nile virus, our team promptly collects and tests these birds for the virus. In 2022, no infections were found in bird populations. However, 2023 saw a substantial increase, with 82 birds testing positive for West Nile virus (Figure 7), mirroring the infection trends observed in mosquitoes. The uptick in West Nile virus detections among both mosquitoes and birds in 2023, as opposed to the absence of such cases in 2022, closely correlates with the increased rainfall we experienced in 2023, creating conditions more conducive to mosquito reproduction and, consequently, the spread of West Nile virus.

In addition to tracking native mosquito species and the diseases they carry, our efforts extend to monitoring invasive *Aedes* mosquitoes, such as *Aedes aegypti*. We have enhanced all EVS mosquito traps with an additional attractant specifically designed to lure *Aedes aegypti* mosquitoes. The detection of this species in neighboring counties last year prompted us to increase our monitoring, especially at county borders and recycling centers that handle materials from various regions. We have also updated our training on identifying all life stages of invasive *Aedes* species to ensure our field staff can accurately distinguish them. Distinguishing *Aedes aegypti* from the native *Aedes sierrensis* poses a challenge, as they look similar and both lay eggs in water-filled containers, with the eggs and early instar larvae being visually indistinguishable. To overcome this, our laboratory developed a quantitative PCR assay that identifies minute genetic

Figure 5. Total Mosquito Abundance by Week. Lines indicate the number of mosquitoes that were collected in Encephalitis Virus Survey traps for each week. The dark blue line indicates collections from 2022 and the light blue line shows 2023. The light grey bars show the average number of mosquitoes collected in traps from 2019–2023 (the five-year average).

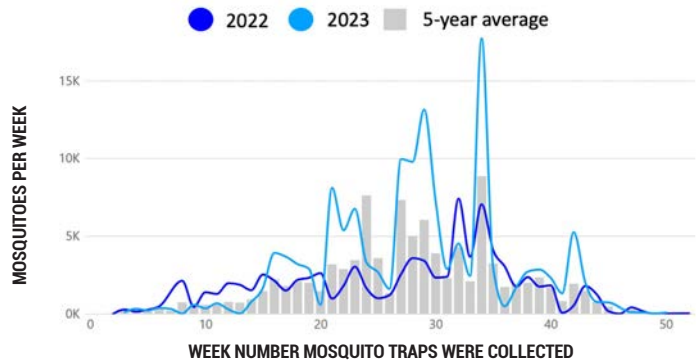


Figure 6. Mosquito abundance by species for 2022–2023. The larger squares and rectangles indicate a higher abundance of that species.

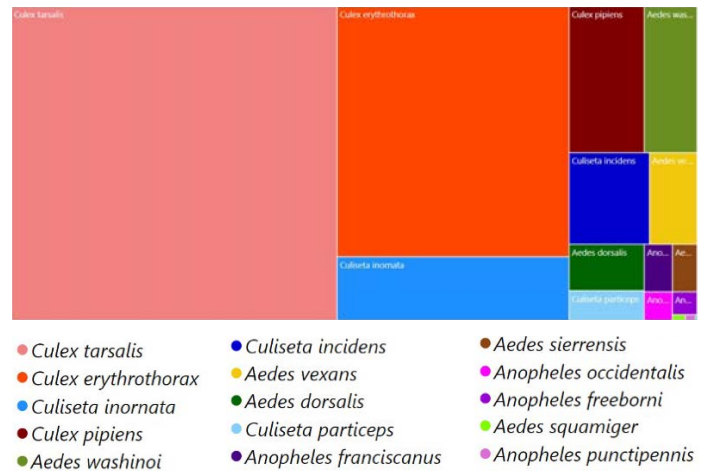
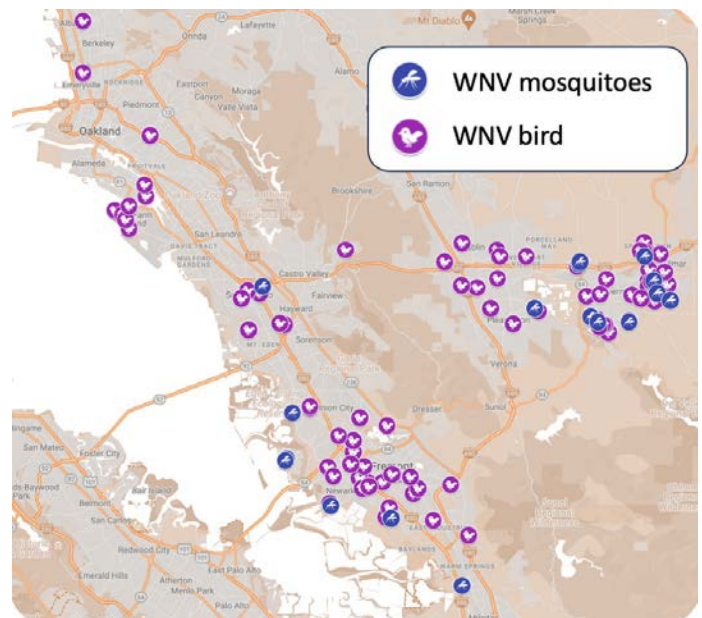


Figure 7. Environmental West Nile virus monitoring. The location of mosquito traps (blue circle) and birds (purple circle) that were infected with West Nile virus during 2023. The virus was not found in birds or mosquitoes collected from Alameda County during 2022.



differences between these species with 99% accuracy, a tool now integral to our identification process (illustrated in **Figure 8**). The results of this study are being prepared for publication during 2024 in a peer-reviewed scientific journal. We also piloted a study to investigate the environmental conditions of *Aedes dorsalis* larvae, a large mosquito that aggressively bites anyone near saltmarsh habitats. Analysis of the water collected from saltmarsh habitats showed significantly higher salinity and sulfate when *Aedes dorsalis* larvae were present, while dissolved nitrogen in the form of ammonium and nitrate was higher in habitats that lacked larvae. Sequencing the DNA of the bacteria present in the water (known as environmental DNA, or eDNA) showed 3.5-fold more from the *Marinobacterium* genus present in water with the larvae compared to water with no larvae (**Figure 9**). This group of bacteria form a diverse group of microbes that are present in the root systems of coastal plants and are responsible for decomposition and nitrogen cycling. The lab will follow up on this pilot project with a more detailed eDNA sequencing effort and additional sampling sites.

The research behind the *Aedes* PCR assay and *Aedes dorsalis* habitat was presented at annual conferences of the Mosquito and Vector Control Association of California, alongside eight other research projects contributed by our lab. Five projects from the lab were published in peer-reviewed scientific journals during 2022 and 2023, contributing valuable knowledge to the field of mosquito abatement. As we move forward into 2024, our team remains dedicated to enhancing our monitoring program by fostering partnerships, committing to research that improves workflows, and engaging with our community to protect the public health of all peoples in Alameda County.

Figure 8. Quantitative PCR assay to identify *Aedes aegypti* and *Aedes sierrensis*. The single nucleotide quantitative PCR assay showed 99% accuracy for identifying *Aedes sierrensis* (blue lines) and *Aedes aegypti* (red lines).

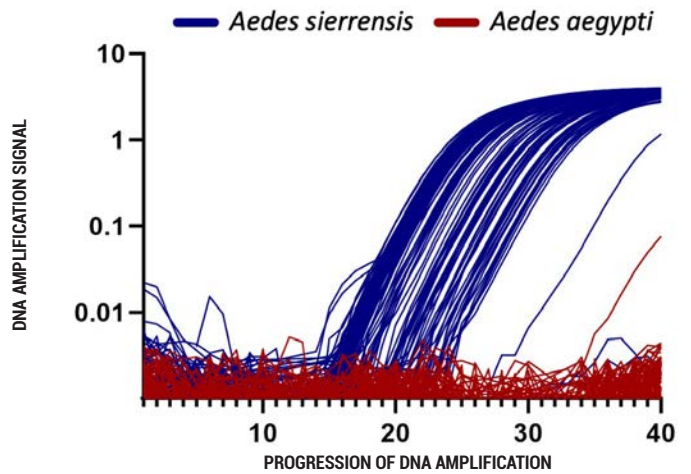
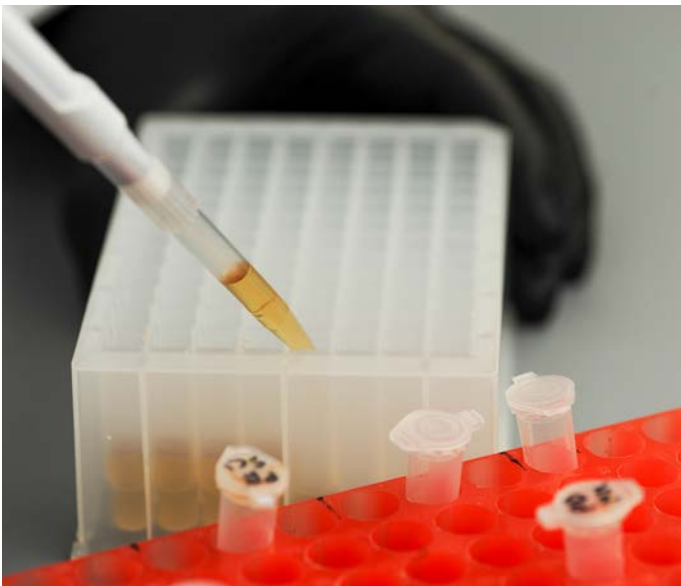
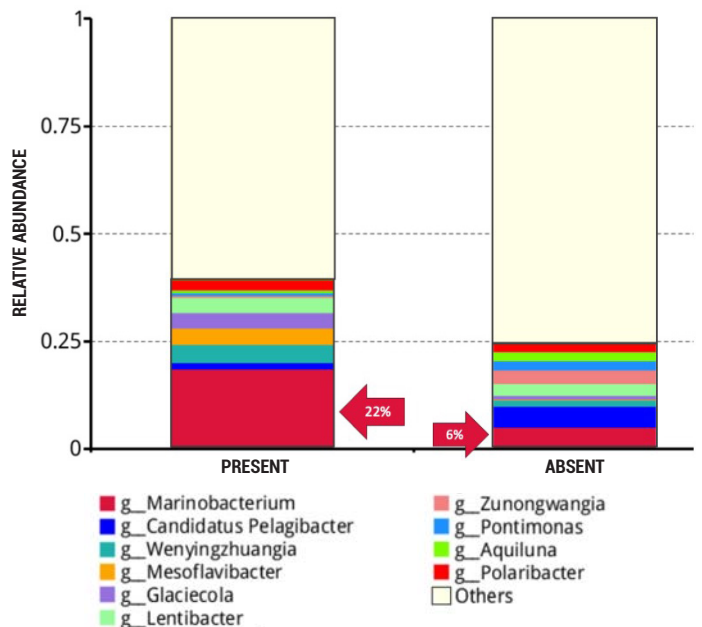


Figure 9: Comparative analysis of bacterial diversity in aquatic environments with and without *Aedes dorsalis* larvae. This bar chart illustrates the top ten bacterial taxa identified through DNA sequencing in water samples. In environments where *Aedes dorsalis* larvae were detected, *Marinobacterium* genus dominates, constituting approximately 22% of the bacterial DNA sequences. Conversely, in samples devoid of the larvae, the prevalence of *Marinobacterium* drops to 6%, indicating a possible ecological association between this bacterial group and the larvae presence.



OUTREACH AND ENGAGEMENT

Public education is vital to long term mosquito prevention. Our program encourages residents to reduce and prevent mosquito habitats on private and public property. Similarly, the District's various education programs teach the public how to recognize, prevent, and suppress mosquito breeding, and how to limit mosquito bites.

EVENTS

2022 and 2023 saw a combination of new and historic events for staff to engage with residents. Staff answered questions from the basics about the mosquito life cycle to dispelling myths about genetically modified mosquitoes. In keeping in line with equity goals, the District determines which events to attend based on geographic representation, type of event, and whether the event deliberately engages a group that is underserved in Alameda County. During events staff tally the number of people who drop by the booth and anecdotally track which topics are touched upon. After every event staff are asked to fill out a survey about their experience to determine if it is worth attending again.

DIGITAL PRESENCE

The District continues to use the two main social media giants, Facebook (see **Figure 10**) and X, formerly known as Twitter, (see **Figure 11**) in addition to Nextdoor to post reminders about mosquito reduction and West Nile virus. Most posts are memes and photographs that encourage mosquito prevention behaviors, though approximately 15 percent of posts are from partner agencies to highlight their programs or specific messages. In turn, other agencies can post our news and messages, which we appreciated during adult mosquito control applications in 2023. Social media is the cheapest and fastest way to reach many residents at once, particularly on Nextdoor, as the District can post to specific neighborhoods. When the District conducted adult mosquito control applications in Livermore, the Public Outreach Coordinator contacted the Public Information Officers for the City of Livermore and their Police Department to explain what would happen during the application. They posted social media messages about the applications on their pages, reaching over 10,000 views within the first few hours. The District then received a number of questions about the applications, both online and on the phone.

In 2022 we contracted with LemonLight to develop an animated video that highlighted simple actions individuals could take to reduce their exposure to mosquitoes. We

13 events in 2022

3,694 conversations with residents

16 events in 2023

5,213 conversations with residents

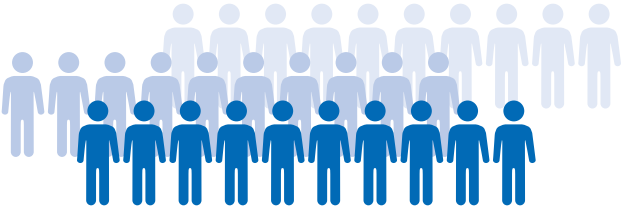


Figure 10. ACMAD Facebook account activity.

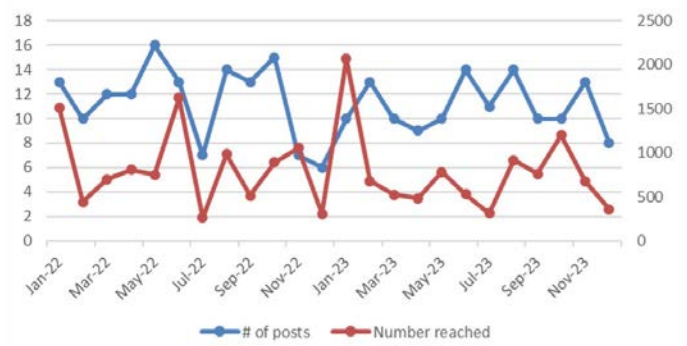
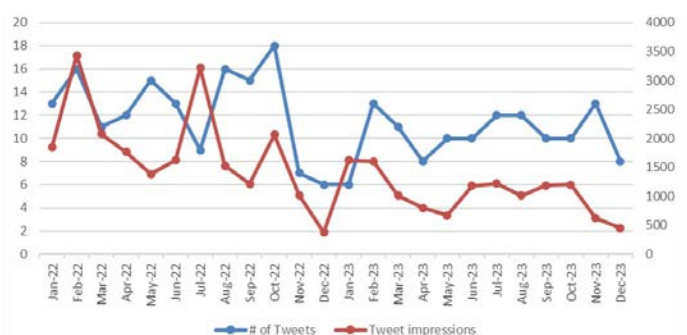


Figure 11. ACMAD Twitter account activity.



required the video to have clear graphics that would pop on a timeline and could be translated easily. The video deliberately highlights the racial and age diversity of Alameda County. Another major component was to show mosquito reproduction sites residents may not remember, such as lotus ponds, gutters, and flowerpots. The video (see **Figure 12** for example graphics) was distributed on social media platforms and screenshots were used for static ads.

PRESS COVERAGE

ACMAD found the first West Nile virus positive mosquito in the entire state in January 2023. Though it was not the earliest ever record for the state, it was very early for Alameda County and many media outlets chose to cover the news. After the initial press release about the detection, there were many news stories throughout the state about how a wet weather year may increase the mosquito population. During the year District staff were interviewed by SF Gate, KQED, and Eden Echo (**Figure 13**). District press releases about mosquito abundance and West Nile virus risk were picked up and repackaged as articles for multiple Patch sites, Hoodline, and local newspapers.

EDUCATION

After a long delay due to COVID restrictions on schools, the District was finally able to pilot the Mosquito Life Cycle curriculum in three schools with six teachers. The testing phase deliberately focused on schools that were median income and near mosquito hot spots in San Leandro and Newark. The Mosquito Life Cycle curriculum is based on Marin-Sonoma's program, and initially included two in-class presentations from District staff, and two teacher led lessons on mosquito biology and the life cycle, along with daily tracking of mosquitoes in a District prepared container. The pilot program feedback from teachers helped modify the program to better suit teacher's needs. The largest change was a shift to a single 40-minute classroom presentation, making it easier for schools to schedule. In the 2022-23 and 2023-24 school years the focus remained on building relationships with those initial schools and expanding the number of schools. The Public Outreach Coordinator also spearheaded organizing a large nationwide group of mosquito and vector control educators to collaborate and share information during quarterly meetings.

2022

6 classrooms, 12 presentations, 2 events
>770 STUDENTS REACHED

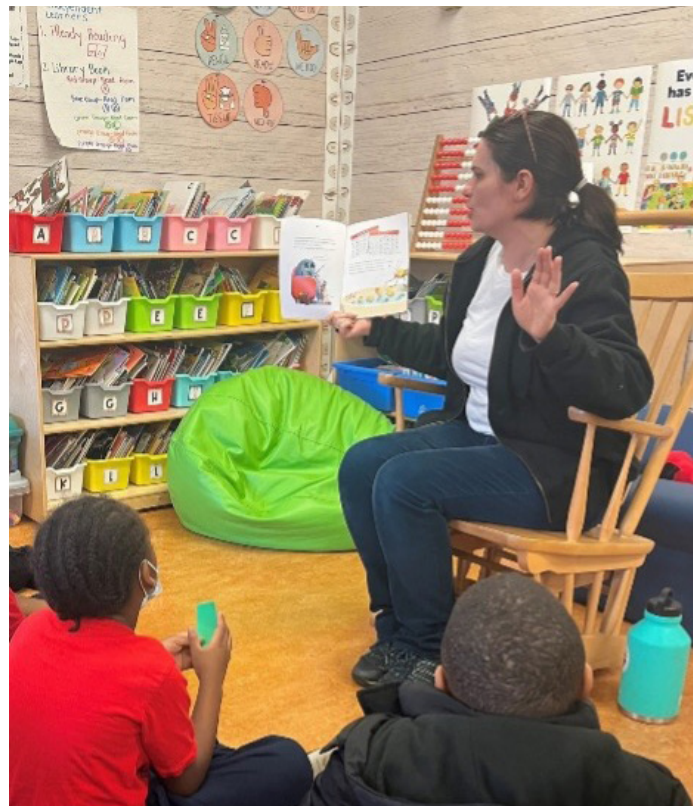
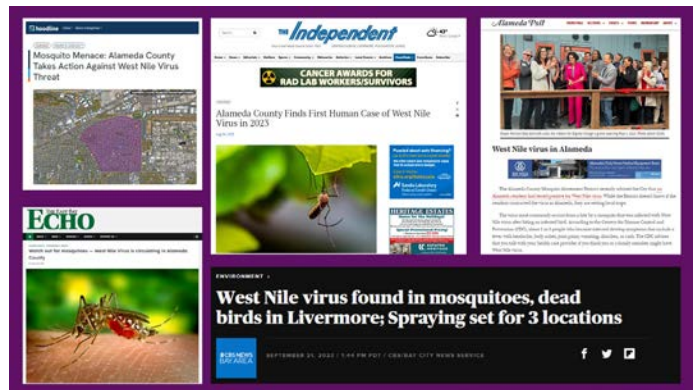
2023

16 classrooms, 23 presentations, 3 events
>1,450 STUDENTS REACHED

Figure 12. Animated video stills.



Figure 13. 2023 Media headlines.



PARTNER ENGAGEMENT

In 2023 the Public Outreach Coordinator attended the American Mosquito Control Association's annual conference in Reno, Nevada to present "Confronting SIT Misinformation in Berkeley, CA." The presentation outlined the District's quick response to a proposal by the Berkeley City Council to formally oppose any release of genetically modified mosquitoes in the state of California. The proposal was brought forward by a Berkeley resident who worked for Friends of the Earth, an international environmental activist group. When District staff reviewed the proposal in November 2021, the writing was filled with inaccuracies, exaggerations, and fear mongering. District staff responded quickly to provide accurate information to city council members and staff, which ultimately convinced the Berkeley City Council that it would be unwise to pass a resolution containing false information. The presentation about the response highlighted the importance of keeping information accessible and simple along with training everyone on staff to be able to answer questions about controversial topics in mosquito control.

In 2023 there were over a dozen locally acquired cases of malaria and dengue in other parts of the country, including southern California, which prompted many articles and questions from the public. Alameda County Public Health Officer, Dr. Nicholas Moss visited the District to learn about our programs, how mosquito abundance is monitored, and our response plan for locally acquired tropical mosquito-borne diseases. Later in the year leads of the Alameda County Public Health Department Communicable Disease unit visited to see the operations of the District and to clarify West Nile virus disease reporting. These connections are important to build relationships and ensure the District has a clear and direct line of communication with local public health officials.

The District continues to engage groups which plan, fund, implement, and monitor wetland restoration projects along the Alameda County shoreline. Wetland habitats have the ability to produce large populations of vector-competent and nuisance mosquitoes so it is important that mosquito control is considered during restoration. Participation in the San Francisco Bay Joint Venture Management Board, the San Francisco Bay Restoration Authority Advisory Committee, and the Wetland Regional Monitoring Program Steering Committee connects District staff directly to partners involved in tidal wetland restoration. Additionally, the ACMAD Board of Trustees voted in October of 2021 to approve the District joining the Hayward Area Shoreline Planning Agency. This new partnership will keep the District involved in enhancements along the Hayward shoreline to address climate change impacts. Relationships made through these groups resulted in individual meetings with the design teams for the Hayward Marsh Restoration Project,

the San Leandro Treatment Wetland Project, the First Mile Horizontal Levee Project, and the De-Pave Park Project.

In September of 2023 the District was part of the California Special Districts Association Capitol Legislative Tour. The event brought key staffers from legislative offices throughout the state to our facility in Hayward. As a host we were able to showcase the unique role mosquito abatement districts have in the special district world. Staffers visited stations dedicated to the District's operations, laboratory, outreach, and education programs.



Digital Advertisements on Websites and Social Media

2022

Average reach between
May and October: **8,180** people a day

34 service requests
completed online

1.3 MILLION IMPRESSIONS

2023

Average reach between
May and October: **10,602** a day

42 service requests
completed online

2.3 MILLION IMPRESSIONS

INFORMATION TECHNOLOGY UPDATE

In response to the increasingly sophisticated cyber threats, the District strengthened its approach to improve cybersecurity. Our strategy includes the use of increasingly advanced threat-detection tools, strengthening cybersecurity defenses, enhancing the security of network devices and collaboration with government agencies to monitor internet traffic and conduct network security testing. The goal was to proactively identify and address vulnerabilities in the District's digital infrastructure, safeguarding data and mitigating potential risks. The 2022-2023 comprehensive cybersecurity initiative reflected the District's commitment to maintaining a secure and resilient digital environment.

DEPLOYMENT OF ADVANCED TOOLS

The District enhanced its cybersecurity defense by integrating state-of-the-art tools. This included advanced email software that flag and intercept phishing attempts, malware, and other harmful activities. Additionally, the District has implemented advanced software that secures devices across our network for real-time detection and rapid responses. We have also set up other tools that detect unauthorized access, enhanced network barriers, and systems that help manage and respond to security alerts. These tools strengthen our overall cybersecurity position and provide thorough protection.

STRENGTHENING EMAIL SECURITY

Email continued to be a major conduit for cyber threats in 2022 and 2023, prompting the District to prioritize enhancements in email security. The systems use advanced technologies that go beyond traditional measures. They detect and block suspicious emails more effectively to limit malware and reduce the risk of unauthorized network access. Additionally, these new email security systems use artificial intelligence that adapt and respond to new threats, ensuring a higher level of protection against complex cyberattacks.

PARTNERSHIP WITH HOMELAND SECURITY

Recognizing the importance of collaboration, the District established a strategic partnership with the Department of Homeland Security (DHS). This collaboration leverages the expertise and resources of DHS to enhance our cybersecurity defenses. With this partnership, the District gained access to security experts that advised

and supported network tests that check for and fix security weaknesses.

INTERNET TRAFFIC FILTERING AND ANALYSIS

The District now works with several federal government agencies to establish strong filters for our internet traffic. These measures are specifically designed to identify and block access to malicious websites, thereby ensuring that both employees and guests can use the internet safely. Additionally, through a partnership with the Multi-State Information Sharing and Analysis Center, the District gained access to up-to-the-minute alerts of network security risks. This enables the District to respond quickly to emerging cyber threats, enhancing overall internet security.

NETWORK SECURITY TESTING

To proactively identify and address potential weaknesses in our digital infrastructure, we routinely perform tests of our network security. These simulated cyberattacks helped assess the effectiveness of existing security measures and identify areas for improvement. The insights gained from these tests were crucial in refining and enhancing our cybersecurity protocols.

The District will continue to enhance its readiness for cybersecurity threats by adopting advanced technologies like artificial intelligence for quicker threat detection and response. We are also focusing on workforce education, robust incident response plans, and expanded collaborations for shared threat intelligence. Additionally, investment in cybersecurity and innovation is being prioritized to maintain resilience against evolving cyber risks in the future.

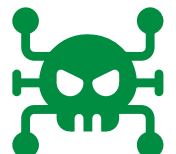
145,000 attempts to breach
District digital resources

120 million web communications
scanned for potential threats

248,000 emails inspected for
malware and phishing attempts

4,948 malicious emails remediated

0 successful hacking attempts



FACILITY AND EQUIPMENT

2022 began the design process for the new Aquaculture Utility Building. In expectations of a seamless undertaking, we deconstructed the steel tubing shade structure, auctioned the older tank and pumping system, and relocated the dual 800-gallon tank system to its temporary home under the carpports. The construction project was finally awarded in November of 2023 and broke ground in mid-December.



FINANCIALS

The District relies on three primary sources of revenue. The first is a share of the ad valorem property taxes collected by the County Tax Assessor. The second source of revenue is from a special tax (Measure K on the ballot) that was passed by more than two thirds of Alameda County in 1982, allowing the District to collect \$1.75 per parcel. The third source of income is from a benefit assessment passed by over two thirds of voters in 2008. The District collects \$2.50 per parcel, which is half of the authorized amount under this assessment.

In April 2022, the Board of Trustees passed a resolution authorizing the District to become a founding participant in the California CLASS Joint Powers Authority. As part of this participation, the District manages four distinct sub-accounts under the California CLASS:

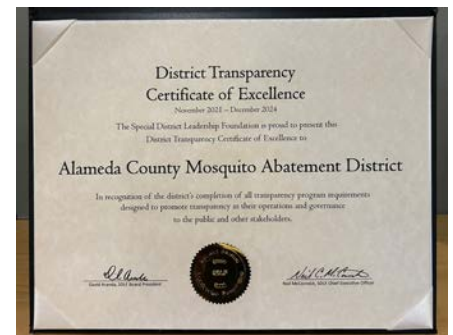
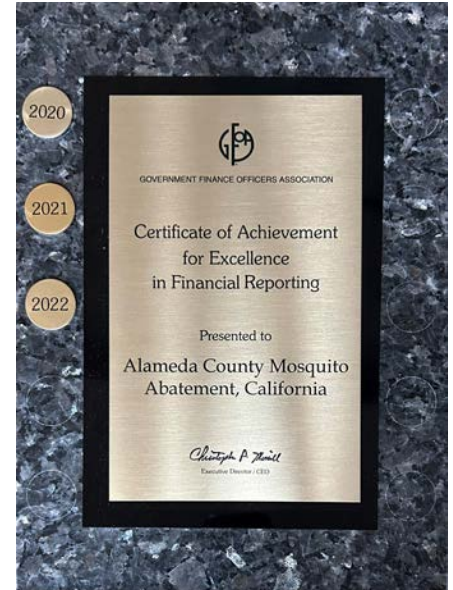
- Public Health Emergency
- Operational Fund
- Repair and Replace Fund
- Operating Reserve Fund

Additionally, the District oversees three separate reserve accounts:

- Vector Control Joint Powers Association (VCJPA): Contingency Fund
- Public Agency Retirement Services (PARS): Rate Stabilization
- California Asset Management Program (CAMP): Capital Reserve

In 2023, the District enhanced transparency and efficiency by transferring its credit cards to Umpqua Bank, which is affiliated with the California Special Districts Association (CSDA). Additionally, the District opened a transfer account with Five Star Bank, designated for vendor payments.

In accordance with Government Code Section 26909, the District undergoes an annual audit conducted by an outside firm. The purpose of this audit is to ensure that the District's financial statements are free from material misstatement and adhere to the generally accepted accounting principles (GAAP). The firm thoroughly examines the accounting principles applied, financial disclosures, and the overall presentation of financial statements. The District consistently receives an Unmodified Opinion annually, reflecting the highest level of assurance. For the third year in a row, the Government Finance Officers Association awarded our District the Certificate of Achievement for Excellence in Financial Reporting.



California
CLASS

CAMP CALIFORNIA ASSET
MANAGEMENT PROGRAM
JOINT POWERS AUTHORITY



PARS PUBLIC AGENCY
RETIREMENT SERV

GENERAL FUND STATEMENT

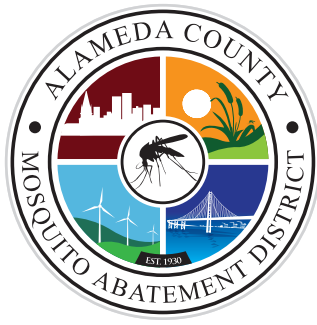
FOR FISCAL YEARS ENDING JUNE 30, 2022 AND JUNE 30, 2023

	JUNE 30, 2023		JUNE 30, 2022	
REVENUES :				
Property taxes	\$	3,005,363	\$	2,759,272
Redevelopment distribution	\$	456,130	\$	401,310
Special Assessments	\$	1,999,781	\$	1,988,520
Homeowners Property Tax Relief, State Subvention	\$	15,832	\$	15,846
Investment earnings	\$	288,784	\$	(4,799)
Investment earnings - PARS	\$	73,904	\$	(220,934)
Miscellaneous	\$	160,724	\$	256,218
TOTAL REVENUES	\$	6,000,518	\$	5,195,433
EXPENDITURES :				
Salaries and fringe benefits	\$	3,482,424	\$	3,107,470
Materials, supplies and services	\$	994,633	\$	932,593
Capital outlay	\$	49,535	\$	31,250
TOTAL EXPENDITURES	\$	4,526,592	\$	4,071,313
NET CHANGE IN FUND BALANCES	\$	1,473,926	\$	1,155,370
FUND BALANCES, BEGINNING OF PERIOD	\$	11,668,314	\$	10,512,944
FUND BALANCES, END OF PERIOD	\$	13,142,240	\$	11,668,314

COMBINED BALANCE SHEET

FOR FISCAL YEARS ENDING JUNE 30, 2022 AND JUNE 30, 2023

	JUNE 30, 2023		JUNE 30, 2022	
ASSETS				
Current and Investments	\$	11,162,796	\$	10,176,552
Restricted Cash and Investments	\$	2,136,983	\$	1,628,403
Capital Assets (Net)				
Non-depreciable assets	\$	87,534	\$	61,406
Depreciable assets, net	\$	1,967,961	\$	2,134,008
Net OPEB asset	\$	1,199,826	\$	1,225,311
TOTAL ASSETS	\$	16,555,100	\$	15,225,680
		=====		=====
Deferred Outflow	\$	2,559,460	\$	1,699,836
LIABILITIES				
Account Payable	\$	157,539	\$	136,641
Compensated Absences	\$	210,892	\$	201,024
Net Pension Liability	\$	4,327,920	\$	2,034,280
TOTAL LIABILITIES	\$	4,696,351	\$	2,371,945
		=====		=====
NET ASSETS				
Invested in Capital Assets	\$	2,055,495	\$	2,195,414
Unrestricted	\$	8,085,795	\$	9,369,893
Restricted for pension costs	\$	2,136,983	\$	-
Restricted for OPEB costs	\$	1,199,826	\$	-
TOTAL NET ASSETS	\$	13,478,099	\$	11,565,307
		=====		=====



ALAMEDA COUNTY

MOSQUITO ABATEMENT DISTRICT

Our Mission

Alameda County Mosquito Abatement District is committed to improving the health and comfort of Alameda County residents by controlling mosquitoes and limiting the transmission of mosquito-borne diseases.

Our Vision

To serve all residents of Alameda County in a transparent and equitable manner by providing knowledge-driven and environmentally-conscious mosquito control. We strive to provide an exemplary model of good government through fiscal transparency and accountability.

510-783-7744

 www.mosquitoes.org

 [Alameda County Mosquito Abatement District](https://www.facebook.com/AlamedaCountyMosquitoAbatementDistrict)

 [@AlamedaMosquito](https://twitter.com/AlamedaMosquito)

www.mosquitoes.org

Alameda County Mosquito Abatement Dist.
Check Register
For the Period From Apr 1, 2024 to Apr 15, 2024

Filter Criteria includes: Report order is by Date.

Check #	Date	Payee	Amount
4401	4/12/24	Adapco	10,844.64
4402	4/12/24	Airgas	1,023.76
4403	4/12/24	AT&T	92.80
4404	4/12/24	Bay Alarm	85.43
4405	4/12/24	Bryce Consulting, Inc	950.00
4406	4/12/24	California Department of Public Health	3,230.00
4407	4/12/24	CCCMA Occupational Clinic	270.00
4408	4/12/24	Cintas	504.64
4409	4/12/24	Coverall North America, Inc.	495.00
4410	4/12/24	Grainger	1,244.60
4411	4/12/24	Life Technologies Corporation	4,903.57
4412	4/12/24	Namakan West Fisheries	750.00
4413	4/12/24	PC Professional	410.00
4414	4/12/24	PFM Asset Management LLC	1,801.46
4415	4/12/24	PG&E	571.70
4416	4/12/24	UMPQUA Bank Commercial Card OPS (Credit card)	29,973.54
4417	4/12/24	UMPQUA Bank Commercial Card OPS (Fuel)	4,262.45
4418	4/12/24	Voya Institutional Trust Company	185.16
ACH	4/12/24	Alameda County Mosquito Abatement Dist (Payroll)	93,445.48
ACH	4/12/24	CalPERS Retirement	18,777.28
ACH	4/12/24	CalPERS 457	4,513.60
Total Expenditures - April 15, 2024			178,335.11

Alameda County Mosquito Abatement Dist.

Check Register

For the Period From Apr 16, 2024 to Apr 30, 2024

Filter Criteria includes: Report order is by Date.

Check #	Date	Payee	Amount
4419	4/29/24	Adapco	4,367.98
4420	4/29/24	Airgas	1,166.22
4421	4/29/24	Bay Alarm	870.74
4422	4/29/24	CarQuest	28.63
4423	4/29/24	Cintas	758.00
4424	4/29/24	GCJ, Inc.	127,514.69
4425	4/29/24	Industrial Park Landscape Maintenance	261.00
4426	4/29/24	Jarvis Fay LLP	756.00
4427	4/29/24	NBC Supply Corp	598.05
4428	4/29/24	PFM Asset Management LLC	1,714.88
4429	4/29/24	PG&E	263.06
4430	4/29/24	Pitney Bowes	191.68
4431	4/29/24	Regional Government	250.50
4432	4/29/24	Testing Engineers, Inc	4,847.00
4433	4/29/24	The Hartford	238.82
4434	4/29/24	Treds	649.00
4435	4/29/24	Verizon	348.66
4436	4/29/24	Voya Institutional Trust Company	185.16
4437	4/29/24	VSP	626.02
4438	4/29/24	WEX Bank	538.65
ACH	4/29/24	Alameda County Mosquito Abatement Dist (Payroll)	91,137.92
ACH	4/29/24	CalPERS Health	45,057.27
ACH	4/29/24	CalPERS Retirement	18,514.68
ACH	4/29/24	CalPERS 457	4,505.52
Total Expenditures - April 30, 2024			305,390.13

**Alameda County Mosquito Abatement District
Income Statement
April 30, 2024. (10 of 12 mth, 83%)**

REVENUES	Actual 2021/22	Actual 2022/23	Current Month	Year to Date 2023/24	Budget 2023/24	Actual vs Budget
Total Revenue	\$ 5,416,367.00	\$ 5,926,614.00	\$ 2,201,441.62	\$ 5,648,874.65	\$ 5,003,804.00	113%

EXPENDITURES	Actual 2021/22	Actual 2022/23 ¹	Current Month ²	Year to Date 2023/24	Budget 2023/24	Actual vs Budget
Salaries	\$ 2,129,077.24	\$ 2,309,118.48	\$ 206,469.26	\$ 2,035,420.43	\$2,462,469	83%
CalPERS Retirement	\$ 471,085.19	\$ 525,486.67	\$ 21,993.54	\$ 505,307.61	\$553,955	91%
Medicare & Social Security	\$ 30,025.60	\$ 33,691.96	\$ 2,802.00	\$ 26,928.30	\$40,292	67%
Fringe Benefits	\$ 484,487.10	\$ 604,257.75	\$ 45,922.11	\$ 507,537.88	\$605,491	84%
Total Salaries, Retirement, & Benefits	\$ 3,114,675.13	\$ 3,472,554.86	\$ 277,186.91	\$ 3,075,194.22	\$3,662,207	84%
Clothing and personal supplies (purchased)	\$ 7,881.80	\$ 7,517.57	\$ -	\$ 2,883.57	\$9,000	32%
Laundry service and supplies (rented)	\$ 10,417.41	\$ 12,853.29	\$ 1,262.64	\$ 11,984.67	\$13,000	92%
Utilities	\$ 18,134.35	\$ 19,415.68	\$ 1,170.94	\$ 17,076.45	\$23,700	72%
Communications-IT	\$ 74,950.03	\$ 97,711.30	\$ 2,926.00	\$ 54,495.22	\$104,000	52%
Maintenance: structures & improvements	\$ 26,671.36	\$ 18,062.12	\$ 4,037.78	\$ 19,405.14	\$30,000	65%
Maintenance of equipment	\$ 25,354.56	\$ 36,209.89	\$ 4,390.01	\$ 22,186.10	\$30,000	74%
Transportation, travel, training, & board	\$ 120,418.29	\$ 133,124.33	\$ 13,022.51	\$ 101,734.05	\$127,990	79%
Professional services	\$ 97,726.00	\$ 93,114.84	\$ 6,490.34	\$ 84,008.37	\$122,950	68%
Memberships, dues, & subscriptions	\$ 25,103.23	\$ 24,593.62	\$ -	\$ 20,920.94	\$27,000	77%
Insurance - (VCJPA, UAS)	\$ 160,932.64	\$ 177,962.64	\$ -	\$ 209,342.00	\$211,959	99%
Community education	\$ 26,225.45	\$ 28,193.67	\$ 807.62	\$ 17,873.43	\$53,000	34%
Operations	\$ 182,575.57	\$ 120,638.42	\$ 17,390.05	\$ 207,648.49	\$261,500	79%
Household expenses	\$ 25,388.02	\$ 18,517.21	\$ 1,746.69	\$ 15,389.38	\$21,350	72%
Office expenses	\$ 7,002.84	\$ 7,247.77	\$ 1,486.22	\$ 6,508.58	\$13,000	50%
Laboratory supplies	\$ 82,354.03	\$ 106,783.12	\$ 17,038.34	\$ 102,631.68	\$140,000	73%
Small tools and instruments	\$ 1,963.31	\$ 2,119.69	\$ 306.22	\$ 1,150.67	\$3,000	38%
Total Staff Budget	\$ 893,098.89	\$ 904,065.16	\$ 72,075.36	\$ 895,238.74	\$1,191,449	75%
Total Operating Expenditures	\$ 4,007,774.02	\$ 4,376,620.02	\$ 349,262.27	\$ 3,970,432.96	\$4,853,656	82%

1 - As of June 30, 2023.

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
April 30, 2024. (10 of 12 mth, 83%)**

Account #	Investment Accounts	Beginning Balance	Deposits	Withdrawals	Earnings ¹	Ending Balance
1004	LAIF	\$ 109,399.64	\$ -	\$ -	\$ 1,168.91	\$ 110,568.55
1005	OPEB Fund	\$ 4,942,108.58	\$ -	\$ -	\$ (152,841.89)	\$ 4,789,266.69
1006	VCJPA Member Contingency ²	\$ 320,716.00	\$ -	\$ -	\$ 879.00	\$ 321,595.00
1011	CAMP: Capital Reserve Fund ³	\$ 81,381.46	\$ -	\$ (81,381.00)	\$ 350.93	\$ 351.39
1012	PARS: Pension Stabilization ⁴	\$ 2,541,399.33	\$ -	\$ -	\$ 42,849.45	\$ 2,584,248.78
1013	California CLASS: Public Health Emergency Fund ⁵	\$ 543,296.03	\$ -	\$ (543,296.03)	\$ 2,005.71	\$ 2,005.71
1014	California CLASS: Operational Fund ⁶	\$ 3,526,266.27	\$ -	\$ (402,344.24)	\$ 15,195.55	\$ 3,139,117.58
1015	California CLASS: Repair and Replace Fund	\$ 3,276,909.33	\$ -	\$ -	\$ 14,511.90	\$ 3,291,421.23
1016	California CLASS: Operating Reserve Fund ⁷	\$ 2,105,279.68	\$ -	\$ (2,105,279.68)	\$ 7,772.16	\$ 7,772.16
1017	California CLASS Enhanced: Public Health Emergency Fund ⁵	\$ -	\$ 543,296.03	\$ -	\$ 339.72	\$ 543,635.75
1018	California CLASS Enhanced: Operating Reserve Fund ⁷	\$ -	\$ 2,105,279.68	\$ -	\$ 1,316.40	\$ 2,106,596.08
Total		\$ 17,446,756.32	\$ 2,648,575.71	\$ (3,132,300.95)	\$ (66,452.16)	\$ 16,896,578.92

Account #	Cash Accounts	Beginning Balance	Deposits	Activity	Ending Balance
1001	Bank of America (Payroll Account) *	\$ 147,698.18	\$ -	\$ -	\$ 50,687.15
1003	County Account	\$ 187,006.07	\$ 2,201,441.62	\$ -	\$ 2,388,447.69
1019	Five Star Bank (Transfer Account) * ^{3 6}	\$ 273,134.30	\$ -	\$ -	\$ 289,241.26
1020	Petty Cash	\$ 477.06	\$ -	\$ -	\$ 477.06
Total		\$ 608,315.61	\$ 2,201,441.62	\$ -	\$ 2,728,853.16

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 March 31, 2024.

3 - \$81,381 transferred from CAMP: Capital Reserve Fund to Five Star Bank for payments related to the fish project.

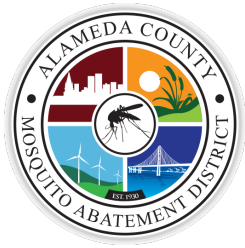
4 - PARS - Pension Stabilization balance is as of March 31, 2024.

5 - \$543,296.03 transferred from CA CLASS Prime: Public Health Emergency Fund to CA CLASS Enhanced: Public Health Emergency Fund. April's interest will be transferred to Enhanced prior to closing account.

6 - \$402,344.24 transferred from CA CLASS :Operational Fund to Five Star Bank for April expenditures.

7 - \$2,105,279.68 transferred from CA CLASS Prime: Operating Reserve Fund to CA CLASS Enhanced: Operating Reserve Fund. April's interest will be transferred to Enhanced prior to closing account.

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



Board of Trustees

MONTHLY STAFF REPORT –1125

- President**
- Cathy Roache
- County-at-Large**
- Vice-President**
- Tyler Savage
- Alameda**
- Secretary**
- Valerie Arkin
- Pleasanton**

- Robin López
- Albany**
- P. Robert Beatty
- Berkeley**
- Kashef Qaadri
- Dublin**
- vacant
- Emeryville**
- John Zlatnik
- Fremont**
- George Syrop
- Hayward**
- vacant
- Livermore**
- Lisa Rasler
- Oakland**
- Eric Hentschke
- Newark**
- Hope Salzer
- Piedmont**
- Victor Aguilar
- San Leandro**
- Subru Bhat
- Union City**

Ryan Clausnitzer
General Manager

OPERATIONS REPORT

Operations focus on *Culex spp.* mosquitoes continued throughout April. Much of the effort centered around *Culex tarsalis*. Significant areas of marsh, grassy fields, and vernal pools continued to hold rainwater and provided habitat for this species. Larval treatments were conducted by hand, Argos and with the operations treatment UAS (drone). This mosquito tends to feed on avian blood but will also feed on mammals, including humans. Thus, it can play a significant role in West Nile virus (WNV) transmission cycles. Continuing control of this species will be a key component of our WNV control program for months to come. With rainfall tapering off, several other sources such as canals and creeks will slow and begin to provide habitat as well. *Cx. tarsalis* are also quite common in unmaintained swimming pools. ACMAD’s aerial survey for locating unmaintained pools will start towards the end of May.

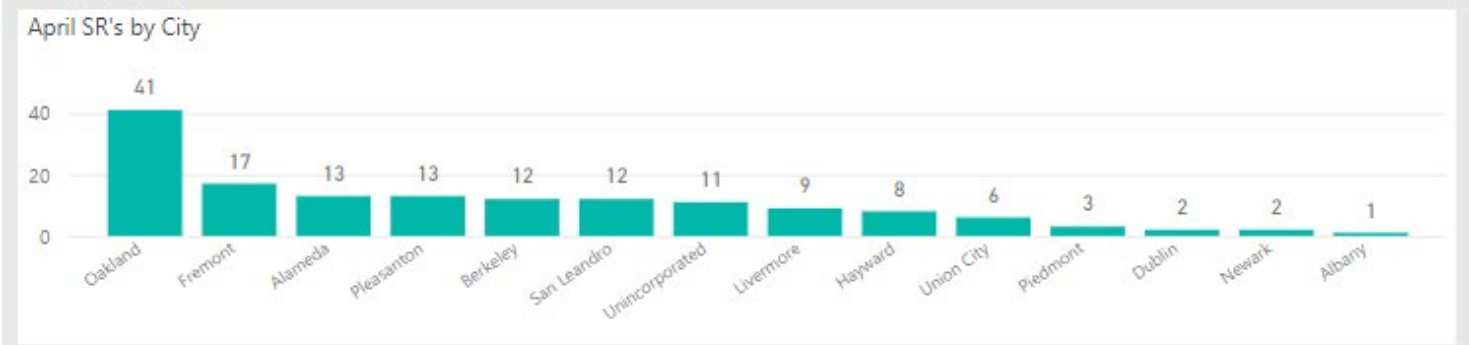
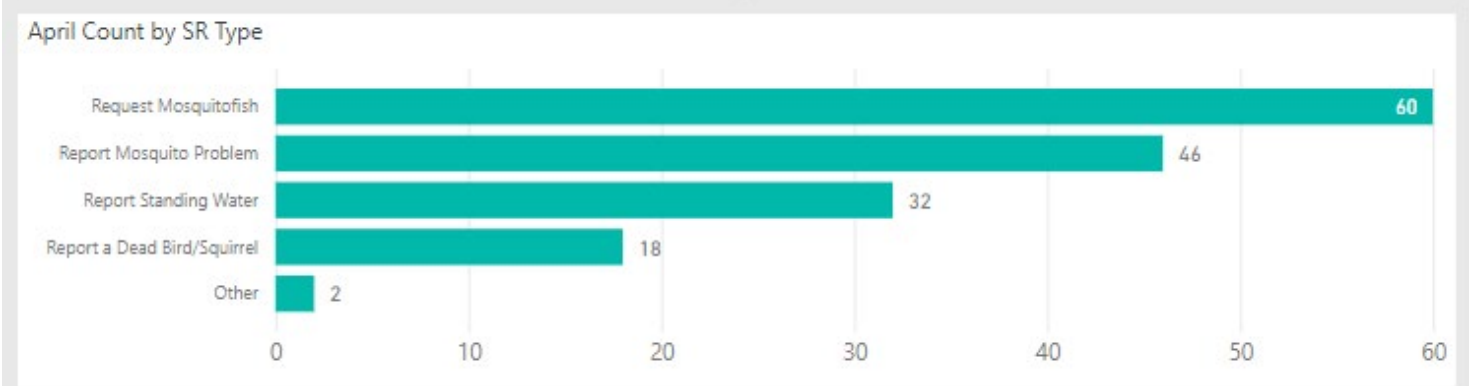
Operations staff made few detections of *Culex pipiens* and *Culex erythrothorax* during the month. Both species are also competent vectors of WNV. The numbers of both these species are expected to climb in the months ahead. In anticipation of many thousands of catch basins throughout the county producing *Cx. pipiens* as the flushing actions of the rains cease, operations staff began pre-treating historically problematic basins during April. This mosquito also feeds on birds and mammals and is often closely associated with people readily entering residences and biting at night. The final of the three, *Cx. erythrothorax*, is associated with marsh areas that have tules and/or bulrush vegetation. It can be an aggressive biter of birds and mammals. It does not travel far from these habitats, but there are many areas of our county where they are immediately adjacent to residential areas. Interventions by operations staff on the larvae of all three species will continue to be important for ACMAD’s WNV program through the entire season.

Requests received from the public totaled one hundred fifty in April, below the ten-year average for the month. Of note, most of the requests to “report a mosquito problem” and “reports of standing water” involved sources on requesters’ properties or adjacent properties and almost ninety percent that involved mosquitoes were attributable to *Culiseta incidens*. This mosquito is active all year in our county and is very common in backyard containers, fountains, and ponds. It can be an aggressive biter in the dawn and dusk hours. Rainfall this year has filled many backyard sources for this mosquito. Several requests involved non-biting “mosquito-like” insects, mainly midges and crane flies. Of all the requests received, only three were attributable to any of our winter mosquito species. All three were caused by *Aedes sierrensis* the “tree-hole” mosquito and in each case the likely sources were on the requester’s properties. This provided further evidence that our winter mosquito program was highly successful.

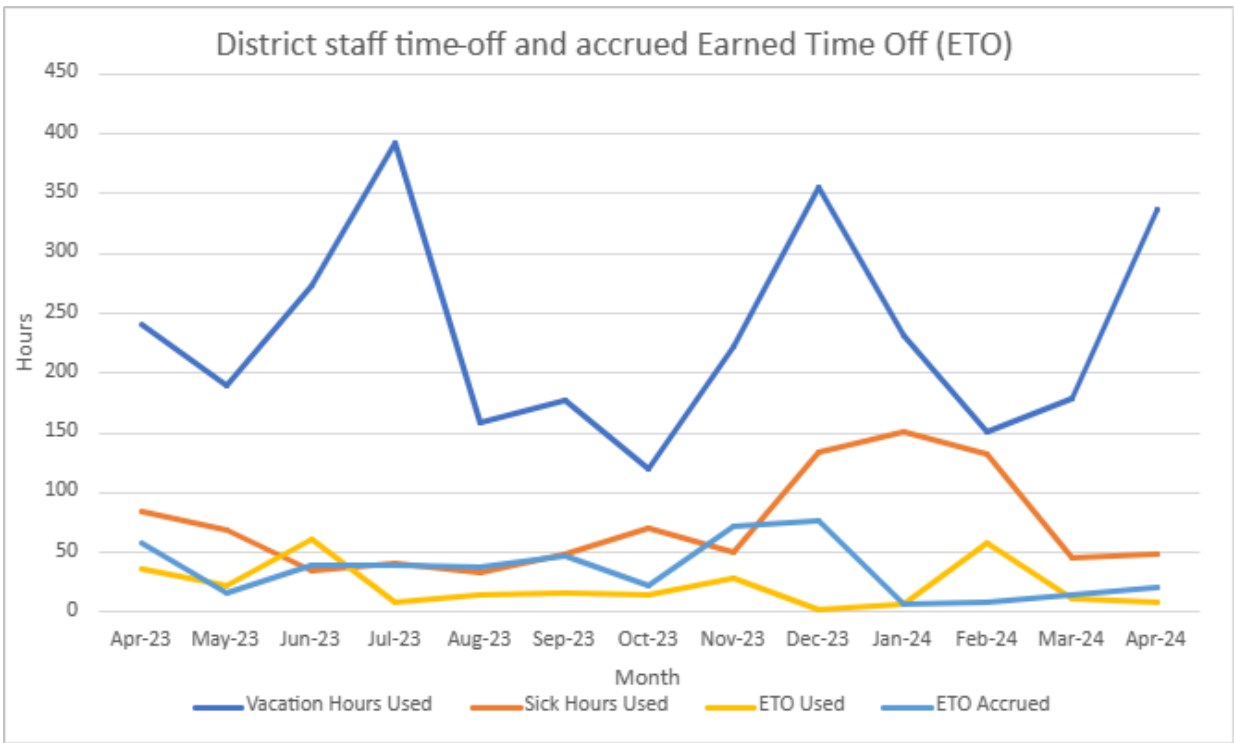
Field Operations Supervisor
Joseph Huston

Service Requests April 2024

April SR Count	April 10 Year Min Count	April 10 Year Max Count	April 10 Year Average
150	110	338	188.40

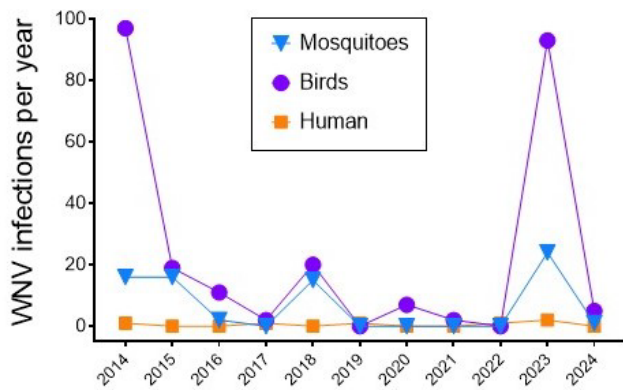


Activity Report

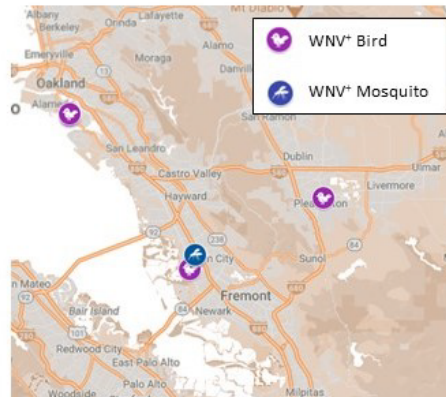


WNV Activity

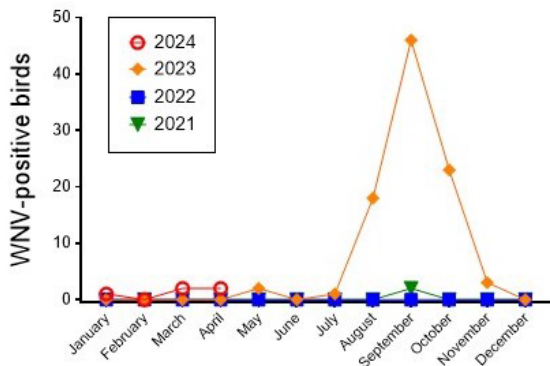
WNV infections detected in Alameda County 2014 – 2024



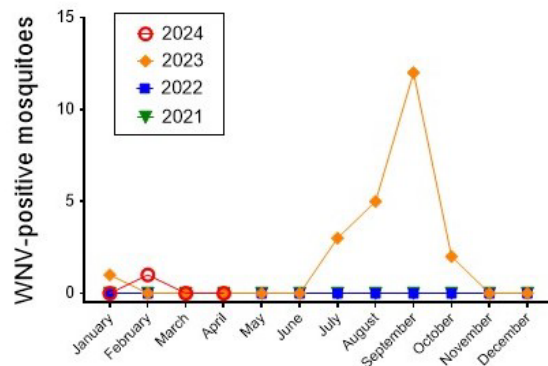
Locations of WNV-infected mosquitoes and birds in Alameda County during 2024



WNV-infected birds collected in Alameda County



WNV-infected mosquitoes collected in Alameda County



Summary

- *Arboviruses in mosquitoes.* None of the mosquitoes collected during April were infected with WNV. To date, we have detected one trap from Union City that contained mosquitoes that were infected with WNV. Please see the figures above for WNV Activity in Alameda County.
- *Arboviruses in birds.* This month, one American Crow that was collected from Alameda and a finch from Pleasanton were infected with WNV. This year, we have collected five birds that were infected with WNV.
- *Native mosquitoes.* 348 encephalitis virus survey (EVS) traps were placed this month, catching 11,050 adult female mosquitoes (31.8 mosquitos per trap). This represents a 4-fold increase in abundance relative to the prior month.
- *Human cases.* Human cases of mosquito-borne diseases that may have been acquired in the county have not been reported to us this year (e.g., WNV).
- Invasive *Aedes* mosquitoes have not been detected in Alameda County during 2024.

Arbovirus Monitoring

- One American crow that was collected from Union City and a finch from Livermore tested positive for WNV this month. Five birds have tested positive for WNV so far this year. None of the mosquitoes collected this month were infected with WNV. So far this year, one trap contained mosquitoes that were infected with WNV.
- Saint Louis encephalitis virus (SLEV) and Western equine encephalitis virus (WEEV) have not been detected in Alameda County for nearly two decades.

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 erythrothorax* (occurs exclusively in marsh but adults can disperse into nearby communities).
- This month, 348 EVS traps collected a total of 11,050 female mosquitoes (31.8 mosquitoes per trap; Figure 1). This represents a 4-fold increase in adult mosquito abundance relative to the prior month. Overall mosquito abundance for this year is similar to the 5-year average, and slightly higher than last year (Figure 2). The higher abundance was due to increases in *Culex tarsalis*, *Aedes sierrensis* and *Aedes washinoi* (Figure 3 and 4). Of those, only *Culex tarsalis* transmits WNV, while *Aedes sierrensis* can spread dog heartworm. Both *Aedes* mosquitoes are aggressive biters but typically occur in or near wilderness areas (light green and brown ellipses in Figure 5). Abundance of the other West Nile vectors, *Culex pipiens* and *Culex erythrothorax*, was similar to the prior two years (not shown).

Non-native Mosquitoes

- Non-native mosquitoes, including *Aedes aegypti*, have not been detected in Alameda County since 2015.

Lab Figures

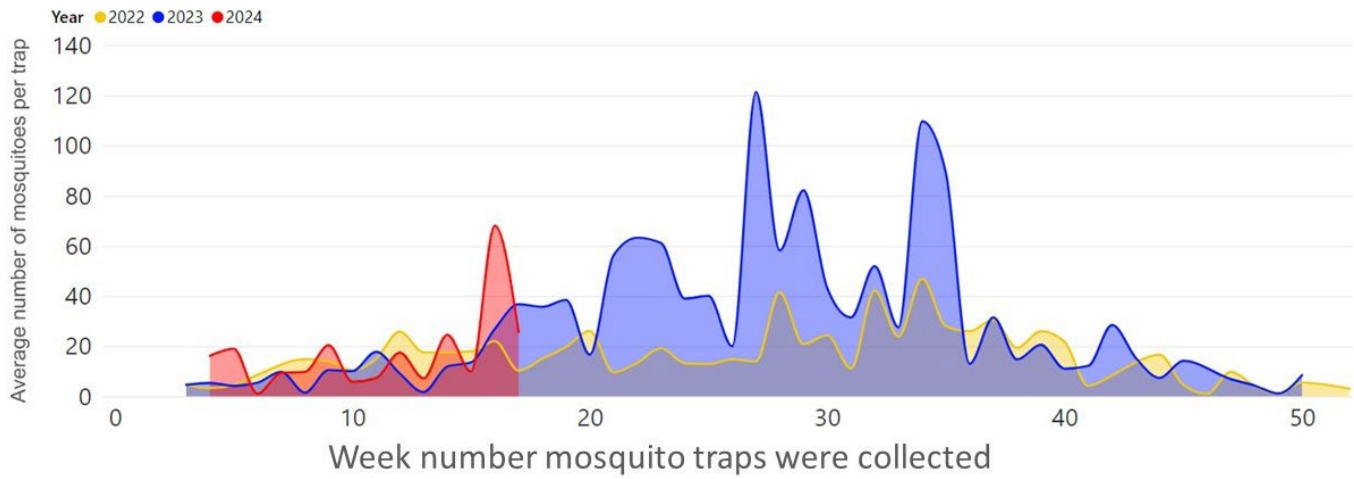


Figure 1. Weekly mosquito abundance during 2022, 2023 and 2024. A total of 11,050 adult female mosquitoes were captured in CO₂-baited traps during the month and identified to species (an average of 31.8 mosquitoes per trap).

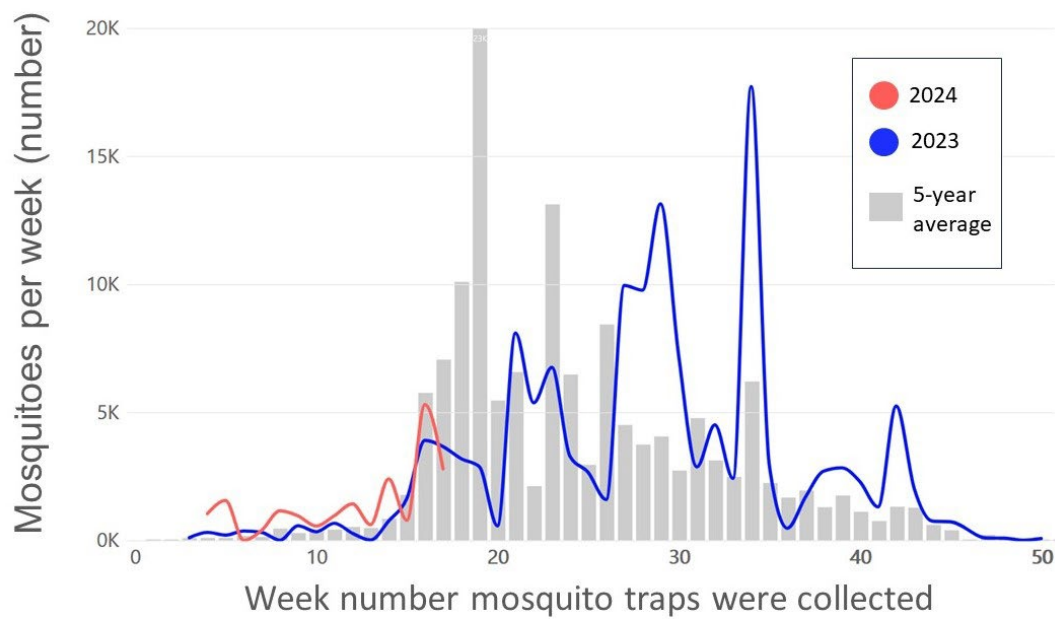


Figure 2. Five-year average of mosquito abundance compared to the current and prior year.

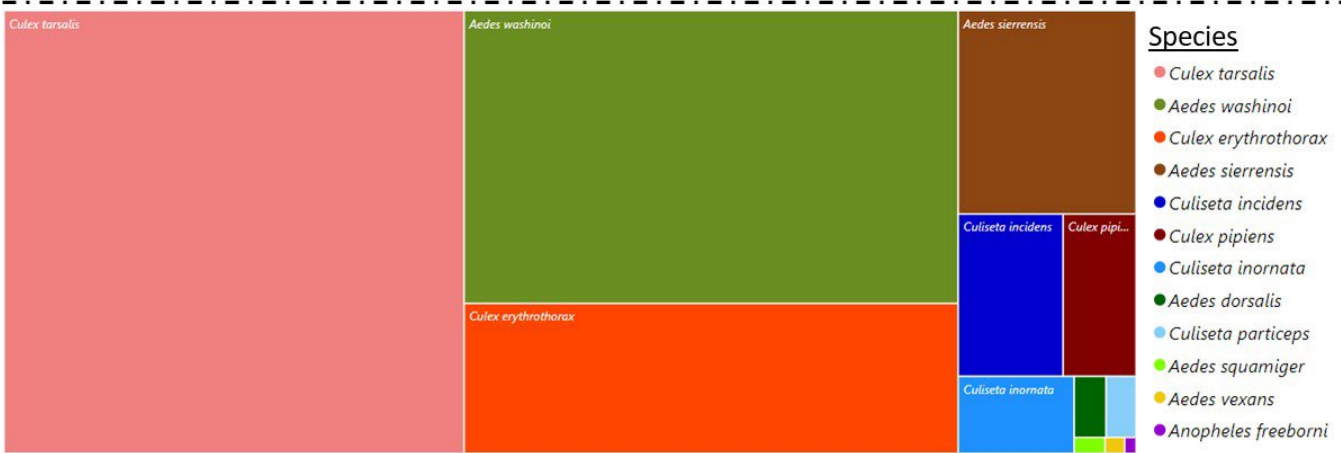
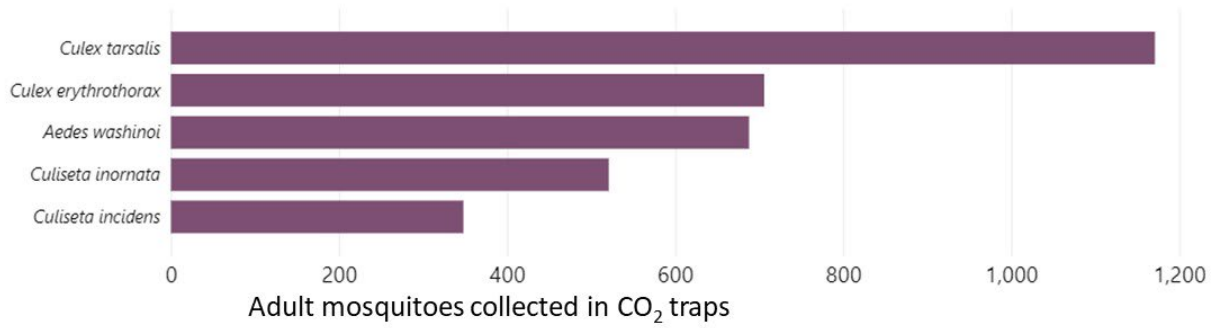


Figure 3. The most abundant species of mosquito captured using EVS CO₂ traps during the month of this report. Larger squares and rectangles indicate higher abundance of that species.

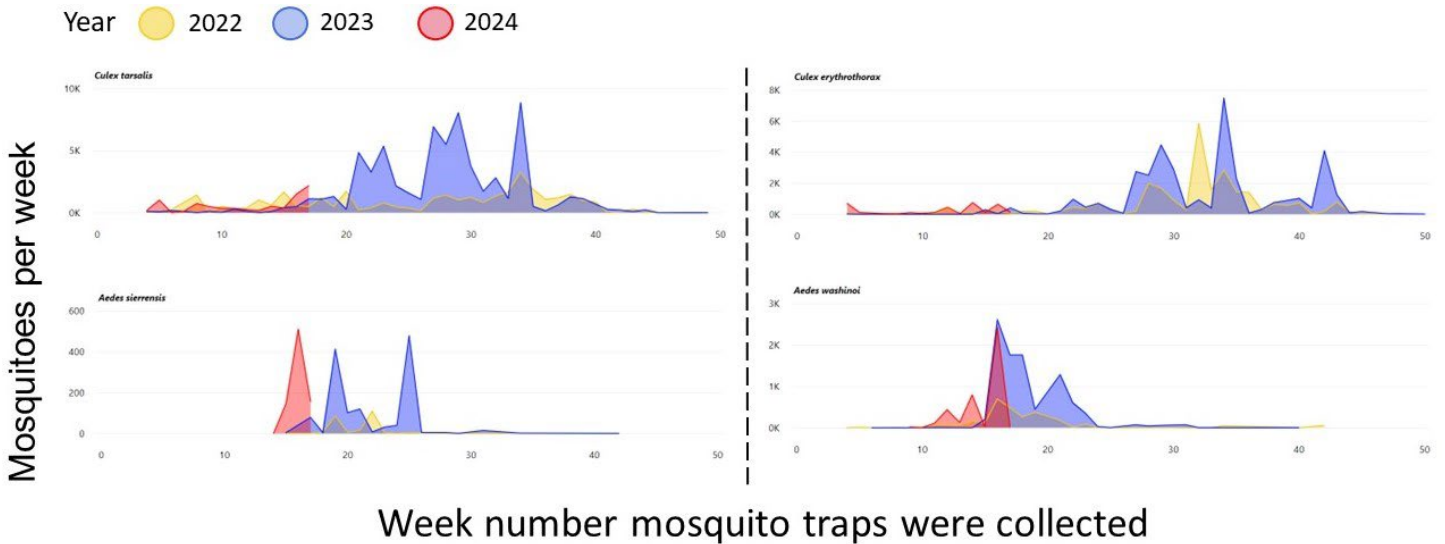


Figure 4. Weekly abundance of important mosquito species during 2022, 2023 and 2024.

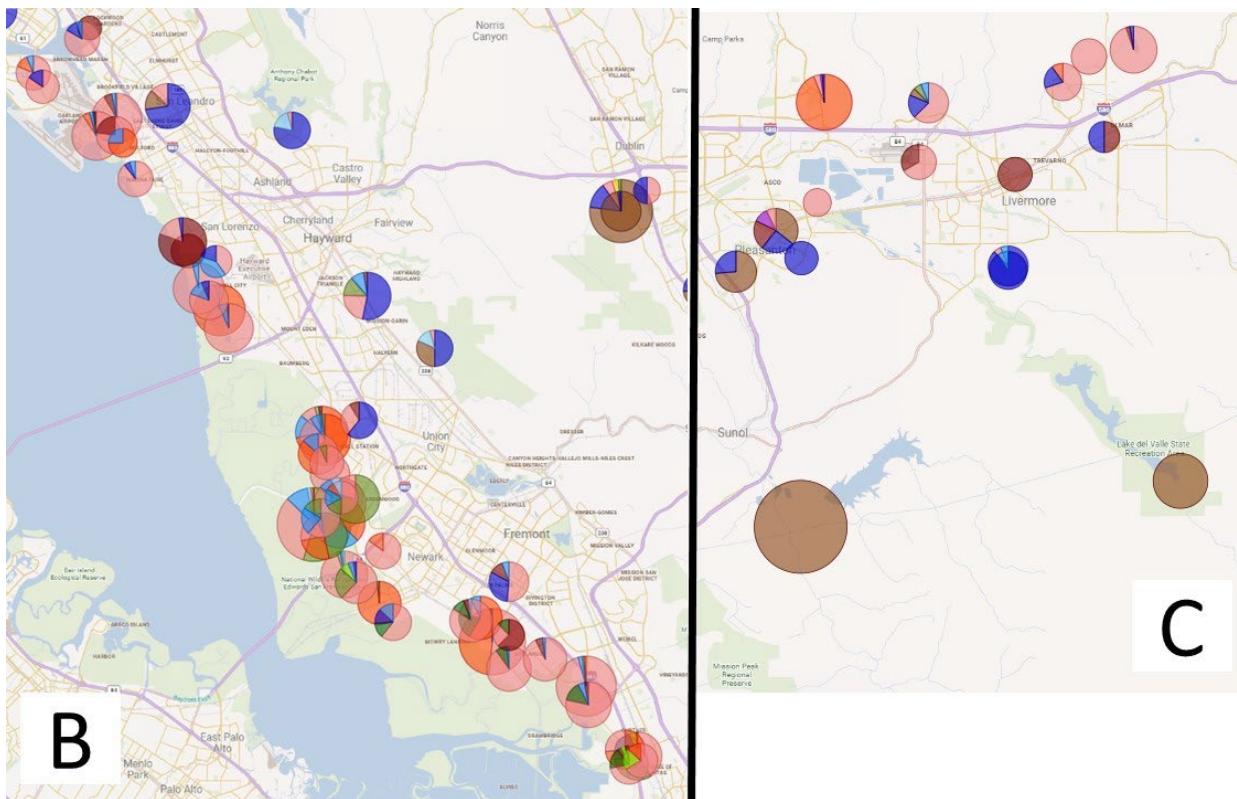
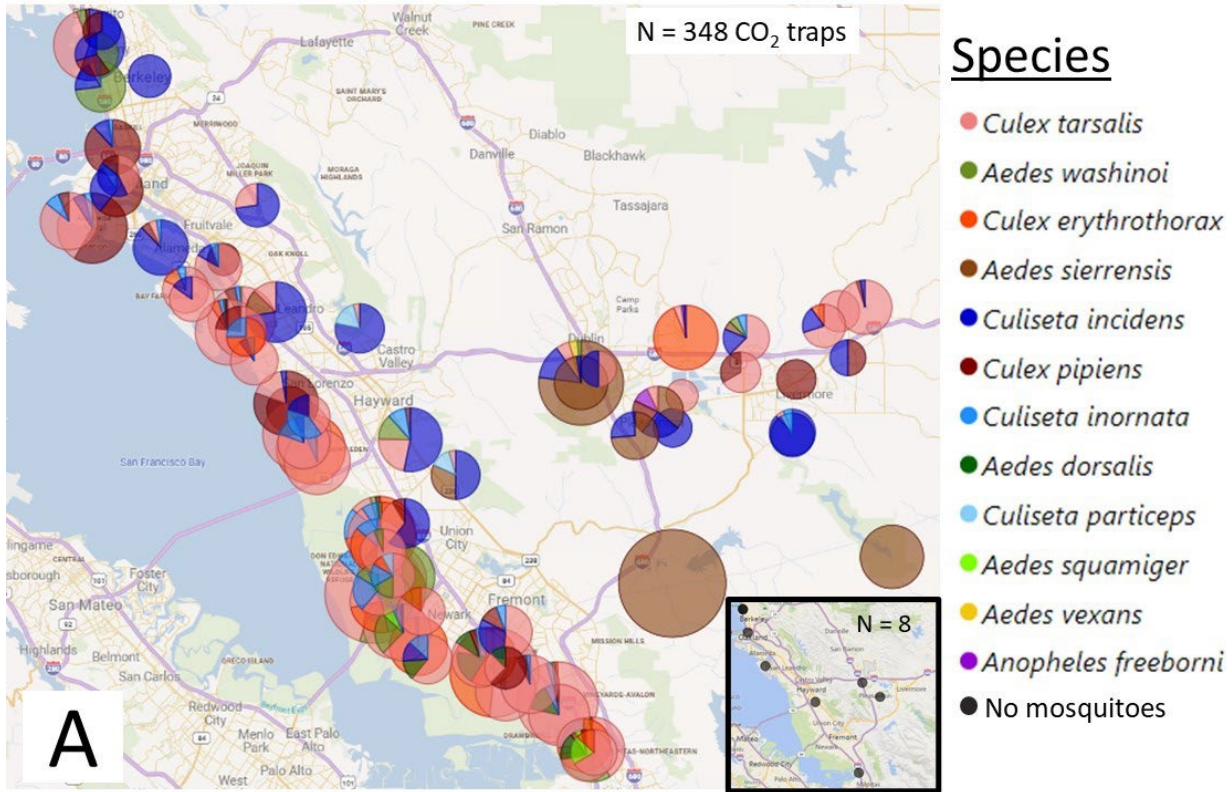


Figure 5. Mosquito abundance by trap site evaluated using EVS CO₂ traps. Pie charts indicate the distribution of mosquito species collected in the traps at that site. The size of each pie chart indicates the relative number of mosquitoes at each site during the month in (A) Alameda County (insert with black ellipses show traps that were placed but did not collect mosquitoes), (B) the the central and southern bayside region, and (C) the eastern region of the county.

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

A. Outreach and Engagement

Education Program

- Presented the abridged mosquito life cycle program to 17 groups of children at Agriculture Day in Livermore.
- Three presentations Sunol Glen School for the first time.
- Mosquito Life Cycle full presentation for Halkin Elementary in San Leandro for fourth year in a row.
- Tabled at Lincoln Elementary's Science Festival for the third year in a row.

Community Outreach and Public Education

- Hosted table at Khmer New Year Festival in East Oakland for the third year in a row. Vector Biologist Miguel Barretto was invited onstage to promote the district.
- Hosted table at the Berkeley Bay Festival.
- Confirmed participation for events in Pleasanton and Oakland.



Top image: Public Outreach Coordinator Judith Pierce presenting to a split 2nd and 3rd grade class at Sunol Glen School.
Bottom images: Lab Seasonal Annika Olsen speaking to residents at the Khmer New Year Festival in East Oakland, children looking at the booth during the Berkeley Bay Festival, Judith Pierce presenting to large groups during Agricultural Day in Livermore.

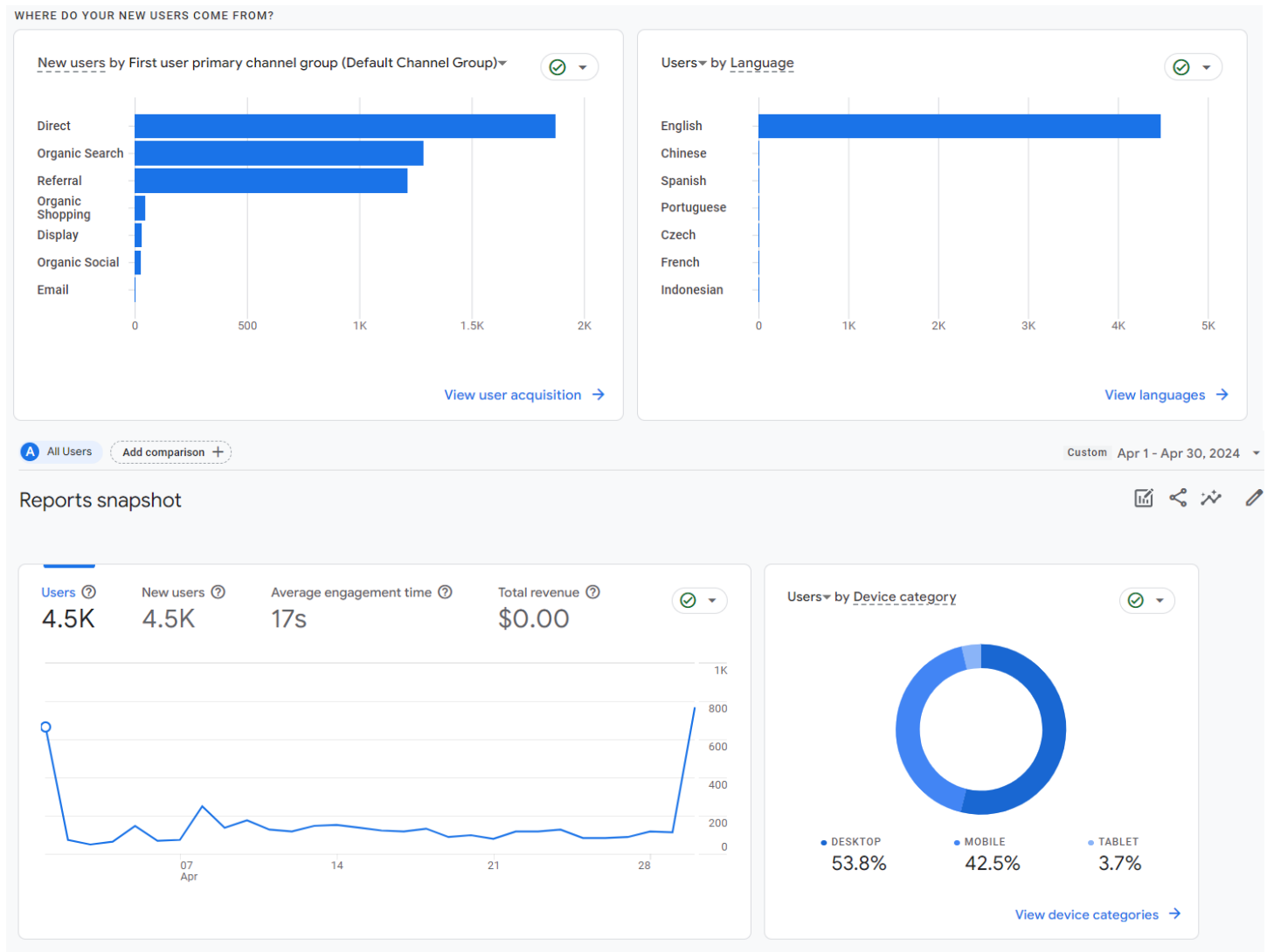
Media and Conferences

- TV ads for the district began on April 1st
- The district participated in National Mosquito Awareness Week social media campaign


Translation

- The Public Outreach Coordinator revised the green pools notification to be more accessible for all readers
- The IT Director had the notices translated into Spanish and Simple Chinese, which the Regulatory and Public Affairs Director uploaded to the website.

Google Analytics for Mosquitoes.org website



WHICH PAGES AND SCREENS GET THE MOST VIEWS?

Views by Page title and screen class 

PAGE TITLE AND SCREEN ...	VIEWS
Alameda County Mosquito A...	2.1K
Mosquito-Like Insects - Ala...	1.2K
Board of Trustees Regular M...	351
California Species - Alamed...	231
Holiday - Office Closed - Ala...	122
Contact Us - Alameda Count...	101
Services - Alameda County ...	88

[View pages and screens →](#)

- **Website Users:** Numbers are slowly building up. Possible bot activity on the first and last days of the month, which we have seen regularly in the past two years.
- **Users by Device Category:** Desktop is the current majority of users by a slim margin.
- **Where Do New Users Come From:** The vast majority of users either type in mosquitoes.org or find the District through a search engine. Referrals from other agencies or websites are substantially lower, along with email and organic social. Display ads were rolled out at the beginning of April, so we expect the number to grow with increased advertising.
- **Users by Language:** Most users have their computers displayed in English.
- **Views by Page Title:** The mosquito-like insects page was the most viewed, which aligns with the fact we are getting more calls about midges and other mosquito look alike insects.

Social Media

Top Facebook Post

Posts: 21 Reach: 964

Followers: 543 (14 increase)



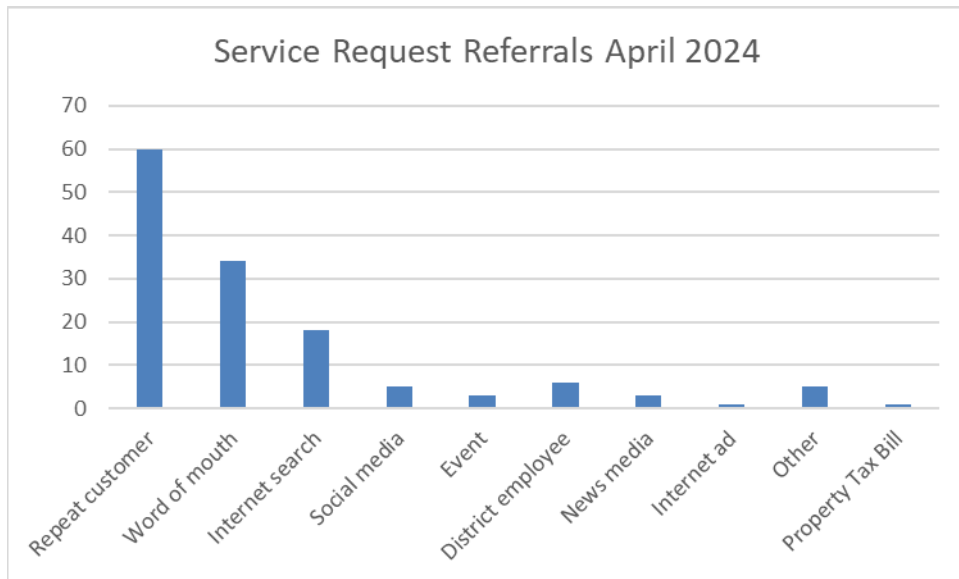
Top Twitter Post

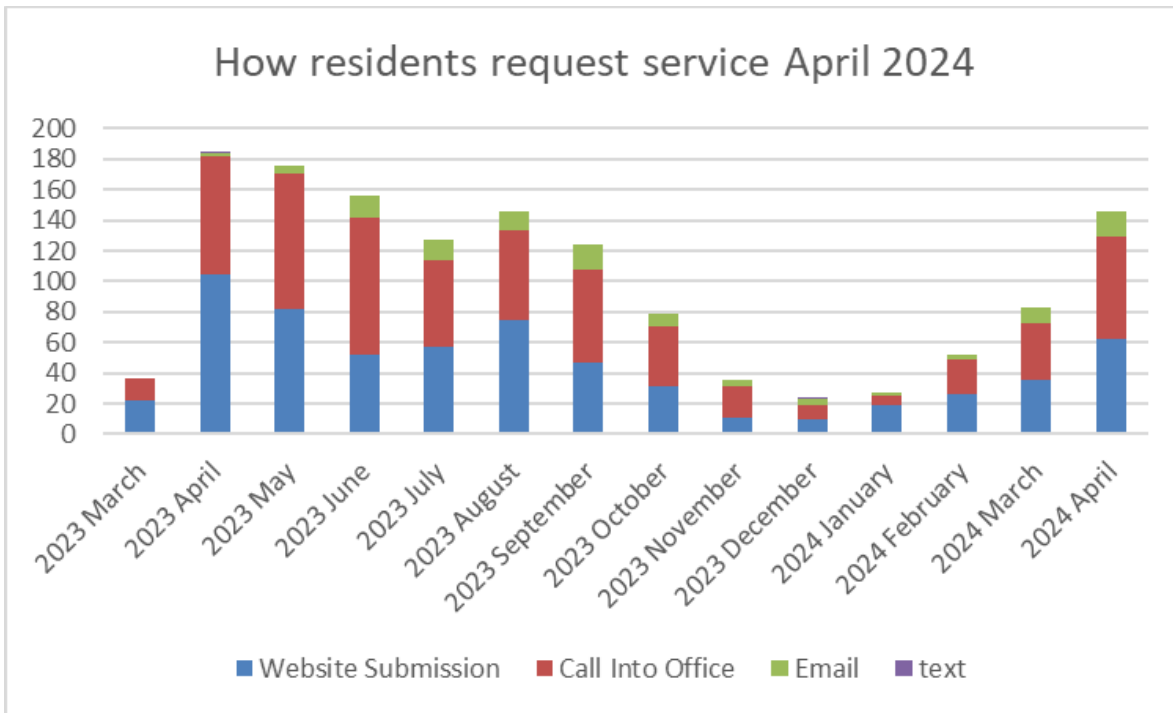
Posts: 21 Reach:756

Followers: 837 (6 increase)



Service Request Trend Data





B. REGULATORY UPDATE

Reports and Permits

- Provided Ascent Environmental with information tables on the products and methods covered in the Programmatic Environmental Impact Report addendum^[1].

Project Design Engagements^[2]

- None to report.

Interagency Collaborations

- ACMAD signed onto the CSDA coalition letter of support for HR 7525 - Special District Grant Accessibility Act.
- ACMAD sent a letter of support and called Senator Skinner’s office to request her continued support for SB 1251 (Stern) - Mosquito abatement inspections, as it passes through the Senate Energy and Utilities Committee.
- Provided EBRPD with ACMAD general brochures for the Hayward Earth Day Festival on 4/20 where they were staffing a HASPA table.

^[1] Contributes to ACMAD’s 2024-2026 Strategic Plan Goal to “Evaluate the environmental impact of mosquito control products and equipment that are not included in our Programmatic Environmental Impact Report” (2024).

^[2] The following activities contribute to ACMAD’s 2024-2026 Strategic Plan Goal to “Ensure projects that will help the shoreline be more resilient to climate change impacts include in the design and monitoring plan language that addresses the risks of mosquito production” (2025).

CAPITAL PROJECTS UPDATE

Aquaculture/Utility Building

PROJECT OVERVIEW (as of 5/1/24)

- Contract executed with GCJ on 11/9/23.
- The new estimated Project Closeout is May 17th.
- Fishtank relocation/installation commences immediately after closeout. Estimated rearing schedule to begin thereafter.

CONSTRUCTION SCHEDULE

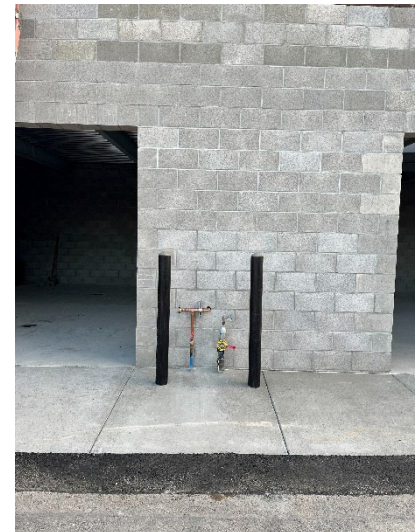
Project Administration	100% complete
Submittals	100% complete
Procurement	100% complete
Demo/Prep for Building Pad	100% complete
Electrical to Building	75% complete
Construct Building	69% complete
Project Closeout	0% complete

FINANCIALS

Original Contract Sum	\$662,335.00
Change Order (billed)	\$21,145.00
Revised Contract Sum	\$683,480.00
Payment total to date	\$471,156.76
Balance due	\$212,323.24

CHANGE ORDERS (3 to date)

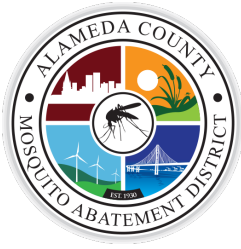
Gas & Water Lines	\$19,105.00
Bollards	\$ 2,040.00
Concrete Apron	\$10,450.00



Summary

- Project near completion.
- Change order #3; a concrete apron to accommodate elevation differences at entries.
- Main construction complete. Electrical, ventilation, sky lights, doors, roof, and paint remain.

Prepared by: Mark Wieland, Mechanical Specialist



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Trustee Anniversary Recognition:

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Maya Manoharan

Livermore

Lisa Rasler

Oakland

Eric Hentschke

Newark

Hope Salzer

Piedmont

Victor Aguilar

San Leandro

Subru Bhat

Union City

Ryan Clausnitzer

General Manager

Background:

ACMAD is pleased to recognize and thank the following Trustee on their anniversaries in May.

Trustee	City	Years of Service	Anniversary Date
George Syrop	Hayward	1	May 16th

CLIMATE & ENVIRONMENT

Mosquito season is upon us. So why are Southern California officials releasing more of them?



Ale Macias releases sterile male mosquitoes from a box in Chino earlier this month. With any luck, they'll help reduce populations of their own species of annoying, disease-carrying insect. (Myung J. Chun / Los Angeles Times)



By Lila
Seidman
Staff

Writer |
April 25, 2024 3 AM PT
Follow

Jennifer Castellon shook, tapped and blew on a box to shoo out more than 1,000 mosquitoes in a quiet, upscale Inland Empire neighborhood.

The insects had a job to do, and the pest scientist wanted every last one out.



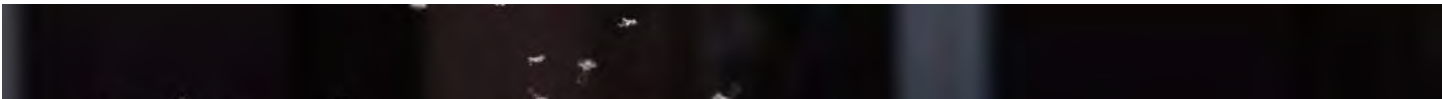
Aggressive and impactful reporting on climate change, the environment, health and science.

Explore our new section

Their task? Find lady mosquitoes and mate.

But these were no ordinary mosquitoes. Technicians had zapped the insects, all males, with radiation in a nearby lab to make them sterile. If they achieve their amorous quest, there will be fewer baby mosquitoes than there would be if nature ran its course. That means fewer mouths to feed — mouths that thirst for human blood.

“I believe, fingers crossed, that we can drop the population size,” said Solomon Birhanie, scientific director for the [West Valley Mosquito and Vector Control District](#), which released the mosquitoes in several San Bernardino County neighborhoods this month.





Sterilized male *Aedes* mosquitoes are released from a box in Rancho Cucamonga. (Myung J. Chun / Los Angeles Times)

Controlling mosquitoes with mosquitoes

Mosquito control agencies in Southern California are desperate to tamp down an invasive mosquito — called *Aedes aegypti* — that has exploded in recent years. Itchy, unhappy residents are demanding it. And the mosquitoes known for fierce ankle biting aren't just putting a damper on outdoor hangouts — they also spread disease.

The low-flying, day-biting mosquitoes can lay eggs in tiny water sources. A bottle cap is fair game. And they might lay a few, say, in a plant tray and others, perhaps, in a drain. Tackling the invaders isn't easy when it can be hard to even locate all the reproduction spots. So public health agencies increasingly are trying to use the insects' own biology against them by releasing sterilized males.

The West Valley district, which covers six cities in San Bernardino County, rolled out the first program of this kind in California last year. Now they're expanding it. Next month, a vector district covering a large swath of Los Angeles County will launch its own pilot, followed by Orange County in the near future. Other districts are considering using the sterile insect technique, as the method is known, or watching early adopters closely.

On the plus side, it's an approach that doesn't rely on pesticides, which mosquitoes become resistant to, but it requires significant resources and triggers conspiracy theories.

"People are complaining that they can't go into their backyard or barbecue in the summer," Birhanie said at his Ontario lab. "So we needed something to strengthen our *Aedes* control." Of particular concern is the *Aedes aegypti*, which love to bite people — often multiple times in rapid succession.

Releasing sterilized male insects to combat pests is a proven scientific technique, but using it to control invasive mosquitoes is relatively new.

Vector control experts often point to the success of a decades-long effort in California to fight Mediterranean fruit flies by dropping enormous quantities of sterile males from small planes. That program, run by the U.S. Department of Agriculture and the California Department of Food and Agriculture, costs about [\\$16 million a year](#). That's nearly four times West Valley's annual budget.

So rather than try to tackle every nook and cranny of the district, encompassing roughly 650,000 residents, West Valley decided to use a more targeted approach. If a problem area reaches a certain threshold — over 50 mosquitoes counted in an overnight trap — it becomes a candidate.



1



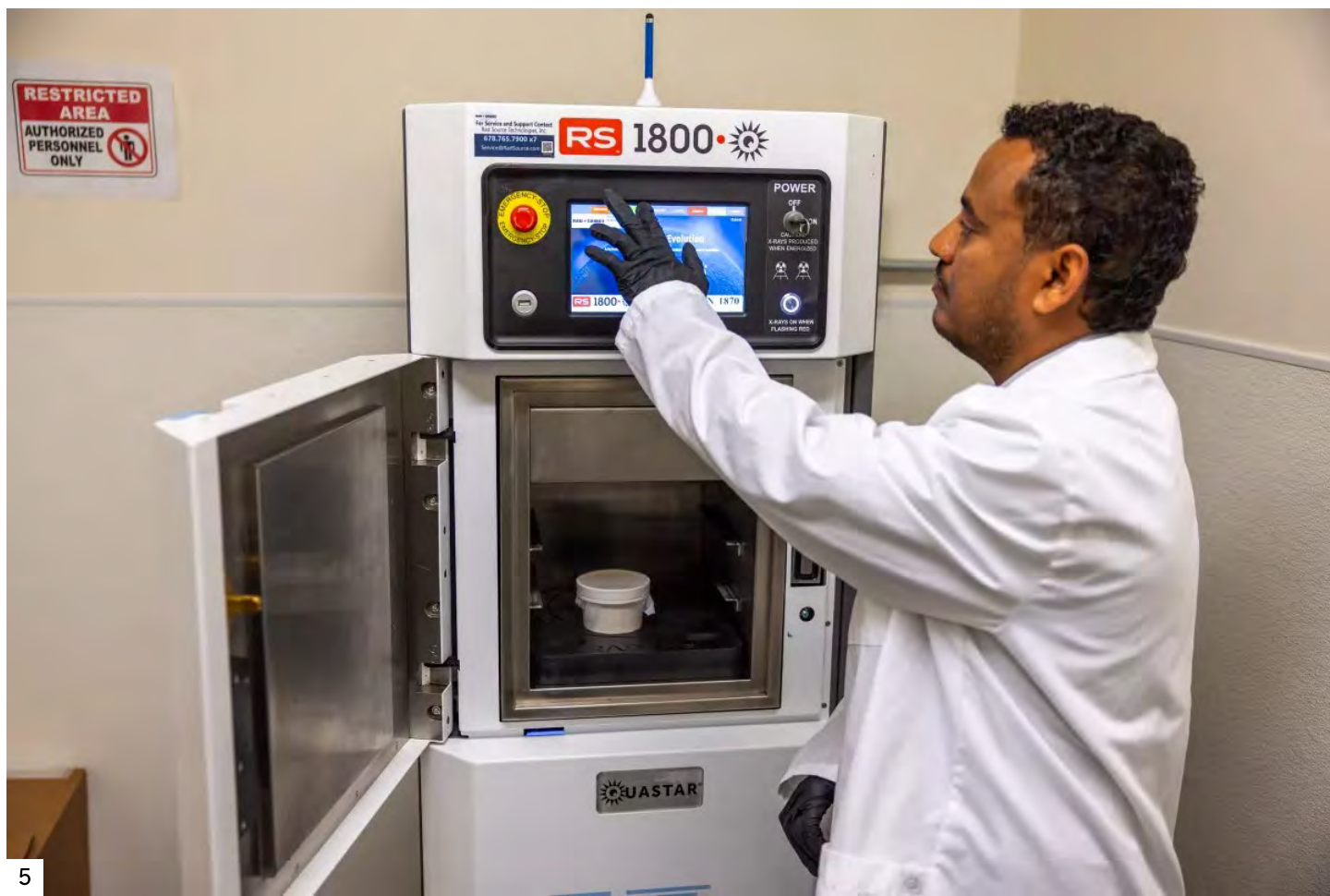
2



3



4



5

1. Solomon Birhanie inspects a container of mosquito larvae in the lab at the West Valley Mosquito and Vector Control District in Ontario. 2. Birhanie and his team raise mosquitoes in the lab, separating them by sex, because only the males, which don't bite humans, will eventually be released. 3. Mosquito eggs in the West Valley lab. 4. The lab can grow about 10,000 mosquitoes at a time. 5. Before the male mosquitoes are released, an X-ray machine sterilizes them. If the zapped males mate with a female, her eggs won't hatch. (Allen J. Schaben / Los Angeles Times)

And it's still a big lift. About 10,000 mosquitoes are reared at a time at West Valley's facility, about half of which will be males. The males are separated out, packed into cups and placed into an X-ray machine that looks like a small refrigerator. The sterilizing process isn't that different from microwaving a frozen dinner. Zap them on a particular setting for four to five minutes and they're good to go.

Equipment purchased for the program costs roughly \$200,000, said Brian Reisinger, spokesperson for the district. He said it was too early to pin down a cost estimate for the program, which is expanding.

Some districts serving more people are going bigger.

The [Greater Los Angeles County Vector Control District](#) plans to unleash up to 60,000 mosquitoes a week in two neighborhoods in Sunland-Tujunga from mid-May through November.

With the sterile-insect program, “the biggest hurdle we’re up against really is scalability,” said Susanne Klueh, general manager of the L.A. County district, which is responsible for nearly 6 million residents across 36 cities.

In part to save money, Klueh’s district has partnered with the [Orange County Mosquito and Vector Control District](#). They’re sharing equipment and collaborating on studies, but L.A. County’s releases will move forward first, said Brian Brannon, spokesperson for the O.C. district. Orange County expects to release its “ankle biter fighters,” as Brannon called them, in Mission Viejo this fall or next spring.

So far, the L.A. County district has shelled out about \$255,000 for its pilot, while O.C. has spent around \$160,000. It’s a relatively small portion of their annual budgets: L.A. at nearly \$25 million and O.C. at \$17 million. But the area they’re targeting is modest.

Mosquito control experts tout sterilization for being environmentally friendly because it doesn’t involve spraying chemicals, and it may have a longer-lasting effectiveness than pesticides. It can also be done now. Other methods involving genetically modified mosquitoes and ones infected with bacteria are stuck in an approval process that spans federal and state agencies. One technique, involving the bacteria [Wolbachia](#) was recently approved by the Environmental Protection Agency and is now heading to the California Department of Pesticide Regulation to review, said Jeremy Wittie, general manager for the Coachella Valley Mosquito and Vector Control District.

“Using pesticides or insecticides, resistance crops up very quickly,” said Nathan Grubaugh, associate professor of epidemiology at the Yale School of Public Health.

Vector control experts hope the fact that the sterilization technique doesn't involve genetic modification will tamp down conspiracy theories that have cropped up around mosquito releases. One [erroneous claim](#) is that a Bill Gates-backed effort to release mosquitoes was tied to malaria cases in Florida and Texas. [Reputable outlets debunked](#) the conspiracy theory, pointing out that Gates' foundation didn't fund the Florida project and that the type of mosquito released (*Aedes*) does not transmit malaria.

To get ahead of concerns, districts carrying out the releases say they've engaged in extensive outreach and education campaigns. Residents' desire to rid themselves of a scourge may overcome any anxieties.

"I think if you have the choice of getting eaten alive by ankle biters or having a DayGlo male X-rayed mosquito come by looking for a female to not have babies with, you'd probably go for the latter," Brannon said. ("DayGlo" is a riff on the fluorescent pigment product of the same name — the sterilized mosquitoes were dusted with bright colors to help identify them.)





Sterilized male mosquitoes buzz around vector ecologist Jennifer Castellon as they are released in Rancho Cucamonga earlier this month. (Myung J. Chun / Los Angeles Times)

Disease at our doorstep

As the climate warms and some regions become wetter, [dengue is expanding](#) to areas it's never been seen before — and surging in areas where it's established. Florida has seen [alarming spikes](#) in the viral infection in recent years, and [Brazil](#) and [Puerto Rico](#) are currently battling severe outbreaks. While most people infected with dengue have no symptoms, it can cause severe body aches and fever and, in rare cases, death. Its alias, “breakbone fever,” provides a grim glimpse into what it can feel like.

In October of last year, the [city of Pasadena announced](#) the Golden State's first documented locally transmitted case of dengue, describing it as “extremely rare” in a news release. That same month, a second case was [confirmed in Long Beach](#). Local transmission means the patient hadn't traveled to a region where dengue is common; they may have been bitten by a mosquito carrying the disease in their own neighborhood.

Surging dengue abroad means there's more opportunity for travelers to bring it home. However, Grubaugh said it doesn't seem that California is imminently poised for a “Florida-like situation,” where there were [nearly 1,000 cases in 2022](#), including 60 that were locally acquired. Southern California in particular lacks heavy rainfall that mosquitoes like, he said. But some vector experts believe more locally acquired cases are inevitable.





Ale Macias releases sterilized male mosquitoes in Upland this month. (Myung J. Chun / Los Angeles Times)

Set them free

In mid-April, a caravan of staffers from the West Valley district traveled to five mosquito “hot spots” in Chino, Upland and Rancho Cucamonga — where data showed mosquito levels were particularly high — to release their first batches of sterilized male mosquitoes for the year. Peak *Aedes* season is months away, typically August to October in the district, and Birhanie said that’s the point. The goal is to force down the numbers to prevent an itchy tsunami later.

Males don’t bite, so the releases won’t lead to more inflamed welts. But residents might notice more insects in the air. Sterilized males released by West Valley will outnumber females in the wild by at least 100 to 1 to increase their chances of beating out unaltered males, spokesperson Reisinger said.

“They’re not going to be contributing to the biting pressure; they’re just going to be looking for love,” as Reisinger put it.

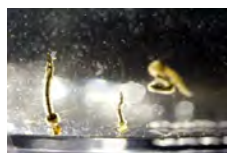
Eggs produced by a female after a romp with a sterile male don’t hatch. And female mosquitoes typically mate only once, meaning all her eggs are spoiled, so to speak. Vector experts say the process drives down the population over time.

Interestingly, the hot spots were fairly spread out across the district, indicative of the bloodsuckers’ widespread presence and adaptive nature. A picturesque foothills community in Upland was “especially interesting” because of its relatively high elevation, Birhanie said.

It was once inhabited primarily by another invasive mosquito that prefers colder, mountainous climates. Construction and deforestation in the area has literally paved the way for its humidity- and heat-loving brethren to move in.

Another neighborhood, in Rancho Cucamonga, posed a mystery. For the last two years, mosquito levels were consistently high. Door-to-door inspections, confoundingly, didn’t reveal the source.

“That’s one of the things about invasive *Aedes* mosquitoes — you can’t find them,” he said.



CALIFORNIA

All this rain could invite mosquitoes into your backyard. Here’s how to prevent that

Feb. 14, 2024

Next steps

Some vector control experts want to see a regional approach to sterile mosquito releases, similar to the state Medfly program.

Jason Farned, district manager for the [San Gabriel Valley Mosquito and Vector Control District](#), believes a widespread effort “would be much more effective” and thinks that will come in time.

There are no talks underway to make it happen, and it’s not yet clear how it would work. Vector control agencies are set up to serve their local communities.

[Fears of a bad mosquito year ahead are bubbling](#) as the weather warms. Rain — which there [was plenty](#) of this spring — can quickly [transform into real estate](#) for mosquito reproduction.

When the swarms come, mosquito haters can take typical precautions: dump standing water and wear repellent. And they can root for the sterile males to get lucky.



CLIMATE & ENVIRONMENT

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April 18, 2024

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March 21, 2024



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Jan. 9, 2024



Lila Seidman

Lila Seidman is a reporter focused on California wildlife and the outdoors for the Los Angeles Times. Since joining The Times in 2020, she has investigated mental health policy and jumped on breaking news. A native Angeleno, Seidman holds a bachelor's degree from Reed College and a master's degree from Pepperdine University.