AGENDA

1090th MEETING OF THE BOARD OF TRUSTEES
OF THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT
MAY 12TH, 2021

TIME: 5:00 P.M.
PLACE: Teleconference Only, **see below**
TRUSTEES: P. Robert Beatty, President, City of Berkeley
Betsy Cooley, Vice-President, City of Emeryville
Subru Bhat, Secretary, City of Union City
Cathy Roache, County-at-Large
Wendi Poulson, City of Alameda
Preston Jordan, City of Albany
Shawn Kumagai, City of Dublin
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
Victor Aguilar, City of San Leandro

1. Call to order.

2. Roll call.

3. President Beatty invites any member of the public to speak at this time on any issue relevant to the District. (Each individual is limited to three minutes).

4. Approval of the minutes of the 1089th Regular Meeting held April 14th, 2021 (**Board action required**)

5. Presentation and approval of the final budget for fiscal year 2021-22 (**Board action required**)

6. Presentation of the preliminary Engineers Report for fiscal year 2021-2022 by Melanie Guillory-Lee from SCI Consulting Group (Information only)

7. Resolution 1090-1 intending to continue assessments for fiscal year 2021-22, preliminarily approving the engineer's report, and providing for notice of hearing. **(Board action required)**

8. Review of bid and awarding of contract for the Biological Assessment (**Board action required)**
    a. Staff report
    b. Request for Proposals
    c. Proposal from Environmental Science Associates

9. Presentation on Sterile Insect Techniques (SITs) by Lab Director, Eric Haas-Stapleton, PhD. (Information only).

a. Presentation
b. General Manager's memo on SITs

10. Financial Reports as of April 30th, 2021: (Information only).

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

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

12. Presentation of the Manager's Report (Information only).
    a. Trustee & Staff Anniversaries
    b. Facility's 4/16/21 break-in report
    c. CSDA Annual Conference (in-person): Monday, August 30th – Thursday, September 2nd at the Monterey Conference Center.
    d. Training due: AB 1234: Aguilar, Jordan, Testa; AB 1825: Jordan

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

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

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

16. Adjournment.

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.

IMPORANT NOTICE REGARDING COVID-19 AND TELECONFERENCED MEETINGS:

Based on the mandates by the Governor in Executive Order 33-20 and the County Public Health Officer to shelter in place and the guidance from the CDC, to minimize the spread of the coronavirus, please note the following changes to the District's ordinary meeting procedures:
- The District offices are not open to the public at this time.
- The meeting will be conducted via teleconference using Zoom. (See Executive Order 29-20)
- All members of the public seeking to observe and/or to address the local legislative body may participate in the meeting telephonically or otherwise electronically in the manner described below.

HOW TO OBSERVE THE MEETING:

Telephone: Listen to the meeting live by calling Zoom at **(669) 900-6833**
Enter the **Meeting ID#** 843 7187 7034 followed by the pound (#) key.

Computer: Watch the live streaming of the meeting from a computer by navigating to https://us02web.zoom.us/j/84371877034

Mobile: Log in through the Zoom mobile app on a smartphone and enter **Meeting ID#** 843 7187 7034

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

1089th MEETING OF THE BOARD OF TRUSTEES
OF THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT
April 14th, 2021

TIME:	5:00 P.M.
PLACE:	*Zoom Teleconference Only*
TRUSTEES:	P. Robert Beatty, President, City of Berkeley Betsy Cooley, Vice-President, City of Emeryville Subru Bhat, Secretary, City of Union City Cathy Roache, County-at-Large Wendi Poulson, City of Alameda Preston Jordan, City of Albany Shawn Kumagai, City of Dublin George Young, City of Fremont Elisa Marquez, 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 Victor Aguilar, City of San Leandro

1. Board President Beatty called the regularly scheduled board meeting to order at 5:01 P.M. Vector Biologist Jeremy Sette noted in the general chat that his webcam was not functioning but could still take minutes.

2. Trustees Beatty, Cooley, Bhat, Roache, Poulson, Jordan, Young, Marquez, Cox, Hentschke, Washburn, Mingst, and Aguilar were present on the Zoom conference. Trustee Testa was absent. Trustee Kumagai arrived at 5:20 P.M.

3. Board President Beatty invited members of the public to speak on any issue relevant to the District. Mechanical Specialist Mark Wieland was present to review bids for the exterior painting project. Accounting Associate Michelle Robles was present to comment on the draft budget. Vector Biologist Jeremy Sette was present to record the minutes.

4. Approval of the minutes of the 1088th meeting held March 10th, 2021. The General Manager added a comment regarding a typo in the draft minutes related to the manager evaluation committee that has been corrected in the final version of minutes.
   Motion: Trustee Aguilar moved to approve the minutes
   Second: Trustee Roache
   Vote: motion carries: unanimous.

5. Review of bids and awarding of contract for the exterior painting project.
   Discussion: The General Manager introduced Mechanical Specialist Mark Wieland to present the bids for the exterior painting project. Mr. Wieland greeted the Trustees, gave

background of project, recommended awarding the contract to D & H Painting of Rancho Cordova, and fielded the following discussion. President Beatty asked what the budget was ($39,000). Trustee Cox asked what criteria was used in the recommendation (found in the report). The General Manager added that each contractor had to be registered with the Department of Industrial Relations and noted that the contractor would bring their own restroom per COVID-19 protocol. Trustee Cox asked if contractors not awarded the bid had a formal protest period (the General Manager answered that bidders were aware that the staff recommendation was publicly posted on Friday but there is no formal protest policy). Trustee Hentschke asked if there were any possible areas that needed painting not addressed in bid and how ACMAD would address that (the 10% contingency should cover any unforeseen areas but ACMAD was very thorough in the RFP and during the subsequent walk-throughs) and asked about will happen with the chicken wire used for bird suppression (it will just be painted over). President Beatty complimented Mr. Wieland on his good work.
Motion: Trustee Washburn moved to award the contract to D & H Painting of Rancho Cordova
Second: Trustee Hentschke
Vote: motion carries: unanimous

6. First draft of the 2021-22 budget for discussion.
   Discussion:
   Trustee Jordan spoke on behalf of the Finance Committee and addressed specifics of the first draft of the 2021-22 budget while fielding the following discussion. President Beatty asked for clarification on Reserve Account Allocations (the summary page is described in detail on the following pages). The General Manager addressed noteworthy specifics of the budget and fielded the rest of the discussion. President Beatty asked for clarification on the calculations for the cash carried over (the current bank balances are used along with likely cash outflows). The General Manager noted a missing footnote on the reserve allocation page was accidently omitted but will be in the next draft of the budget (it referred to the timing of reserve fund allocations). Trustee Marquez asked for the clarification between the Repair and Replace Fund and Capital Reserve Funds (Repair and Replace is for current capital assets, Capital Reserve is for non-capital large projects, like painting, and new asset acquisitions). President Beatty asked if there would be a vote next month to approve the budget (yes).

7. Presentation of the Financial Reports as of March 31st, 2021.
   Discussion:
   The General Manager presented the Financial Reports as of March 31st, 2021 and fielded the following discussion. The General Manager thanked Secretary Bhat for coming to the District to sign checks. President Beatty asked for clarification on the difference on the year-to-year balance sheet in the LAIF fund (Accounting Associate Michelle Robles answered that this is likely tied to the timing of transfers but will look into it and get back to the Board). Vice-President Cooley suggested that timing should not increase the assets as the transfers are only from one asset to another (staff will look into the cause of the increase and follow-up with the Board).

8. Presentation of the Monthly Staff Report.
   Discussion:
   The General Manager presented the Monthly Staff Report and fielded the following discussion. Trustee Jordan asked if there could be a timeline added to the “Mosquitoes grow up so fast!” social media post explaining how long each part of the mosquito life cycle took (Trustee Washburn noted the difficulty with adding specifics of life cycles due to the high

variability of different mosquito life cycles but complimented Trustee Jordan on making a good point). The General Manager noted a typo in the "Channels Used for Service Requests" pie chart. Trustee Aguilar asked about the property tax referral item in "Service Request Referral Summary for March" (the item was referring to property owners informing the District that they reached out for service after noticing ACMAD on their property bill).

9. Presentation of the Manager's Report.
   Discussion:
   The General Manager presented the Manager's Report and fielded the following discussion. The General Manager congratulated President Beatty, Accounting Associate Michelle Robles, and Vector Biologist Tom McMahon for 5, 5, and 7 years of ongoing service and noted that Tom McMahon had more than 10 additional years of service before leaving the District and returning for the current 7 years of service. The General Manager noted that President Beatty will be receiving the District Anniversary Belt Buckle for his anniversary in the mail. President Beatty asked when meetings will be in-person (it depends on when Governor Newsom cancels his emergency resolution allowing for remote meeting). President Beatty asked if the ad-hoc Manager Evaluation Committee could talk to each other outside of meetings in accordance with the Brown Act (yes).

10. Board President Beatty asked for reports on conferences and seminars attended by Trustees. Trustee Cox attended and enjoyed attending two of the four modules of the Special District Leadership Academy.

11. Board President Beatty asked for announcements from the Board. The General Manager congratulated Trustee Cox on the recent birth of his son. Trustee Cox thanked him and noted that he was also looking forward to meeting the Board in person when meetings returned in person.

12. Board President Beatty asked trustees for items to be added to the agenda for the next Board meeting. None.

13. The meeting adjourned at 6:17 P.M.

Respectfully submitted,

_____
Subru Bhat, Secretary
BOARD OF TRUSTEES

Approved as written and/or corrected at the 1090th meeting of the Board of Trustees held May 12th, 2021.

_____
P. Robert Beatty, President
BOARD OF TRUSTEES

REVENUES	Budget 21/22	Year to year % budget change	Budget 20/21	Actual 19/20	A vs B	Budget 19/20	Actual 18/19	Budget 18/19	Actual 17/18	Budget 17/18
Ad Valoreum Property Taxes	$ 2,580,814	11%	$ 2,300,000	$ 2,502,132	0%	$ 2,494,800	$ 2,325,861	$ 2,268,000	$2,054,129	$2,007,044
Special Tax & Benefit Assessment	$ 1,981,959	8%	$ 1,821,600	$ 1,951,959	-2%	$ 1,986,806	$ 1,939,212	$ 1,994,499	$2,026,453	$1,929,046
Interest earned (restricted fund interest NOT included as revenue)	$ 30,000	0%	$ 30,000	$ 176,499	488%	$ 30,000	$ 167,488	$ 30,000	$25,505	$8,000
Sale of Property and Equipment & Misc.	$ 5,000	0%	$ 5,000	$ 14,775	196%	$ 5,000	$ 2,289	$ 5,000	$86,661	$5,000
Reimburese Retiree Health Benefits and fees from OPEB	$ 168,091	2%	$ 164,913	$ 163,355	0%	$ 163,630	$ 170,667	$ 179,229	$178,460	$179,271
Total Revenue	**$ 4,765,864**	9%	**$ 4,321,513**	**$ 4,808,720**	3%	**$ 4,680,236**	**$ 4,605,517**	**$ 4,476,728**	**$4,371,208**	**$4,128,361**
EXPENDITURES										
Salaries (including deferred comp.)	$ 2,236,282	5%	$ 2,116,177	$ 1,980,518	-3%	$ 2,035,791	$ 1,894,209	$ 1,933,182	$1,744,412	$1,761,305
CalPERS Retirement	$ 473,950	11%	$ 423,350	$ 378,833	5%	$ 360,538	$ 310,838	$ 301,812	$262,107	$253,662
Medicare & Social Security	$ 33,062	5%	$ 31,278	$ 29,651	-4%	$ 30,843	$ 25,149	$ 28,031	$23,564	$25,881
Fringe Benefits	$ 579,596	9%	$ 527,031	$ 465,466	-7%	$ 502,043	$ 452,960	$ 508,680	$449,954	$506,368
Total Salaries, Retirement, & Benefits *(pgs. 2,3)*	**$ 3,322,891**	7%	**$ 3,097,836**	**$ 2,854,468**	-3%	**$ 2,929,215**	**$ 2,683,156**	**$ 2,771,705**	**$2,480,037**	**$2,547,216**
Service & Supplies (Clothing & Personal supplies)	$ 10,000	0%	$ 10,000	$ 6,214	-22%	$ 8,000	$ 8,899	$ 6,000	$7,309	$8,500
Service & Supplies (Laundry services & supplies)	$ 15,000	0%	$ 15,000	$ 10,648	-16%	$ 12,750	$ 12,603	$ 9,500	$9,819	$9,000
Utilities	$ 17,000	29%	$ 12,000	$ 25,962	106%	$ 12,600	$ 30,161	$ 36,500	$29,830	$38,000
Small tools and instruments	$ 3,000	0%	$ 3,000	$ 2,056	-31%	$ 3,000	$ 2,211	$ 2,500	$8,376	$8,500
Maintenance (Landscaping & Facility)	$ 35,000	29%	$ 25,000	$ 16,679	-33%	$ 25,000	$ 13,673	$ 25,000	$21,375	$28,600
Maintenance (Equipment)	$ 35,000	0%	$ 35,000	$ 20,600	-41%	$ 35,000	$ 43,629	$ 35,000	$43,585	$45,000
Transportation, travel, training, & board	$ 127,630	4%	$ 122,400	$ 95,814	-29%	$ 134,260	$ 98,433	$ 134,210	$131,330	$156,810
Professional services	$ 203,450	13%	$ 176,200	$ 112,887	-33%	$ 169,320	$ 115,324	$ 190,620	$100,563	$184,770
Memberships, dues, & insurance	$ 24,000	3%	$ 23,337	$ 26,317	16%	$ 22,655	$ 20,774	$ 21,152	$15,933	$22,130
Insurance - VCJPA & EAP	$ 150,611	9%	$ 137,524	$ 134,834	1%	$ 133,546	$ 124,688	$ 123,351	$131,393	$133,810
Community education	$ 39,500	2%	$ 38,575	$ 22,734	-43%	$ 40,000	$ 34,861	$ 33,000	$64,109	$53,000
Operations	$ 239,000	-1%	$ 241,000	$ 179,659	-21%	$ 228,500	$ 206,731	$ 234,000	$178,129	$260,800
Household expenses	$ 17,350	3%	$ 16,750	$ 14,817	-7%	$ 15,850	$ 18,594	$ 19,000	$18,101	$20,010
Office expenses	$ 12,000	0%	$ 12,000	$ 13,761	-5%	$ 14,500	$ 11,796	$ 15,100	$10,753	$13,050
Information Technology/ Communication	$ 112,400	1%	$ 111,400	$ 83,135	-29%	$ 117,100	$ 108,886	$ 122,200	$102,855	$109,600
Laboratory	$ 144,000	3%	$ 139,000	$ 100,878	-26%	$ 137,000	$ 118,148	$ 118,148	$113,961	$105,000
Total Staff Budget *(pg. 4)*	**$ 1,184,941**	6%	**$ 1,118,186**	**$ 866,995**	-22%	**$ 1,109,081**	**$ 969,411**	**$ 1,125,281**	**$987,421**	**$1,173,580**
Contingency	$ 50,000	0%	$ 50,000	$ -		$ 50,000		$ 50,000	$1,039	$25,000
Total Expenditures	**$ 4,557,832**	6%	**$ 4,266,022**	**$ 3,721,463**	-9%	**$ 4,088,296**	**$ 3,652,567**	**$ 3,946,706**	**$3,468,497**	**$3,985,796**
SURPLUS (DEFICIT)	$ 208,032		**$ 55,491**			**$ 591,940**		**$ 530,021**		
CASH CARRIED OVER *(pg. 5)*	**$ 1,530,673**		**$ 161,656**			**$ 485,003**		**$ 1,269,782**		
SURPLUS (DEFICIT) AFTER OPERATIONAL CASH NEEDS	**$ 1,738,705**		**$ 217,147**			**$ 1,076,943**		**$ 1,799,803**		
RESERVE ACCOUNT ALLOCATIONS	**Transfers**		**Transfers**			**Budget 19/20**	**Actual 18/19**	**Budget 2018/19**		**Budget 2017/18**
VCJPA Contingency Fund	$ -		$ -	$ (51,332)		$ (51,332)		$ -		$50,000
PARS: Pension Rate Stabililzation	$ 434,676		$ -	$ 500,000		$ 500,000	$ 1,064,536	$ 500,000		$500,000
CAMP: Public Health Emergency	$ -		$ -			$ -	$ 516,771	$ -		$500,000
CAMP: Repair and Replace ***(pg. 6)***	$ 1,311,625		$ 314,315	$ 1,086,170		$ 1,196,000	$ 336,821	$ 193,853		$1,000,000
CAMP: Operating reserve	$ -		$ (25,000)			$ (619,057)	$ 1,909,413	$ 855,950		$1,000,000
CAMP: Capital reserve	$ (7,596)		$ (72,168)	$ 155,162		$ 51,332	$ 231,329	$ 131,752		$0
Total reserve allocations *(pg. 7)*	**$ 1,738,705**		**$ 217,147**	**$ 1,690,000**		**$ 1,076,943**	**$ 4,058,870**	**$ 1,799,803**		
SURPLUS (DEFICIT) AFTER RESERVE ALLOCATIONS	**$ -**		**$ -**			**$ -**		**$ -**		

Salaries 7/1/21 - 6/31/22

Date of hire	Position	2021/22 4%	Longevity	Longivity Amount	New Salary	# mo	Subtotal	Deferred Comp.	(per pay period)
Jul-99	VS5	$ 9,957.52	4%	$ 398.30	$ 10,355.82	12	$ 124,270	$ 621.35	$ 25.89
Mar-14	VB2	$ 9,350.96	1%	$ 93.51	$ 9,444.47	12	$ 113,334	$ 566.67	$ 23.61
Aug-18	Asso. VS4	$ 8,093.67	0%	$ -	$ 8,093.67	7	$ 56,656	$ 283.28	$ 20.23
	Asso. VS5	$ 8,496.67	0%	$ -	$ 8,496.67	5	$ 42,483	$ 212.42	$ 21.24
Apr-02	VB2	$ 9,350.96	3%	$ 280.53	$ 9,631.49	8	$ 77,052	$ 385.26	$ 24.08
		$ 9,350.96	4%	$ 374.04	$ 9,725.00	4	$ 38,900	$ 194.50	$ 24.31
Nov-03	VB2	$ 9,350.96	3%	$ 280.53	$ 9,631.49	12	$ 115,578	$ 577.89	$ 24.08
Mar-02	RPA5	$ 10,052.80	3%	$ 301.58	$ 10,354.38	8	$ 82,835	$ 414.18	$ 25.89
		$ 10,052.80	4%	$ 402.11	$ 10,454.91	4	$ 41,820	$ 209.10	$ 26.14
Jul-15	Mgr	$ 15,126.43	1%	$ 151.26	$ 15,277.69	12	$ 183,332		
Sep-15	VB2	$ 9,350.96	1%	$ 93.51	$ 9,444.47	12	$ 113,334	$ 566.67	$ 23.61
Jul-15	IT5	$ 10,005.15	1%	$ 100.05	$ 10,105.20	12	$ 121,262	$ 606.31	$ 25.26
Nov-19	MCT3	$ 7,695.11	0%	$ -	$ 7,695.11	10	$ 76,951	$ 384.76	$ 19.24
	MCT4	$ 8,079.90	0%	$ -	$ 8,079.90	2	$ 16,160	$ 80.80	$ 20.20
Jul-15	LAB5	$ 11,293.41	1%	$ 112.93	$ 11,406.34	12	$ 136,876	$ 684.38	$ 28.52
Jul-91	Sup 5	$ 11,294.65	5%	$ 564.73	$ 11,859.38	12	$ 142,313	$ 711.56	$ 29.65
Apr-14	VB2	$ 9,350.96	1%	$ 93.51	$ 9,444.47	12	$ 113,334	$ 566.67	$ 23.61
Jul-20	POC2	$ 7,863.57	0%	$ -	$ 7,863.57	0.5	$ 3,932	$ 19.66	$ 19.66
	POC3	$ 8,256.75	0%	$ -	$ 8,256.75	11.5	$ 94,953	$ 474.76	$ 20.64
Apr-16	Admin5	$ 6,267.41	1%	$ 62.67	$ 6,330.08	12	$ 75,961	$ 379.81	$ 15.83
Sep-15	VB2	$ 9,350.96	1%	$ 93.51	$ 9,444.47	12	$ 113,334	$ 566.67	$ 23.61
May-15	VB2	$ 9,350.96	1%	$ 93.51	$ 9,444.47	12	$ 113,334	$ 566.67	$ 23.61
Feb-15	Mech 5	$ 9,767.80	1%	$ 97.68	$ 9,865.48	12	$ 118,386	$ 591.93	$ 24.66
						12	**$ 2,116,387**	$ 9,665.27	

Seasonals:

Rate (ave)		#	Hours
$	19.00	5	1,000
			$95,000
Unemployment		$ 16,000.00	$3,230.00
			$98,230.00

CalPERS			Wages	**Employer rate**	**Unfunded Liability Payment**	**Total PERS Payments**
	11.600%	**Classic**	$ 1,210,185.38	$ 140,381.50	$ 267,426.00	$ 407,807.50
	7.730%	*Pepra*	$ 821,550.22	$ 63,505.83	$ 2,637	$ 66,142.83
			$ 2,031,735.60			**$ 473,950.34**

CalPERS Ret.	$ 473,950
Seasonals	$ 98,230
Subtotal	*$ 2,688,567*
Mgr 457	$ 12,000.00
Staff 457	$ 9,665
Medicare tax	$ 32,112
Social Security	$950
Grand Total	**$ 2,742,344.58**

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
5062	1,851.20	1,943.76	22,769.76	161.05	1,932.60	4.63	55.56	33.01	396.12		25,154.04
5331	813.64	854.32	10,007.77	94.06	1,128.72	4.63	55.56	13.40	160.80		11,352.85
5331	813.64	854.32	10,007.77	94.06	1,128.72	4.63	55.56	13.40	160.80		11,352.85
5333	2,115.46	2,221.23	26,020.16	251.93	3,023.16	4.63	55.56	33.01	396.12		29,495.00
5061	813.64	854.32	10,007.77	94.06	1,128.72	4.63	55.56	13.40	160.80		11,352.85
5333	2,115.46	2,221.23	26,020.16	251.93	3,023.16	4.63	55.56	33.01	396.12		29,495.00
5063	2,115.46	2,221.23	26,020.16	251.93	3,023.16	4.63	55.56	33.01	396.12		29,495.00
5062	1,851.20	1,943.76	22,769.76	161.05	1,932.60	4.63	55.56	20.81	249.72		25,007.64
5331	813.64	854.32	10,007.77	94.06	1,128.72	4.63	55.56	13.40	160.80		11,352.85
5482	1,871.68	1,965.26	23,021.66	161.05	1,932.60	4.63	55.56	20.81	249.72		25,259.54
5332	1,627.28	1,708.64	20,015.54	161.05	1,932.60	4.63	55.56	20.81	249.72		22,253.42
5332	2,115.46	2,221.23	26,020.16	251.93	3,023.16	4.63	55.56	13.40	160.80		29,259.68
5333	2,115.46	2,221.23	26,020.16	251.93	3,023.16	4.63	55.56	33.01	396.12		29,495.00
5331	813.64	854.32	10,007.77	94.06	1,128.72	4.63	55.56	13.40	160.80		11,352.85
5332	1,627.28	1,708.64	20,015.54	161.05	1,932.60	4.63	55.56	13.40	160.80		22,164.50
5333	2,115.46	2,221.23	26,020.16	251.93	3,023.16	4.63	55.56	13.40	160.80		29,259.68
5332	2,115.46	2,221.23	26,020.16	251.93	3,023.16	4.63	55.56	13.40	160.80		29,259.68
5333	2,115.46	2,221.23	26,020.16	251.93	3,023.16	4.63	55.56	33.01	396.12		29,495.00
	29,820.52		*366,792.40*	*3,290.99*	*39,491.88*	*83.34*	*1,000.08*	*381.09*	*4,573.08*	*22,174.11*	*434,031.54*
			1,833.96								1,833.96
			368,626.36		**39,491.88**		**1,000.08**		**4,573.08**	**22,174.11**	**435,865.51**

CalPERS Plan Code	Current Year Health Rates	Next Year Health Rates (est)	Total Health Costs	Dental 2019 Rates	Total Dental	Life Ins. Rates	Total Life Ins.	Vision Rates	Total Vision	SDI	Benefit Cost per person
5361	324.48	340.70	3,991.10	-	*1,500.00*			33.01	396.12		5,887.22
0	-	-	-	94.06	1,128.72			33.01	396.12		1,524.84
5151	383.37	402.54	4,715.45	94.06	1,128.72			33.01	396.12		6,240.29
5691	381.25	400.31	4,689.38	94.06	1,128.72			33.01	396.12		6,214.22
0	-	-	-	94.06	1,128.72			33.01	396.12		1,524.84
5512	699.94	734.94	8,609.26	161.05	1,932.60			33.01	396.12		10,937.98
5511	349.97	367.47	4,304.63	101.58	1,219.02			33.01	396.12		5,919.77
5394	1,138.12	1,195.03	13,998.88	161.05	1,932.60			33.01	202.80		16,134.28
3241	760.17	798.18	9,350.09	94.06	1,128.72			33.01	396.12		10,874.93
5691	381.25	400.31	4,689.38	-	*1,500.00*			33.01	396.12		6,585.50
5512	699.94	734.94	8,609.26	161.05	1,932.60			33.01	396.12		10,937.98
5362	648.96	681.41	7,982.21	161.05	1,932.60			33.01	396.12		10,310.93
5394	1,138.12	1,195.03	13,998.88	161.05	1,932.60			33.01	396.12		16,327.60
5394	1,138.12	1,195.03	13,998.88	161.05	1,932.60			33.01	396.12		16,327.60
5394	1,138.12	1,195.03	13,998.88	251.93	3,023.16			33.01	396.12		17,418.16
	9,181.81		112,936.26		*24,481.38*			*495.15*	*5,748.48*		143,166.12
.5% Admin Costs=			564.68								564.68
			113,500.94		**24,481.38**				**5,748.48**		**143,730.80**
			482,127.30		63,973.26		1,000.08		10,321.56	22,174.11	579,596.31

Fringe Benefits

A/C #	BUDGET CATEGORY	staff	Budget 21/22	% change	Budget 20/21	Actual 19/20	A vs B	Budget 19/20	Actual 18/19
	SERVICE AND SUPPLIES								
5201	Clothing and personal supplies (purchased)	MW	$ 10,000	0%	$ 10,000	$ 6,214	-22%	$ 8,000	$ 8,899
5202	Laundry service and supplies (rented)	MW	$ 15,000	0%	$ 15,000	$ 10,648	-16%	$ 12,750	$ 12,603
	UTILITIES								
5301	Garbage (Waste Mgmt)	MR	$ 4,000	0%	$ 4,000	$ 3,367	-16%	$ 4,000	$ 3,080
5302	PG & E	MR	$ 8,500	143%	$ 3,500	$ 19,117	635%	$ 2,600	$ 23,408
5303	Hayward Water & Sewage	MR	$ 4,500	0%	$ 4,500	$ 3,478	-42%	$ 6,000	$ 3,673
5401	**SMALL TOOLS AND INSTRUMENTS**	MW	$ 3,000	0%	$ 3,000	$ 2,056	-31%	$ 3,000	$ 2,211
	MAINTENANCE								
5501	Landscaping service	MW	$ 5,000	0%	$ 5,000	$ 2,646	-47%	$ 5,000	$ 2,855
5502	Facility Maintenance	MW	$ 30,000	50%	$ 20,000	$ 14,033	-30%	$ 20,000	$ 10,818
5503	Maintenance of equipment	MW	$ 35,000	0%	$ 35,000	$ 20,600	-41%	$ 35,000	$ 43,629
	TRANSPORTATION, TRAVEL, TRAINING, & BOARD								
5601	Fuel and GPS (WexMart)	MW	$ 54,000	4%	$ 52,000	$ 41,906	-16%	$ 50,000	$ 45,040
5602	Meetings, conferences, & travel	RC	$ 31,000	0%	$ 31,000	$ 29,831	-15%	$ 35,000	$ 27,927
5603	Board meeting expenses	RC	$ 650	0%	$ 650	$ 295	-55%	$ 650	$ 620
5604	Board payments in lieu	RC	$ 18,000	20%	$ 15,000	$ 13,000	-31%	$ 18,900	$ 13,200
5605	Board plaques and nameplates	RC	$ 180	-28%	$ 250	$ 146	-71%	$ 500	$ 138
5606	Continuing Education fees	RC	$ 3,800	9%	$ 3,500	$ 3,660	-13%	$ 4,210	$ 2,327
5607	Staff Training (staff dev./ college courses)	RC	$ 20,000	0%	$ 20,000	$ 6,976	-72%	$ 25,000	$ 9,181
	PROFESSIONAL SERVICES								
5701	Audit	MR	$ 15,000	7%	$ 14,000	$ 12,170	-6%	$ 13,000	$ 11,650
5702	Actuarial reports	MR	$ 4,700	0%	$ 4,700	$ 4,200	500%	$ 700	$ 2,575
5703	Helicopter service	JH	$ 35,000	0%	$ 35,000	$ -	-100%	$ 35,000	$ 5,154
5704	Legal Services	RC	$ 8,000	60%	$ 5,000	$ 35,146	603%	$ 5,000	$ 3,363
5705	MVCAC Research Foundation	EHS	$ 5,000	0%	$ 5,000	$ -	-100%	$ 5,000	$ 5,000
5706	Tax collection service (SCI)	RC	$ 34,890	0%	$ 35,000	$ 34,502	5%	$ 33,000	$ 33,352
5707	Payroll service (OnePoint)	MR	$ 11,000	0%	$ 11,000	$ 8,537	-22%	$ 11,000	$ 8,544
5708	Environmental consultant/ EcoAtlas	EC	$ 50,000	100%	$ 25,000		-100%	$ 25,000	$ -
5709	HR Services (RGS & other)	RC	$ 9,000	-10%	$ 10,000	$ (1,688)	-117%	$ 10,000	$ 9,484
5710	OPEB management (PFM & US Bank)	RC	$ 24,360	-3%	$ 25,000	$ 19,685	-21%	$ 25,000	$ 20,507
5711	Financial advising	RC	$ 5,000	0%	$ 5,000	$ -	-100%	$ 5,000	$ 14,681
5712	Pre-employment physicals	RC	$ 1,500	0%	$ 1,500	$ 335	-79%	$ 1,620	$ 1,014
5801	**MEMBERSHIPS, DUES & SUBSCRIPTIONS**	RC	$ 24,000	3%	$ 23,337	$ 26,317	16%	$ 22,655	$ 20,774
5802	**INSURANCE - VCJPA**	RC	$ 149,311	9%	$ 136,644	$ 133,744	1%	$ 132,666	$ 124,034
5803	Employee Assistant Program	MR	$ 1,300	48%	$ 880	$ 1,090	24%	$ 880	$ 654
5901	**COMMUNITY EDUCATION**	EC	$ 39,500	2%	$ 38,575	$ 22,734	-43%	$ 40,000	$ 34,861
	OPERATIONS								
6101	Pesticides	JH	$ 190,000	0%	$ 190,000	$ 145,342	-19%	$ 180,000	$ 168,430
6102	Field supplies (dippers etc)	JH	$ 5,000	0%	$ 5,000	$ 818	-67%	$ 2,500	$ 639
6103	Mosquitofish program	MW	$ 3,500	0%	$ 3,500	$ 2,232	-36%	$ 3,500	$ 2,974
6104	Spray equipment	MW	$ 10,000	0%	$ 10,000	$ 3,104	-69%	$ 10,000	$ 5,212
6105	Safety	MW	$ 8,500	0%	$ 8,500	$ 6,819	-20%	$ 8,500	$ 8,148
6106	Aerial Pool Survey	JH	$ 20,000	0%	$ 20,000	$ 20,000	0%	$ 20,000	$ 20,000
6107	Permits	EC	$ 2,000	-50%	$ 4,000	$ 1,344	-66%	$ 4,000	$ 1,328
	HOUSEHOLD EXPENSES								
6201	Janitorial service	MW	$ 7,500	0%	$ 7,500	$ 5,023	-28%	$ 7,000	$ 4,920
6202	Supplies (+ emergency)	MW	$ 2,850	0%	$ 2,850	$ 2,012	-29%	$ 2,850	$ 1,688
6203	Alarm service	RF	$ 7,000	9%	$ 6,400	$ 7,782	30%	$ 6,000	$ 11,986
6301	**OFFICE EXPENSES**	MR	$ 12,000	0%	$ 12,000	$ 13,761	-5%	$ 14,500	$ 11,796
	IT/ COMMUNICATIONS								
6401	IT Expenses	RF	$ 70,000	0%	$ 70,000	$ 52,813	-32%	$ 77,800	$ 74,516
6402	Telephone Service & Internet	RF	$ 11,000	10%	$ 10,000	$ 8,951	-10%	$ 9,900	$ 10,297
6403	Website hosting	RF	$ 2,400	0%	$ 2,400	$ 2,400	0%	$ 2,400	$ 2,400
6404	Cell phone service	MW	$ 22,000	0%	$ 22,000	$ 16,151	-19%	$ 20,000	$ 18,044
6405	Microsoft Office 365	RF	$ 5,000	0%	$ 5,000	$ 2,820	-44%	$ 5,000	$ 3,510
6406	Azure Server Hosting	RF	$ 2,000	0%	$ 2,000	$ -	-100%	$ 2,000	$ 119
	LABORATORY								
6501	Mosquito and pathogen monitoring	EHS	$ 105,000	5%	$ 100,000	$ 69,571	-29%	$ 98,000	$ 86,000
6502	Insecticide resistance	EHS	$ 17,000	0%	$ 17,000	$ 7,562	-56%	$ 17,000	$ 15,200
6503	Research	EHS	$ 22,000	0%	$ 22,000	$ 23,745	8%	$ 22,000	$ 16,948
	Total		**$ 1,184,941**	6%	**$ 1,118,186**	**$ 866,995**	-22%	**$ 1,109,081**	**$ 969,411**

Estimate of Cash Carryover from Fiscal Year 20/21 to 21/22

	debits	credits	balance	
LAIF, County, and BofW Balances as of January 31 2021			$ 3,977,614	
February check batch #1	$ 112,000		$ 3,865,614	
February check batch #2	$ 156,000		$ 3,709,614	
Balance as of February 28 2021			$ 3,854,195	
March check batch #1	$ 118,000		$ 3,736,195	
March check batch #2	$ 162,000		*$ 3,574,195*	
Balance as of March 31 2021			$ 3,471,022	
April check batch #1	$ 110,000		$ 3,361,022	
Deposit		2,170,683		
April check batch #2	$ 181,000		$ 5,350,705	
Balance as of April 30 2021			$ 5,146,388	
May check batch #1	*$ 150,000*		*$ 4,996,388*	*estimates below*
May check batch #2	*$ 150,000*		*$ 4,846,388*	
Balance as of May 31 2021			*$ 4,846,388*	
June check batch #1	*$ 175,000*		*$ 4,671,388*	
June check batch #2	*$ 175,000*		*$ 4,496,388*	
Balance as of June 30 2021				
Totals	*$ 1,221,000*	*$ 2,170,683*	*$ 4,496,388*	
Unused capital projects			*$ 20,500*	
Reserve transfers from prior year			*$ (314,315)*	
Operational requirement (July-December)			***$ 2,986,215***	
Estimated Cash Carried Over			***$ 1,530,673***	

CAPITAL EXPENDITURES (Outlay)						
	2018-19	***2018-19***	***2019-20***	***2019-20***	**2020-2021**	**2021-2022**
		Capital expenses not purchased				
Curation & Larval ID Room	*$61,199*	*$61,199*				
Remodel Project	*$258,550*	*$21,550*				
V35 Lab Truck	*$39,474*	*$2,000*				
Lab centrifuge	*$10,000*					
Carports, Wash Rack, & Interior Paint	*$27,000*	*$27,000*				
Shop & Facility Inventory Program	*$5,000*	*$5,000*				
UAS	*$30,000*	*$30,000*				
Total	***$431,223***	***$146,749***				
Capital Reserve *(new assets & non-capital projects)*				***Items not purchased***		
Treatment UAS			*$52,000*	*$10,000*		
Waterproof UAS			*$11,000*	*$11,000*		
Larvicide rig			*$17,000*	*$0*		
Lab centrifuge			*$10,500*	*$10,500*		
Exterior and interior painting			*$39,000*	*$39,000*		
Interior Flooring			*$75,000*	*$33,000*		
Total			***$204,500***	***$103,500***		
Repair and Replace *(replacement assets)*						
V40 (Sarah)			*$40,000*	*$0*		
V45 (Nick)			*$40,000*	*$0*		
Total			***$80,000***	***$103,500***		
Capital Reserve (new assets & non-capital projects)						
Exterior & carport painting					$39,000	
Lobby display					$20,000	
Total					$59,000	
Items not purchased					***$20,500***	
Repair and Replace (replacement assets)						
Capital Reserve (new assets & non-capital projects)						
Lobby display						**$ 30,000**
Repair and Replace (replacement assets)						
V42 (Jeremy)						**$ 40,000**

Committed Reserve Funds	Target Level	As of April 30th, 2021	Transfers[3]	Current Funded %	Proposed Funded %	
VCJPA Member Contingency fund[1]	$327,918	$376,428	$0	100%		115%
CAMP: Public Health Emergency	$500,000	$526,175	$0	105%		105%
CAMP: Repair and Replace	$4,319,711	$1,040,847	$1,311,625	24%		54%
CAMP: Operating reserve	$2,734,699	$1,944,161	$0	71%		71%
CAMP: Capital reserve	$30,000	$42,102	-$7,596	0%		NA
Restricted Reserve Funds						
PARS: Pension Rate Stabililzation[2]	$3,595,044	$1,786,821	$434,676	50%		62%
Other Post Employment Benefit fund (OPEB)	$3,700,614	$4,983,259		135%		135%
TOTAL			$1,738,705			

[1] As of Decmber 31st, 2020

[2] As of March 31st, 2021

[3] Capital Reserve transferred at start of fiscal year, all other transfers occur after the fiscal year.

ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT

MOSQUITO AND DISEASE CONTROL ASSESSMENT

ENGINEER'S REPORT

FISCAL YEAR 2021-22

PURSUANT TO THE HEALTH AND SAFETY CODE, GOVERNMENT CODE AND ARTICLE XIIID OF THE CALIFORNIA CONSTITUTION

ENGINEER OF WORK:
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ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT

BOARD OF TRUSTEES

P. Robert Beatty, President, City of Berkeley
Betsy Cooley, Vice President, City of Emeryville
Subru Bhat, Secretary, City of Union City
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Victor Aguilar, City of San Leandro

GENERAL MANAGER

Ryan Clausnitzer

ENGINEER OF WORK

SCI Consulting Group

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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-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 1.6 million residents.

In 2019, the District filed a Resolution of Application with Alameda Local Agency Formation Commission (LAFco) to annex the City of Albany into the District. A noticed protest hearing was held on January 8, 2020, for all registered voters and landowners within the affected territory. The number of written protests received did not reach the threshold to either terminate the annexation proposal or subject the proposal to an election. On January 16, 2020, LAFco approved Resolution No. 2020-11, Ordering the Annexation of the City of Albany to the Alameda County Mosquito Abatement Without an Election. Properties within the City of Albany will be assessed the Mosquito and Disease Control Assessment in fiscal year 2021-22.

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 has 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)).*

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

"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 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)).

Note: The District is the only dedicated agency controlling mosquitoes within its boundaries, in Alameda County. There are however, other agencies dedicated to the control of other types of vectors, such as rats. 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 XIIID 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 XIIIC and XIIID 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 describes a number of important requirements, including a 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 AUTHORITY

In July of 2008, the California Supreme Court issued its ruling on the Silicon Valley Taxpayers Association, Inc. v. Santa Clara County Open Space Authority ("SVTA vs. SCCOSA"). This ruling is the most significant legal document in further legally clarifying Proposition 218. Several of the most important elements of the ruling included further emphasis that:

- Benefit assessments are for special benefit to property, not general benefits[2]
- 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 SVTA vs. SCCOSA decision.

DAHMS V. DOWNTOWN POMONA PROPERTY

On June 8, 2009, the 4th 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 denied review. On this date, Dahms became good law and binding precedent for assessments. In Dahms the Court upheld an assessment that was 100% special benefit (i.e. 0% general benefit) on the rationale 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

On December 31, 2009, the 1st District 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 proportional special benefits.

[2] Article XIII D, § 2, subdivision (d) of the California Constitution states defines "district" as "an area determined by an agency to contain all parcels which will receive a special benefit from the proposed public improvement or property-related service."

BEUTZ V. COUNTY OF RIVERSIDE

On May 26, 2010, the 4th District Court of Appeal issued a decision on the Steven Beutz v. County of Riverside ("Beutz") appeal. 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

On September 22, 2011, the San Diego Court of Appeal issued a decision on the Golden Hill Neighborhood Association v. City of San Diego appeal. 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, like 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 record the basis for the assessment on its own parcels.

COMPLIANCE WITH CURRENT LAW

This Engineer's Report is consistent with the requirements of Article XIIIC and XIIID of the California Constitution and with the *SVTA* decision because the Services to be funded are clearly defined; the Services are available to and will be directly provided to all benefiting property in the Assessment District; and the Services provide a direct advantage to property in the Assessment District that would not be received in absence of the Assessments.

This Engineer's 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. Moreover, while *Dahms* could be used as the basis for a finding of 0% general benefits, this Engineer's Report establishes a more conservative measure of general benefits.

The Engineer's Report is consistent with *Bonander* because the Assessments have been apportioned based on the overall cost of the Services and proportional special benefit to each property. Finally, the Assessments are consistent with *Beutz* because the general benefits have been explicitly calculated and quantified and excluded from the Assessments.

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 XIIID of the California Constitution ("The Taxpayer's Right to Vote on Taxes Act") and the Government Code. During this ballot proceeding, owners of property 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.

If the Board approves the Engineer's Report and the assessments it establishes for fiscal year 2021-22, the assessments would be submitted to the County Auditor for inclusion on the property tax rolls for fiscal year 2021-22.

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, Lab Director, Mechanic Specialist, Regulatory & Public Affairs Director, IT Director, Accounting Associate, Public Outreach Coordinator, seven Vector Biologists and one Mosquito Control Technician, 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.

Final Level of Service	=	Baseline Level of Service	+	Enhanced Level of Service

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
Aedes dorsalis (Salt marsh mosquito)	Salt marshes	All year	Humans and other mammals	Serious Pest
Aedes sierrensis (Tree hole mosquito)	Tree holes, Tires, Miscellaneous Containers	Spring, Summer	Humans and other large mammals	Serious pest; Vector of Canine Heartworm
Aedes squamiger (Winter salt marsh mosquito)	Salt marshes	Spring	Humans and other large mammals	Serious pest
Aedes washinoi (Woodland pool mosquito)	Temporary woodland ponds	Spring, Summer	Humans and other large mammals	Serious Pest
Anopheles freeborni (Western malaria mosquito)	Seepages, Streams, Lakes, Gravel Pits	Summer	Humans and other large mammals	Vector of Malaria
Anopheles punctipennis	Cool, shaded grassy pools in creeks and lake seepages	Summer	Humans and other large mammals	Vector of Malaria
Culex erythrothorax (Tule mosquito)	Ponds, lakes, marshes with tules and cattails	Spring, Summer	Humans, Other Mammals, and Birds	Serious Pest; Vector of Encephalitis
Culex pipiens (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

Culex stigmatosoma (Foul water mosquito)	Foul Water, Sewage, Temporary Pools	Spring, Summer, Fall, Winter	Birds	Vector of West Nile Virus
Culex tarsalis (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
Culiseta incidens (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
Culiseta inornata (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 choses 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 numerated 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, Sacchrapolyspora 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 of 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 2021-22

Alameda County Mosquito Abatement District Mosquito and Disease Control Assessment Estimate of Cost	
Mosquito Control Services and Related Expenditures	
Mosquito Control and Disease Prevention Operations	$3,322,891
Materials, Utilities and Supplies[1]	$1,184,941
Capital Expenditures	$0
Contingency	$50,000
Total Mosquito Control Services and Related Expenditures	$4,557,832
Total Benefits of Mosquito and Disease Control	$4,557,832
Single Family Equivalent Units (SFEs)	458,303
Benefit Received per SFE Unit	$9.95
Less	
Contributions from Other Sources[2]	
Revenue from property taxes/ other sources	($3,412,074)
Total Mosquito & Disease Control Services and Incidentals	$1,145,758
Budget Allocation to Property	
Total Assessment Budget[3]	$1,145,758
Total SFE Units[4]	458,303
Assessment Rate per SFE[5]	$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.

Note: For fiscal year 2021-22, the District has allocated $70,000 for capital improvements to include the following: exterior & carport painting and lobby display.

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 XIIID 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 XIIID 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."[3]

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 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 XIIID 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:

[3] Howard Jarvis Taxpayers Association, "Statement of Drafter's Intent", January 1997.

Allows special benefit assessments to finance vector control projects and programs, consistent with Proposition 218. [4]

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.

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

[4] Senate Bill 1588, Mosquito Abatement and Vector Control District Law, Legislative bill analysis

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.[5] 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 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."* [6]

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:

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[5] 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.

[6] Assembly Concurrent Resolution 52, chaptered April 1, 2003

> *"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."* [7]

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.[8] 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."* [9]

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

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

[8] 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.

[9] Assembly Concurrent Resolution 52, chaptered April 1, 2003

> *"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.

> *"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."*[10]

> *"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."* [11] *(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:

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

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

> *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.* [12]

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:

[12] 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 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.* [13]

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:

> *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.* [14]

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.

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[13] 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

[14] 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

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." [15]

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 [16]

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.[17] 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

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[15] 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/cnahs/nahms/equine/wnv2002_CO_NB.pdf

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

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

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 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.[18]

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.

[18] 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.

GENERAL VS. SPECIAL BENEFIT

Article XIIIC 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.

In other words:

Total Benefit	=	**General Benefit**	+	**Special Benefit**

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,[19]" but outside the narrowly-drawn Assessment District and to "the public at large." SVTA vs. SCCOSA 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:

General Benefit	=	Benefit to Real Property Outside the Assessment District	+	Benefit to Real Property Inside the Assessment District that is Indirect and Derivative	+	Benefit to the Public at Large

[19] SVTA vs. SCCOSA 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 contains 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 SVTA v. SCCOSA 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. XIIID, 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 SVTA v. SCCOSA, 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%.[20] 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:

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[20] 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.

CRITERIA:

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

Calculations:
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%.

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 SVTA vs. SCCOSA 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

	1.0%	**(Outside the Assessment District)**
+	**0.0%**	**(Property within the Assessment District)**
+	**6.0%**	**(Public at Large)**
=	**7.0%**	**(Total General Benefit)**

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 $4,557,832. Of this total budget amount, the District will contribute $3,412,074 or 74.86% 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 SVTA vs. SCCOSA 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 the 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 OSA 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.[21]

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.

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 catch 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

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[21] 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."

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.[22]

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 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:

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

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

[22] 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.

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.

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 3.

FIGURE 3 – COMMERCIAL/INDUSTRIAL BENEFIT ASSESSMENT FACTORS

Type of Commercial/ Industrial Land Use	*Average Employees Per Acre [1]*	*SFE Units per Fraction Acre [2]*	*SFE Units per Acre After 5*
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.)

FIGURE 4 – OTHER LAND BENEFIT ASSESSMENT FACTORS

Other Types of Land Use	*Average Employees Per Acre [1]*	*SFE Units per 1/4 Acre [2]*
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 2021-22 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, THERFORE, the undersigned, by virtue of the power vested in me under Article XIIID 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 2021-22 is generally as follows:

FIGURE 5– SUMMARY COST ESTIMATE – FY 2021-22

Mosquito Abatement & Disease Control Services	$3,322,891
Materials, Utilities and Supplies	$1,184,941
Capital Equipment and Fixed Assets	$0
Contingency	$50,000
Total Mosquito Control Services and Related Expenditures	$4,557,832
Less Contributions from Other Sources:	($3,412,074)
Net Amount to Assessments	$1,145,758
General Contribution to Total Mosquito Control Services and Relate Expenditures	74.86%

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 2019 to December 2020 was 2.00%. Therefore, the maximum assessment rate for fiscal year 2021-22 is the maximum rate for fiscal year 2020-21 ($6.69) plus the Unused CPI of 0.58% was used to increase the maximum authorized assessment rate by 3%. Consequently, the maximum authorized Assessment rate for fiscal year 2021-22 is $6.89 per single-family equivalent benefit unit. The estimate of cost and budget in this Engineer's Report proposes assessments for fiscal year 2021-22 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 2021-22. 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 2021-22 for each parcel or lot of land within the Alameda County Mosquito Abatement District- Mosquito and Disease Control Assessment.[23]

[23] 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.

Dated: May 5, 2021

Engineer of Work

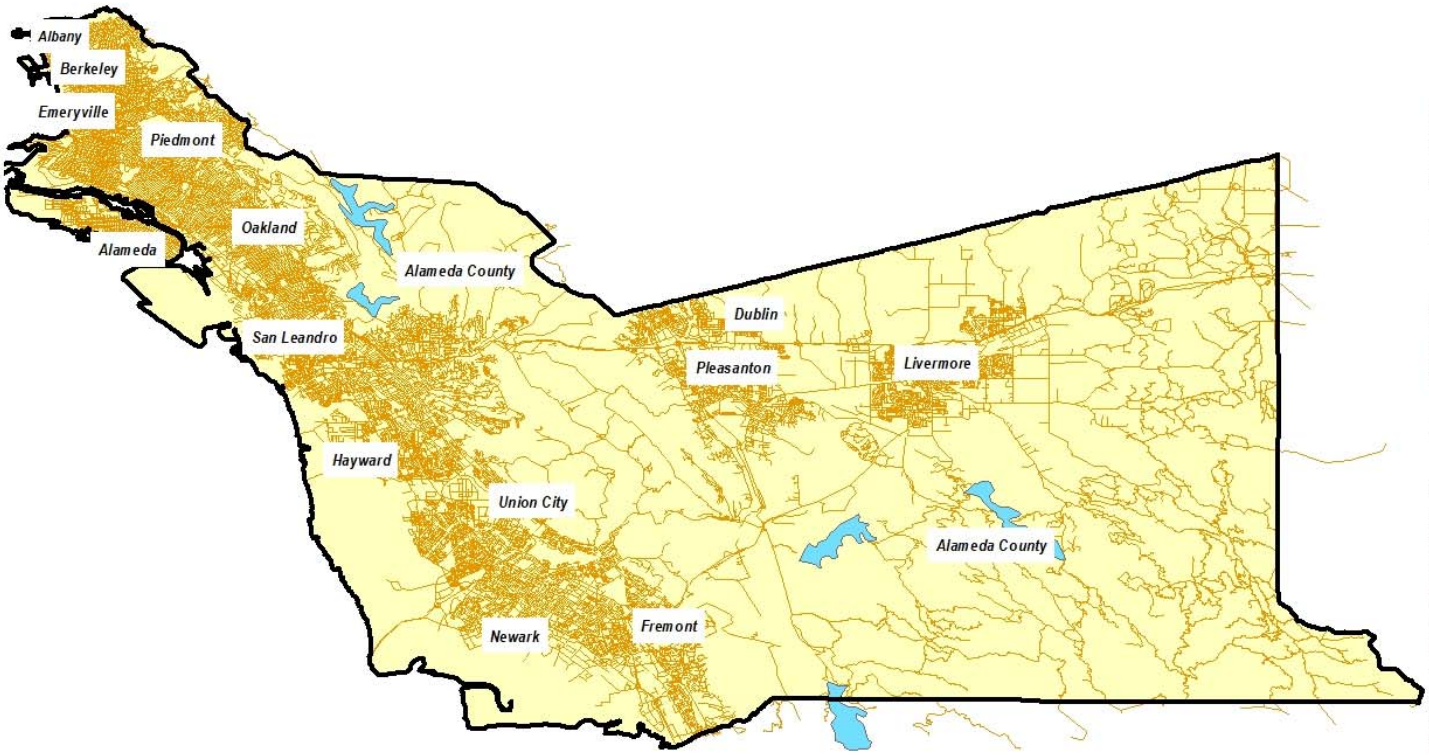
By _____

John W. Bliss, License No. C052091

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.



FILED IN THE OFFICE OF THE DISTRICT MANAGER
OF THE ALAMEDA COUNTY MOSQUITO ABATEMENT
DISTRICT, COUNTY OF ALAMEDA,
CALIFORNIA, THIS _____ DAY OF _____,
20____.

_____
SECRETARY OF THE BOARD OF TRUSTEES

RECORDED IN THE OFFICE OF THE
DISTRICT MANAGER OF THE ALAMEDA COUNTY
MOSQUITO ABATEMENT DISTRICT,
COUNTY OF ALAMEDA, CALIFORNIA,
THIS _____ DAY OF _____, 20____.

_____
SECRETARY OF THE BOARD OF TRUSTEES

AN ASSESSMENT WAS CONFIRMED AND
LEVIED BY THE BOARD OF TRUSTEES
OF ALAMEDA COUNTY, ON THE LOTS,
PIECES AND PARCELS OF LAND
ON THIS ASSESSMENT DIAGRAM
ON THE _____ DAY OF _____, 20_____
FOR THE CURRENT FISCAL YEAR
AND SAID ASSESSMENT DIAGRAM
AND THE ASSESSMENT ROLL FOR SAID
FISCAL YEAR WERE FILED IN THE OFFICE
OF THE COUNTY AUDITOR
OF THE COUNTY OF ALAMEDA
ON THE _____ DAY OF _____, 20____.
REFERENCE IS HEREBY MADE TO SAID
RECORDED ASSESSMENT ROLL
FOR THE EXACT AMOUNT OF EACH
ASSESSMENT LEVIED AGAINST
EACH PARCEL OF LAND.

_____
SECRETARY OF THE BOARD OF TRUSTEES

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 ASSESSORS'S PARCEL NUMBER.

SCI Consulting Group
4745 Mangels Blvd.
Fairfield, CA 94534

ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT
MOSQUITO AND DISEASE CONTROL ASSESSMENT DIAGRAM

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. 1090-1

A RESOLUTION INTENTION TO CONTINUE ASSESSMENTS FOR FISCAL YEAR 2021-22, 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 XIIID 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 XIIID 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 XIIID 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 2021-22 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 2019 to December 2020 was 2.00%. Therefore, the maximum assessment rate for fiscal year 2021-22 is the maximum rate for fiscal year 2020-21 ($6.69) plus the Unused CPI of 0.58% was used to increase the maximum authorized assessment rate by 3%. Consequently, the maximum authorized Assessment rate for fiscal year 2021-22 is $6.89 per single-family equivalent benefit unit. The estimate of cost and budget in this Engineer's Report proposes assessments for fiscal year 2021-22 at the rate of $2.50, which is below the maximum authorized assessment rate.

4. The estimated fiscal year 2021-22 cost of providing the Services is $1,145,758. This cost results in a proposed assessment rate for fiscal year 2021-22 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. Notice is hereby given that on June 9, 2021, at the hour of 5:00 p.m., the Board will hold a public hearing to consider the ordering of the Services, and the levy of the continued assessments for fiscal year 2021-22. The Board meetings will be held remotely in accordance with Governor Gavin Newsom's Executive Order N-25-20, issued March 12, 2020, and Government Code Section 54954(e). In an effort to improve access to public information, residents may access meetings remotely, by Telephone: Listen to the meeting live by calling Zoom at (669) 900-6833 Enter the Meeting ID# 843 7187 7034 followed by the pound (#) key.
   Computer: Watch the live streaming of the meeting from a computer by navigating to https://us02web.zoom.us/j/84371877034
   or Mobile: Log in through the Zoom mobile app on a smartphone and enter Meeting ID# 843 7187 7034

6. The clerk 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 12, 2021, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

_____
President, Board of Trustees, Alameda County Mosquito Abatement District

ATTEST:

_____
Secretary of the Board of Trustees, Alameda County Mosquito Abatement District

23187 Connecticut Street
Hayward, CA 94545

T: (510) 783-7744
F: (510) 783-3903

acmad@mosquitoes.org

Agenda item: 1090-8:

Action: Approve awarding of Biological Assessment contract to Environmental Science Associates (ESA).

Summary: Mosquito source reduction is an important component of an Integrated Vector Management Program and seeks to minimize mosquito production, the need for repeated applications of mosquito larvicides (and potentially adulticides), equipment use in sensitive areas (for mosquito surveillance and control operations), and the potential for public health issues due to mosquito biting and mosquito-borne disease transmission. Within the tidal marsh habitat, mosquito source reduction is generally accomplished through the maintenance of circulation channels. These channels allow for efficient tidal exchange which prevents the occurrence of stagnant water in the marshes and facilitates access by fish predators. Mosquito and vector control districts in the San Francisco Bay Area have practiced mosquito source reduction within tidal marsh habitats since the first district was formed in 1915. Beginning in 1976 this work has been continuously sponsored by the California Department of Public Health (formerly the California Department of Health Services) Vector-Borne Disease Section and permitted under a United States Army Corps of Engineers (USACE) Regional Permit. The Biological Assessment will be used by the USACE for consultation with the United States Fish and Wildlife Service and the National Marine Fisheries Service. The Biological Assessment will be prepared on behalf of the Alameda County Mosquito Abatement District and the other vector control districts in Napa, Sonoma, Marin, Solano, and San Mateo counties.

Evaluation of consultant proposal: The Request for Proposals (RFP) was posted on the ACMAD website in accordance with District policy, the California Special District Association RFP Clearinghouse, and the California Association of Environmental Professionals RFP & RFQ page. Six companies were also emailed directly about the bidding opportunity. A single proposal was received from Environmental Science Associates with a project total cost of $41,210. A cost sharing agreement to equally split the cost of the project (**$8,242** per district; included in our budget) will be implemented among the five districts participating in the USACE Regional permit. Environmental Science Associates is an experienced Bay Area-founded firm.

Recommendation: Based on the criteria described above, staff recommends awarding Environmental Science Associates the Biological Assessment contract.

Attachments:
1. **RFP for a Biological Assessment to update prior Informal Biological Evaluation**
2. **Proposal from Environmental Science Associates**

REQUEST FOR PROPOSALS (RFP)

Biological Assessment to update prior Informal Biological Evaluation

Issued: April 1, 2021
Requests for information due: April 15, 2021
Proposals due: April 25, 2021

TABLE OF CONTENTS

Attachments:

Informal Biological Evaluation for Mosquito Source Reduction Activities in Tidal Habitats of the San Francisco Bay Area Final Report March 12, 2015

All Appendices for Informal Biological Evaluation for Mosquito Source Reduction Activities in Tidal Habitats of the San Francisco Bay Area

Purpose

The Alameda County Mosquito Abatement District is requesting proposals from highly qualified consultants to update an Informal Biological Evaluation (IBE) from 2015 for mosquito source reduction activities by mosquito and vector control districts in the San Francisco Bay Area in tidal habitats to a current Biological Assessment. The Biological Assessment would be prepared on behalf of the Alameda County Mosquito Abatement District and the other vector control districts in Napa, Sonoma, Marin, Solano, and San Mateo counties. This document will be used by the United States Army Corps of Engineers (USACE) for consultation with the United States Fish and Wildlife Service and the National Marine Fisheries Service (the Services).

Background

Mosquito and Vector Control Districts in the San Francisco Bay Area have practiced mosquito source reduction within tidal marsh habitats since the first District was formed in 1915. Beginning in 1976 this work has been continuously sponsored by the California Department of Public Health (formerly the California Department of Health Services) Vector-Borne Disease Section and permitted under a USACE Regional Permit (the most recent being Regional Permit No. 4). A water quality certification from the California Regional Water Quality Control Board San Francisco Bay Region and a permit from the San Francisco Bay Conservation and Development Commission have also been required. In 2015 an IBE was prepared for consultation with the Services for mosquito source reduction work in Alameda, Napa, Marin, Sonoma, Solano, and San Mateo counties. This document needs to be updated for our current application consultation.

Mosquito source reduction is an important component of an Integrated Vector Management Program and seeks to minimize mosquito production, the need for repeated applications of mosquito larvicides (and potentially adulticides), equipment use in sensitive areas (for mosquito surveillance and control operations), and the potential for public health issues due to mosquito biting and mosquito-borne disease transmission.

Within the tidal marsh habitat, mosquito source reduction is generally accomplished through the maintenance of circulation channels. These channels allow for efficient tidal exchange which prevents the occurrence of stagnant water areas in the marshes where mosquito production occurs and facilitates access by fish predators. Mosquito source reduction can also be accomplished through the management and maintenance of water control structures (e.g., tide gates and culverts). This type of work is necessary to carry out the responsibilities of the Mosquito and Vector Control Districts pursuant to the California Health and Safety Code Section 2000 et. seq.

Additionally, this type of work is often performed in collaboration with wildlife management and regulatory agencies for the dual purpose of mosquito source reduction and habitat enhancement. It is known that reestablishing efficient tidal circulation is beneficial to (e.g., increases vigor) to tidal marsh vegetation which provides habitat to many organisms including endangered species like the Ridgway's Rail (RR) and Salt Marsh Harvest Mouse (SMHM).

Scope of Work & Project Deliverables

Using the 2015 IBE as a template, update the document as necessary to include:

A. Project description - Describe the proposed action and the action area. Be specific and quantify whenever possible.
B. For Each Listed Species
    1. Describe affected environment
    2. Describe species biology
    3. Describe current conditions for each species
    4. Describe critical habitat
    5. Describe effects of proposed action on each species and/or critical habitat.
        a. Direct
        b. Indirect
        c. Interrelated and interdependent actions
        d. Incidental take potential
C. Conservation measures (protective measures to minimize effects for each species)
D. Conclusions (effects determination for each species)
E. Literature Cited
F. List of Contacts Made/Preparers
G. Maps/ Photographs

Proposal requirements

Written proposals must include the following information and be organized as follows:

1. **Cover Letter.** The cover letter shall include the name, address, phone number, and signature of the person authorized to bind the Proposer to the terms of the proposal.

2. **Proposer's Background.** A summary of the Proposer's background and their area(s) of professional expertise relevant to this RFP.

3. **Qualifications and Experience of Proposer's Personnel.** A summary of the relevant qualifications and experience, including recent work on projects of a similar magnitude and nature, of the Proposer's team/staff that will be performing the Scope of Work outlined in this RFP on the proposer's behalf.

4. **Project Approach/Methodology.** A detailed description of the proposed approach/methodology for completing required components of the Scope of Work. The Proposer shall demonstrate their understanding of the needs and the objectives of the work proposed, as well as their ability to timely complete all the tasks outlined in the Scope of Work.

5. **Project Schedule.** A detailed project schedule outlining the tasks, activities, and deliverables with start and completion deadlines.

6. **References.** A minimum of three (3) references for which the same or similar work as requested in this RFP was performed by the proposed team/personnel.

7. **Cost Proposal.** A detailed cost proposal for the Scope of Work in this RFP. In addition, the cost proposal shall include an itemized budget, including all necessary labor costs and expenses (direct and indirect), for each of the main project components. The cost proposal shall state the current hourly rates of all assigned staff/team members.

Selection Process

Proposals shall be evaluated based on the following criteria (listed in random order without regard to order of importance):

1. Demonstrated and thorough understanding of the project.

2. Expertise and qualifications of assigned staff, including prior experience in performing similar reports for clients.

3. Overall project design and methodology/approach.

4. Proposed schedule/timeline and projected completion date(s).

5. Total cost and fee schedule.

6. Responsiveness to the requirements of the RFP.

7. Recent references from comparable clients.

The Mosquito and Vector Control Districts in the San Francisco Bay Area retain full discretion in determining the applicability and weight of the criteria listed above and are not required to select the lowest cost proposal. During the evaluation process, the Mosquito and Vector Control Districts in the San Francisco Bay Area reserve the right to request additional information or clarification from Proposers, or to allow corrections of errors or omissions.

Contact Information

Questions regarding this RFP should be directed to the following persons:

Erika Castillo, *Regulatory & Public Affairs Director*
Alameda County Mosquito Abatement District
(510) 925-1747
E-mail: erika@mosquitoes.org

Submission Deadline

To be eligible for consideration, a complete RFP submission proposal must be delivered to the Alameda County Mosquito Abatement District by **April 25, 2021**. Proposals are to be addressed as follows:

erika@mosquitoes.org
Biological Assessment RFP (on Subject Line if by email)

Or

Alameda County Mosquito Abatement District
Attention: Erika Castillo
23187 Connecticut St.
Hayward, CA 94545

Proposals will be received only at the address(es) shown above and must be received by the time indicated. It is the sole responsibility of the proposer to send its proposal so that it is received by the time and date required, regardless of postmark. Any proposal received after said time and/or date or at a place other than the stated address, cannot be considered and will not be accepted.

Request for Proposal's Timeline:

April 1, 2021	RFP released
April 15, 2021	Requests for information deadline
April 25, 2021	Deadline to submit proposals
May 12, 2021	Board review of the proposals and potential consultant selection

Alameda County Mosquito Abatement District

Biological Assessment

Work That Matters

04.25.21

Table of Contents

ESA

180 Grand Avenue
Suite 1050
Oakland, CA 94612
510.839.5066 phone
510.839.5825 fax

esassoc.com

April 25, 2021

Alameda County Mosquito Abatement District
Attention: Erika Castillo
23187 Connecticut St.
Hayward, CA 94545

Subject: Biological Assessment RFP

Dear Ms. Castillo:

Environmental Science Associates (ESA) appreciates the opportunity to submit the following proposal to work with the Alameda County Mosquito Abatement District (District) to prepare a Biological Assessment for mosquito source reduction activities in Alameda, Napa, Sonoma, Marin, Solano, and San Mateo Counties. The project presents an exciting opportunity to follow on the 2015 Informal Biological Evaluation (IBE) performed by Wetlands and Water Resources, Inc. (WWR), an ecology firm that merged with ESA around the time the report was completed. With WWR joining ESA, the key WWR IBE authors are now ESA staff, and can provide the knowledge, bridge, and continuity between the 2015 report and the updated Biological Assessment, proposed herein. ESA has extensive experience in developing Biological Assessments for complex public agency partnerships, including the North Bay Water Reuse Program and the Los Vaqueros Reservoir expansions. As a firm founded in the San Francisco Bay Area, ESA values the work being done to improve local species' habitats and tidal marsh conditions. With our proposed team living and working in the Bay Area, ESA offers local and highly responsive biological resource expertise to the District and other mosquito and vector control districts.

ESA's team of 50 Northern California biologists have an excellent track record of performing biological surveys and assessments in tidal marsh habitats. Our team is led by Project Manager, **Liza Ryan,** and Project Director, **Brian Pittman, CWB,** bringing a combined 36 years of experience working on complex regulatory and mitigation issues. Our team is rounded out by inclusion of three specialized experts: terrestrial biologist, **Sharon Dulava**, fisheries biologist, **Garrett Leidy**, and wetland ecologist and plant specialist, **Stephanie Bishop**, who was involved in providing technical studies and report writing for the 2015 IBE. ESA brings the following benefits:

- **Extensive Tidal Wetland Design, Permitting and Monitoring Experience in the San Francisco-Bay Area.** ESA biologists and restoration ecologists have been involved in dozens of tidal marsh and wetland projects throughout the Bay Area and Delta. Our team brings the experience from our firm's nearly 10,000 acres of built ESA-designed and permitted tidal wetland restorations throughout the Bay Area, which included biological assessments prepared by ESA. Such projects include the *San Leandro Shoreline Marshlands Enhancement Project*, *Bay Point Restoration Project*, *Tule Red Tidal Marsh Wetland Restoration Project, Bel Marin Keys Wetland Restoration,* and the *Oro Loma Ecotone Demonstration Project*, among others highlighted in our proposal. Our team has the long history and familiarity with the local species and habitat that will be considered in this project, including California Black Rail, Ridgway's Rail, Salt Marsh Harvest Mouse, and Delta and Longfin Smelt.
- **Credibility and Trust with Resource Agency Staff.** Through our extensive Bay Area experience, ESA's biological team has a singular, unparalleled understanding of natural resources in the Bay Area. Our team has performed biological surveys, monitoring, and permitting for over 100 wetland projects within and surrounding the Bay Area, which federal and state regulatory agencies recognize. We work daily with staff from regulatory

agencies across the region to meet our clients' permitting needs, and these established relationships will facilitate agency approval of the Biological Assessment.

- **An Experienced Project Team.** Our approach emphasizes the use of an experienced team familiar with regulatory, environmental, and local issues associated with tidal marsh habitats; and an understanding of management actions for vector control purposes. Because ESA has grown as a firm over the past 50 years, we have had the benefit of lessons learned from large project experience in similar environments, yet we remain nimble enough to deploy our responsive, small, focused teams of local experts.

The ESA Team will provide streamlined delivery, using staff with direct experience with the potentially affected species, within tidal marsh habitats of the six counties, and within the greater Bay-Delta region. Please feel free to contact your primary point of contact, Liza Ryan, at (415) 637-7189 and LRyan@esassoc.com or Brian Pittman at (707) 787-7557 and BPittman@esassoc.com with any questions or requests for additional information or materials.

Sincerely,

Liza Ryan
Project Manager
1425 N. McDowell Boulevard Suite 200
Petaluma, CA
415.637.7189

Erich L. Fischer
Authorized Signatory
2600 Capitol Avenue Suite 200
Sacramento, CA 95816
916.231.1263

Section 1

Background

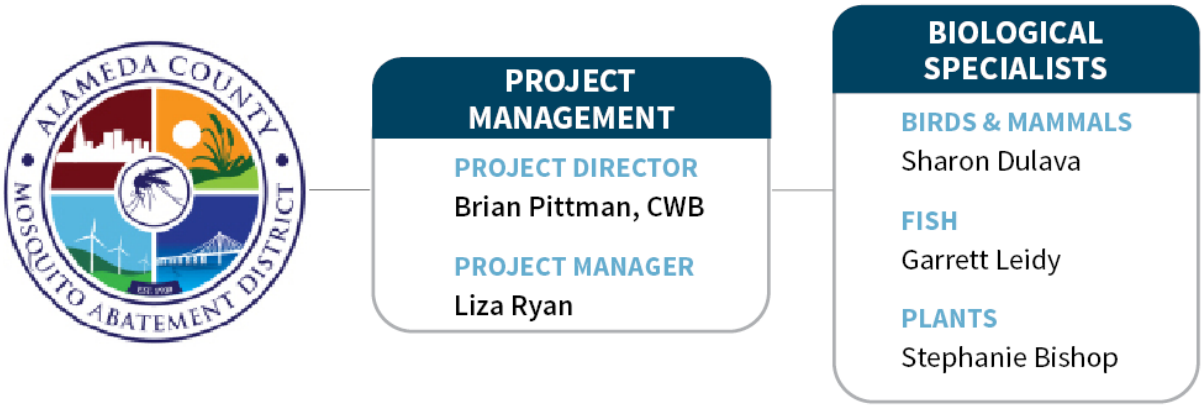
Environmental Science Associates (ESA) is a multi-disciplinary consulting firm specializing in all aspects of project planning, environmental analysis and assessment, natural resource management, and regulatory compliance. Since its founding in the San Francisco Bay Area in 1969, ESA has built a successful track record helping clients define environmental parameters, identify opportunities and constraints, and anticipate impacts that benefit planning and save both time and money. ESA has grown to include more than 200 staff dispersed in five offices in Northern California, and over 500 firm-wide.

Our dynamic team of biologists, permitting specialists, restoration and civil engineers, geomorphologists, and hydrologists are recognized leaders in tidal wetland habitat projects. ESA provides a broad range of services to our clients, including the development of site studies, conceptual design, regulatory permitting assistance, CEQA compliance, preparation of design and construction documents, construction support, and post-construction monitoring.

ESA Team

As illustrated in the organization chart below, the ESA team will be managed by **Liza Ryan,** a wildlife biologist and NEPA/CEQA specialist with 12 years of experience. She has extensive experience working on projects with complex regulatory, mitigation, and planning issues and communicating with regulatory agencies for Bay Area projects, such as California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service (USFWS), and U.S. Bureau of Reclamation (USBR) for projects such as the *San Anselmo Flood Risk Reduction Project EIR and Biological Assessment* and *North San Pablo Bay Restoration and Reuse Project*.

Certified Wildlife Biologist **Brian Pittman** will support the team as project director. Brian excels at regulatory compliance, strategic permit planning, and preparing accurate and defensible environmental documentation.



Our team has a specialist to address the conditions and proposed actions on each impacted species and the surrounding habitat: **Sharon Dulava** for birds and mammals, **Garrett Leidy** for fish, and **Stephanie Bishop** for plants. Resumes for all proposed staff are included in **Section 2.**

The 2015 Informal Biological Evaluation (IBE) was completed by Wetlands and Water Resources, Inc., who at the time was in the process of joining ESA. As part of that effort, Stephanie was on the small team who prepared the IBE and prepared maps, tables, and wrote portions of the report for the Marin/Sonoma Mosquito and Vector Control District. Her involvement in this current project will provide continuity and fluidity between the two efforts, as well as a unique understanding of any potential hurdles that the BA may face.

In ESA's experience preparing Biological Assessments that involve multiple stakeholders, two key obstacles that often come up are: 1) how to describe a generic action such as trenching; and 2) how to develop a universal mitigation strategy that all participants agree with, is not expensive or overly onerous on field crews, provides schedule flexibility, and also meets USFWS requirements. These are all challenges that our regulatory biologists have encountered, and we have the expertise to guide participants to a common solution.

Local Knowledge and Experience

Tidal Marsh/Wetland Habitats and Sensitive Species

ESA staff have recent experience with both large- and small-scale tidal wetland habitats. ESA biologists regularly work with our multidisciplinary staff to deliver wetland restoration projects in the region; thus, we are familiar with the plant and wildlife species and issues associated with these sensitive environments.

Adult male Steelhead found by the ESA project team in Sonoma, CA

The map in **Figure 1-1** provides a glance at ESA's breadth and depth of experience in similar habitats, showing a selection of ESA tidal marsh projects in the San Francisco Bay Area. Our biology team's spread of work throughout the region is even greater when factoring in other types of project work. ESA has performed numerous surveys, monitoring, impact analyses, and biological assessments, both as stand-alone projects or task orders, and as a part of larger projects. Because of this range of experience, our team is highly knowledgeable of the biological assessment framework.

The ESA biology team has first-hand experience with the special-status species and sensitive habitats that are common in tidal marsh habitats, including Ridgway's Rail, Salt Marsh Harvest Mouse, Delta Smelt, Longfin Smelt, and rare plants such as soft bird's beak, Suisun thistle, and California seablite. Wetland ecologist, Stephanie Bishop, specializes in Bay Area tidal wetlands and has conducted habitat assessments, wetland delineations, and biological assessments for tidal wetlands projects throughout the Bay Area such as the *Lower Walnut Creek Project, Bel Marin Keys,* and *Deer Island Restoration.*

Salt Marsh Harvest Mouse in the Goodyear Slough, CA

Regulatory Agencies

Through ESA's spread of tidal wetland project work throughout the Bay Area, as seen in **Figure 1-1,** ESA has collaborated with all the pertinent local wildlife management and regulatory agencies. Specifically, ESA biologists have assisted clients in acquiring permits and approvals for many tidal wetland restorations projects in the region. ESA has experience coordinating and negotiating with agencies in obtaining timely permits for a large range of projects in sensitive habitats, such as the *Tule Red Tidal Marsh Wetland Restoration*, *Oro Loma Ecotone Demonstration Project, San Leandro Shoreline Enhancement Project, Bel Marin Keys Wetland Restoration, and Alviso Salt Ponds Restoration Project.* Our relationships with local regulatory agencies enable us to obtain clear guidance from regulatory representatives, when needed, to quickly resolve any issues in the field and keep projects progressing. For example, in the past two weeks, ESA staff coordinated with CDFW to integrate ESA's black rail survey findings into an amended ITP to keep the Lower Walnut Creek Restoration Project on schedule and budget.

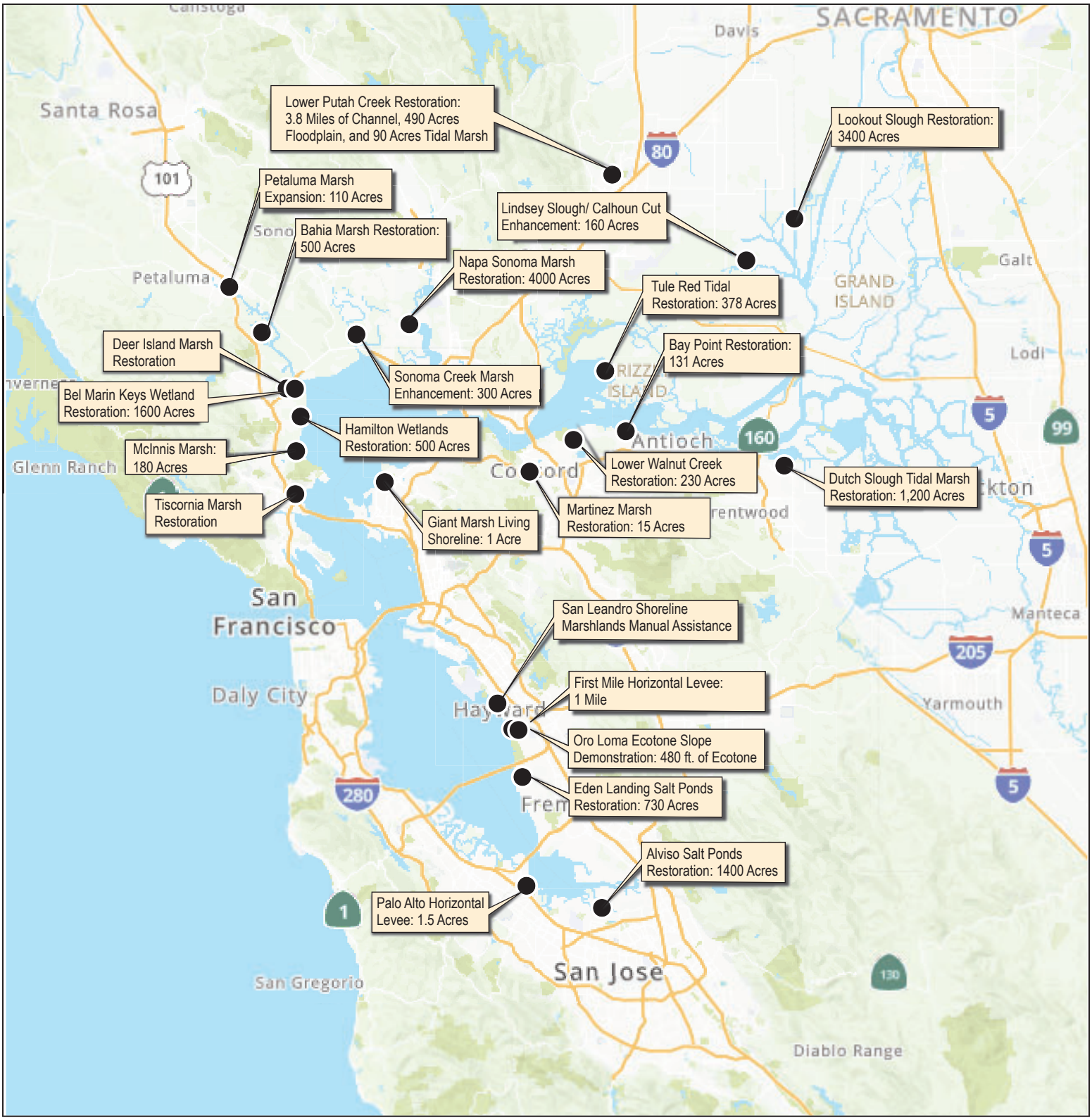
Due to our expertise in the region and focused staff training, ESA biologists have a thorough knowledge of special-status species and environmental regulations relevant to the habitat and local area. Our team has the capability to apply their resource expertise and understanding to effectively communicate project benefits and address regulatory agencies concerns. In addition, our staff are fully up-to-date on ever-changing environmental regulations. We employ specialists with knowledge and USFWS 10(a)(1)(A) recovery permits for federally-listed species, and who further emphasize cross-training, ensuring basic knowledge of critical biological resources.

ESA is well-versed in coordinating with a large number of agencies simultaneously. Brian, ESA's proposed project director, led a team of biologists for the Program EIR/EIS for the *North San Pablo Bay Restoration and Reuse Project,* proposed by the North Bay Water Reuse Authority. The project involved coordinating with the following consortium of North Bay agencies for local reuse projects in Marin, Sonoma, and Napa Counties: the Sonoma Valley County Sanitation District (SVCSD), Napa Sanitation District, Las Gallinas Valley Sanitary District (LGVSD), North Marin Water District (NMWD), and the Novato Sanitary District, with the Sonoma County Water Agency acting as the administrative agency, and Napa County participating as a partner agency.

All proposed staff worked on the Bay Point Restoration Project along the south shore of Suisun Bay, which included a Biological Assessment.

For the *Bay Point Restoration and Public Access Project*, completed in December 2020, ESA, in coordination with the East Bay Regional Parks District, presented the project to regulatory agencies at the U.S. Army Corps of Engineers (ACOE) Interagency Meeting and facilitated several project site meetings with regulatory agency staff, including USFWS and NMFS, and prepared a Biological Assessment to support permit approvals. ESA prepared and submitted permit applications to regulatory agencies including the ACOE, Regional Water Quality Control Board (RWQCB), Bay Conservation and Development Commission (BCDC), USFWS, National Marine Fisheries Service (NMFS), and CDFW, and facilitated permit approvals from these agencies.

Figure 1-1 Selected ESA Tidal Wetland Projects



Section 2

Team Qualifications and Experience

ESA

Brian Pittman, CWB

Project Director

EDUCATION

M.S., Environmental Studies, San Jose State University

B.A., Biology, University of California, Santa Cruz

24 YEARS' EXPERIENCE

CERTIFICATIONS/ REGISTRATION

Certified Wildlife Biologist - The Wildlife Society, 2004

California Scientific Collecting Permit ID# 003068

Federal Recovery Permit #TE-027422-6 (fairy shrimp, California tiger salamander, and California red-legged frog)

NMFS Federal Recovery Permit #16506 (Central California Coast coho salmon and CCC steelhead)

FAA-certified Unmanned Aircraft System (UAS) pilot

TRAINING

2017 Salt Marsh Harvest Mouse Workshop (2-day with field I.D. & handling)

CDFW California Aquatic Bioassessment Workshop

Wetland Delineation Training Course, U.S. Army Corps of Engineers

Desert Tortoise Survey Techniques Workshop, Desert Tortoise Council

Brian is a *Certified Wildlife Biologist* who offers specialized experience leading projects with complex regulatory, mitigation, and construction/environmental compliance backgrounds. He is experienced with biological resources throughout California and he routinely coordinates with scientists, planners, and resource agency staff to resolve issues that affect biological issues. Brian is trained and proficient in permitting procedures and requirements under CEQA, NEPA, the federal and California Endangered Species Act(s), California Fish & Game Code, and federal and California Clean Water Acts. He holds a 10(a) federal Recovery Permit for vernal pool branchiopods, California red-legged frog, and California tiger salamander; and he performs a wide range of focused biological surveys throughout the State. He is also a co-investigator on a federal 10(a) permit for Central California Coast (CCC) coho salmon and CCC steelhead.

Relevant Experience

Bureau of Reclamation, North San Pablo Bay Restoration and Reuse Project, Sonoma County, CA. *Senior Biologist.* Brian supervised completion of the EIR biological resources analysis and U.S. Fish and Wildlife Service fisheries and terrestrial Biological Assessments. This complicated, tri-county CEQA/NEPA project would implement a cooperative system for delivering recycled water to users throughout Sonoma, Napa, and Marin counties, including the Napa Salt Marsh Restoration Area.

Alviso Boat Launch Facility Biological Assessment, Alviso, CA. *Senior Biologist.* Brian was the senior biologist supervising the field review and Biological Assessment for this controversial boat launch facility. Located in the South Bay's Alviso Slough adjacent to the Don Edwards National Wildlife Refuge (NWR), this salt marsh provides nesting habitat for California clapper rail, western snowy plover, and salt marsh harvest mouse.

North Bay Water Reuse Authority, North Bay Water Reuse Program Phase 2 EIR/EIS, Marin, Sonoma, and Napa Counties, CA. *Biological Resource Task Manager.* Brian led ESA's team of biologists for this combined CEQA/NEPA document evaluating the impacts associated with the implementation of 14 individual water reuse projects seeking funding from the U.S. Bureau of Reclamation's Title XVI program. In addition to the 14 projects, six program-level projects, another build alternative, a No Project alternative, and a No Action alternative were evaluated. Brian oversaw the biological resource analyses supporting the combined EIR/EIS, as well as the program-wide Biological Assessment required to obtain the Biological Opinion required to secure funding under the Title XVI grant program.

Minimal Threat Flood Control Maintenance Regional Biological Assessment. *Senior Biologist.* Brian was a primary technical author of a regional biological assessment (RBA) prepared on behalf of the Bay Area Stormwater Management

Agencies (BASMAA) to secure a Regional General Permit (RGP) from the U.S. Army Corps of Engineers (Corps) and a Regional Water Quality Control Board (RWQCB) for flood control projects that have minimal effect on water quality. A RGP was sought by the OPC participating agencies to streamline the permitting process for those activities posing a minimal threat to water quality.

SFPUC Sunol Dam and Niles Dam Removal Project, Alameda, CA. *Senior Biologist.* Brian was the senior technical lead for wildlife surveys and prepared the Biological Assessment submitted to the USFWS. The issues he addressed included a great blue heron nesting rookery located above Sunol Dam, and potential habitat for the Alameda whipsnake and CRLF. Overall, the goals of the dam removal were to provide fish passage and to address public safety and liability issues associated with the dam.

City of San Leandro Shoreline Marshlands Area, San Leandro, CA. *Senior Biologist and Technical Specialist.* From 1997 to present, Brian has assisted the City of San Leandro with ongoing wildlife and vegetation monitoring and resource management at Roberts Landing and the San Leandro Marina. Elements monitored at the site included salt marsh harvest mouse, pickleweed growth, non-native *Spartina alterniflora*, waterfowl, and tidal conditions in problematic slough areas. In early years Brian prepared annual management reports documenting the status of non-native cordgrass expansion and the reestablishment of invertebrate populations as part of an ongoing marshland management contract. More recently, in 2014 he performed bat and nesting bird surveys in support of a bridge repair project near the Marina.

Department of Water Resources, South Bay Aqueduct Improvement and Enlargement Project EIR, Alameda County, CA. *Sr. Biologist.* Brian was the senior wildlife biologist on this project from 2003 to 2014. He directed surveys for special-status wildlife species and was senior author of the USFWS Biological Assessment. Brian was instrumental in the identification and selection of mitigation sites. During construction from 2005 to 2014, he had a senior role in preconstruction surveys, compliance monitoring, agency coordination, and later with the enhancement, monitoring, and management of mitigation sites. Brian's observations of the California tiger salamander were published in a peer-reviewed journal following the completion of this project.

Ballona Wetlands Restoration Project, California Coastal Conservancy, Playa Del Rey, CA. Senior Biologist. Brian was a senior contributing biologist for the joint EIS/EIR that assessed the potential environmental impacts of wetland restoration of the Ballona Wetlands. Brian prepared and provided senior oversight for the CEQA document and technical expertise relating to biological impacts.

Contra Costa Water District, Los Vaqueros Reservoir Expansion Project EIS/EIR, Contra Costa County, CA. *Biological Task Lead.* Brian led the biology team during wetland, botanical, and wildlife studies in support of the Phase 1 reservoir expansion to 160 thousand acre-feet (TAF), and Phase 2 to 275 TAF. Brian was the primary biologist representing the expansion project during agency team meetings and providing information and updates on biological study finds to state and federal environmental regulators. Brian was senior author of the Phase 1 CEQA/NEPA biological resources analysis, the Biological Assessment, and the CDFW and USFWS permits.

Liza Ryan

Project Manager

EDUCATION

MS, Ecology, UC Davis

MPH, Environmental Toxicology, UC Berkeley

BS, Biology, Yale University

12 YEARS' EXPERIENCE

California Scientific Collection Permit #10071

TRAININGS

Wetland Delineation 40-Hour Training Course (2019)

Endangered Species Act Section 7 Biological Assessment Workshop, 2012

OSHA 10 Hour Training for Respiratory Hazards, 2012

Qualified Stormwater Practitioner (SWPPP) Training, 2011

AEP Advanced CEQA Workshop, 2011

California Tiger Salamander Identification and Management, 2010

California Red-legged Frog Identification and Management, 2008

NWETC CEQA Workshop, 2007

Liza is a wildlife biologist and NEPA/CEQA specialist trained in ecology, wildlife biology and toxicology. She has 12 years' experience working with multidisciplinary teams on complex regulatory, mitigation, and planning issues. Her responsibliities include Section 7 biological assessments; biological reconnaissance, nesting birds, and special status species surveys; habitat analyses, mitigation and monitoring plans; and preparing state and federal permits. She has conducted protocol-level surveys for aquatic and terrestrial special-status species, including Ridgway's rail, Swainson's hawk, California red-legged frog, California tiger salamander, salmonids and vernal pool crustaceans. Liza has also worked as a risk assessor, environmental site inspector and in public outreach and scoping. She is experienced with biological resources analysis, permit compliance, surveying, and monitoring for threatened and endangered species throughout the western United States.

Relevant Experience

North Bay Water Reuse Authority, Phase II EIR/EIS, Marin, Sonoma, and Napa Counties, CA. *Lead Biologist.* Liza was responsible for the preparation of the Section 7 Biological Assessments to evaluate impacts to terrestrial and marine species. She surveyed all sites for the presence of California red-legged frog, and authored the Biological Resources section of the joint EIR/EIS for the North San Pablo Bay Restoration and Reuse Project Phase II. The project proposes to add pipelines and storage facilities for a regional recycling program to use treated wastewater from the wastewater treatment plants within the North San Pablo Bay area.

Marin County Ross Valley Programmatic and San Anselmo Flood Risk Reduction Project EIR and Biological Assessment. *Lead Biologist.* Liza performed reconnaissance surveys of the project and program EIR sites, including Fairfax and San Anselmo Creeks, for the Marin County Flood Control and Water Conservation District and authored the biological resources section of the Program and Project Environmental Impact Reports. The Project EIR for flood risk reduction was finalized and approved in Fall 2018. Liza also authored the Section 7 Biological Assessment, assisted with 401, 404 and LSA permitting for the sites, and monitored for sensitive species during construction. Species of interest included western pond turtle, northern spotted owl, nesting birds and roosting bats.

Santa Venetia Timber-Reinforced Berm IS, Marin County, CA. *Project Manager.* The project included installation of a timber berm along a tidal channel to prevent encroachment of floodwater into homes, and to remove and repair pipes associated with existing pumping stations. Liza surveyed the tidal marsh and upland habitats and wrote the Biological Resources section of the Initial Study in 2019.

Tesoro Golden Eagle Refinery and Amorco Wharf Biological Permitting, Monitoring and Sensitive Species Surveys, Martinez, California. *Biologist.* During special status wildlife studies arising from regulatory closure of waste management units at Tesoro's Golden Eagle Refinery in Contra Costa County, Liza participated in multi-year protocol-level surveys for California clapper rail and also surveyed for California black rail and other marsh birds and prepared survey reports. Both rail species were positively identified. Liza also surveyed for salt marsh harvest mouse, and prepared wildlife sections for biological assessments. Surveys included evaluation of wildlife exposure to oil-contaminated sediments at the refinery.

Zone 7 Water Agency Flood Control Permitting and On-call Services, Livermore, CA. *Biologist.* Liza provides focused biological surveys and permitting assistance to Zone 7 to ensure compliance with environmental permits. In 2017through 2020 she surveyed for sensitive species, including western pond turtle and nesting birds, and authored Section 7 Biological Assessments for numerous bank repair projects, including emergency repairs. She also conducted pre-construction sensitive species surveys and monitored for sensitive species including western pond turtle, and assisted with protocol-level surveys for California red-legged frog during construction of bank repair projects.

Bay Point Restoration and Public Access Project, Bay Point Regional Shoreline, California. *Biologist*. Liza monitored for salt marsh harvest mouse and California black rail in 2020 during construction of public access trails for a tidal marsh restoration project on San Pablo Bay at the mouth of the Delta.

Silicon Valley Clean Water Gravity Pipeline Project, Redwood City, California. *Biologist.* Liza participated in protocol-level Ridgway's rail surveys on Inner Bair Island in 2019 and 2020 in support of work authorization for wastewater conveyance pipeline improvements in levees adjacent to coastal tidal marshlands that provide Ridgway's rail habitat.

Contra Costa Water District, Los Vaqueros Reservoir Phase II Expansion Project, Contra Costa County, CA. *Biologist.* Liza authored the CEQA/NEPA biological resource analysis section for the Supplemental EIS/EIR in 2017 in support of a second phase of reservoir expansion at Los Vaqueros as well as installation of a network of pipelines and water transfer stations to facilitate water storage for the East Bay and the California Aqueduct. She also contributed to preparation of the Section 7 Biological Assessment in 2019.

San Rafael Rock Quarry Supplemental Environmental Review, Marin County, CA. *Biologist.* The Quarry required supplemental review of a plan to extend the end date of mining and reclamation. Liza reviewed existing biological surveys, annual reports, and other information, including recent California red-legged frog sightings, and prepared the biological resources analysis for the County.

City of Calistoga Riverside Ponds Relocation Project. Napa County, CA. *Biologist.* The project assessed impacts from construction and reconfiguration of four riverside wastewater treatment ponds and other facility structures in close proximity to the Napa River, the Napa Vine Trail, and the Dunaweal Wastewater Treatment Plant to improve water quality, reduce erosion and protect vital infrastructure. Liza authored the Biological Resources section of the initial study, and the Section 7 biological assessment, and responded to public and agency comments.

Stephanie Bishop

Wetland Restoration Ecologist

EDUCATION

M.S., Conservation Biology, San Francisco State University

B.A., Environmental Studies/ Biology, University of California, Santa Cruz

12 YEARS' EXPERIENCE

CERTIFICATIONS

Professional Wetland Scientist

ISA Certified Arborist

TRAININGS

Vegetation Rapid Assessment/Releve Course (2017)

Advanced Wetland Delineation Training Course (2016)

Vegetation Mapping Course (2016)

CRAM – Estuarine and Riverine Modules (2015)

San Francisco Bay Area Amphibians Workshop (2014)

Birding by Ear Class (2014)

Grasses Identification Workshop (2013)

Wetland Delineation Training Course (2012)

Rare Pond Species Workshop (2012)

Rare Plant Survey Workshop (2012)

ArcGIS Spatial Analyst Short Course (2009)

Stephanie is a wetland restoration ecologist trained in wetland, plant, and wildlife ecology. She has experience working with multidisciplinary teams as a representative of two government agencies and in the environmental consulting field. As a graduate student at San Francisco State University, Stephanie studied climate change effects on San Francisco Bay tidal marsh plant species. Prior to graduate school, Stephanie performed scientific research, surveying, and monitoring at tidal wetland restoration sites and coastal ecosystems in the San Francisco Bay Area. She is also experienced in permit compliance, surveying, and monitoring for threatened and endangered wildlife and nesting birds throughout a variety of San Francisco Bay Area habitats. As a wetland restoration ecologist with Environmental Science Associates, Stephanie has prepared planning documents, technical reports, and permit applications for several proposed wetland and riparian restoration projects within the San Francisco Bay region. She is skilled in wetland restoration planning, biological data collection and analysis, and GIS.

Relevant Experience

Informal Biological Evaluation for Mosquito Source Reduction Activities in Tidal Habitats. San Francisco Bay Area, CA. *Biologist*. Stephanie wrote an informal biological evaluation which identified federally listed species that may occur within tidal marsh habitats throughout the San Francisco Bay Area and recommended avoidance and minimization measures to prevent impacts to those species during mosquito source reduction work. Stephanie also prepared the California Natural Diversity Database maps and tables for the document. The biological evaluation was completed for the Marin/Sonoma Mosquito and Vector Control District.

Bel Marin Keys Wetland Restoration Project Phase 1, Marin County, CA. *Project Manager/Wetland Restoration Ecologist*. Stephanie prepared the Biological Assessment, permit applications, Monitoring and Adaptive Management Plan, and the preliminary seasonal wetland design in support of the California State Coastal Conservancy's restoration of more than 1,500 acres of diked and farmed former tidal salt marsh habitat along San Pablo Bay. Stephanie continued coordinating with agencies including the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Regional Water Quality Control Board, California Department of Fish and Wildlife, and San Francisco Bay Conservation and Development Commission in order to obtain permits for Phase 1 of the project.

Bay Point Restoration and Public Access, Contra Costa County, CA. *Wetland Restoration Ecologist*. Stephanie prepared the wetland delineation report in support of the East Bay Regional Park District's restoration and public access project. The project includes restoration of 17 acres of tidal wetlands and trail installation. She also assisted in preparation of the restoration plan, Biological Assessment, and permit applications.

Milliken Creek Flood Reduction and Fish Passage, Napa County, CA. *Wetland Restoration Ecologist*. Stephanie led the permitting for the Napa County Flood Control and Water Conservation District creek enhancement and fish passage project. Stephanie completed a wetland delineation report, a National Marine Fisheries Biological Assessment for steelhead, and prepared permit applications including the U.S. Army Corps of Engineers Pre-Construction Notification, Regional Water Quality Control Board 401 Water Quality Certification, and California Department of Fish and Wildlife Streambed Alteration Agreement. She also prepared a Riparian and Wetland Restoration Monitoring Plan, Revegetation Plan, and the CEQA Biology Section for the project. She communicated with agencies during project description changes and updated permit applications in order to obtain permit for the project.

Hamilton Wetland Native Plant Specialist, Marin County, CA. *Project Manager.* Stephanie managed on-the-ground restoration and public outreach work being completed at the Hamilton Wetland Restoration site for the Army Corps of Engineers. Working with BMP Ecosciences Stephanie is managing completion of public outreach, native plant outplantings, and monitoring and management of native and invasive plants at the site.

Hamilton Wetlands Monitoring, Marin County, CA. *Wetland Restoration Ecologist.* ESA has led the annual monitoring program at the Hamilton Wetland Restoration Project for the last 5 years for the Army Corps of Engineers. Stephanie has collected geomorphology, hydrology, and vegetation data, written annual monitoring report, and coordinated with other consultants and the Army Corps of Engineers to complete ongoing monitoring and adaptive management at the site.

Zone 7 Environmental Compliance and Planning Services On-call, Alameda County. *Wetland Restoration Ecologist.* ESA assisted Zone 7 with biological surveys at several bank stabilization sites and one flood reduction site. Stephanie completed the wetland delineation field work and wetland maps and reports for more than 60 bank repair sites, completing five wetland delineation reports for Zone 7 and attended a USACE field verification. Stephanie also completed an Arborist report for several bank repair sites and assisted with revegetation design and native vegetation protection measures.

Deer Island Basin Tidal Wetland Restoration, Marin County, CA. *Wetland Restoration Ecologist.* Marin County Flood Control and Water Conservation District intends to breach existing levees to restore fluvial-tidal flows into diked former marshlands. The project will enhance, create, and preserve habitat conditions that support special-status species within Novato Creek and associated wetland habitats. Stephanie is preparing the wetland delineation and habitat assessment for the project and will continue to support the project during design development and the permitting process.

Lower Walnut Creek Restoration, Contra Costa County, CA. *Wetland Restoration Ecologist*. Stephanie is the wetland restoration ecologist for the 500-acre restoration project being planned by the Contra Costa County Flood Control and Water Conservation District. Stephanie completed the biology sections for the existing conditions report, feasibility study, and alternatives analysis. She also completed the wetland delineation, invasive plant mapping, habitat assessment, ecological functions memorandum, the BCDC permit application, and the Monitoring and Adaptive Management Plan.

Sharon Dulava

Wildlife Biologist

EDUCATION

M.S., Natural Resources: Wildlife, Humboldt State University

B.S., Conservation and Resource Studies, University of California, Berkeley

6 YEARS' EXPERIENCE

CERTIFICATIONS/ REGISTRATION

Agisoft Photoscan and Feature Analyst Training with USGS Unmanned Aircraft Systems Project Office

Open Standards for the Practice of Conservation, USFWS

Geospatial Training Workshop, USFWS, 2014

Basic aviation safety, water ditching and survival

AWARDS

1st place Student Talks, Society for Conservation GIS Annual Conference, 2016

Sharon Dulava is a wildlife biologist with over 6 years of experience conducting wildlife and plant surveys, inventories, construction monitoring, habitat assessments, and habitat restoration in a variety of habitats within the San Francisco Bay Area and throughout Northern California. She has experience monitoring environmental compliance for construction projects from pre-construction through build-out, including construction monitoring, worker education, water quality sampling, participating in construction meetings, and writing annual reports and project documentation. She has conducted surveys for special-status species including Ridgway's rail, black rail, California least tern, western snowy plover, western burrowing owl, Swainson's hawk, salt marsh harvest mouse, Lange's metalmark butterfly, California red-legged frog, California tiger salamander, western pond turtle, vernal pool tadpole shrimp, Antioch dunes evening primrose, Contra Costa wallflower, Burke's goldfields, and Sebastopol meadowfoam. Additional technical skills include nest monitoring, habitat assessments, riparian restoration, natural resource management planning, and using GIS and remote sensing techniques to maximize data quality and data collection efficiency.

Relevant Experience

Barnard Bessac Joint Venture, Silicon Valley Clean Water Gravity Pipeline Project Rail Surveys, Redwood City, CA. *Biologist.* Sharon conducted presence absence surveys for California Ridgway's Rail at along Inner Bair Island. Surveys were conducted under the supervision of a California Ridgway's Rail Recovery Permit holder using the U.S. Fish and Wildlife Service 2015 Clapper Rail Survey Protocol.

City of Palo Alto, Palo Alto Horizontal Levee Rail Surveys, Palo Alto, CA. *Biologist.* Sharon conducted presence absence surveys for California Ridgway's Rail at the Palo Alto Baylands. Surveys were conducted under the supervision of a California Ridgway's Rail Recovery Permit holder using the U.S. Fish and Wildlife Service 2015 Clapper Rail Survey Protocol.

City of San José, San José-Santa Clara Regional Wastewater Facility, Headworks Improvements and New Headworks Project, San Jose, CA. *Biologist.* Sharon has conducted nesting bird surveys, burrowing owl surveys, and was a biological monitor for nesting golden eagles during construction activities at the San José-Santa Clara Regional Wastewater Facility.

City of San José, San José-Santa Clara Regional Wastewater Facility, Legacy Biosolids Lagoons Site Cleanup Project, San Jose, CA. *Biologist.* Sharon conducted pre-construction surveys for nesting birds including western burrowing owl and was a compliance monitor during pickleweed removal for wildlife including salt marsh harvest mouse. She also assisted with preparing Phase 1 and Phase 2 Mitigation Plans for the project.

City of San José, San José-Santa Clara Regional Wastewater Facility Outfall Bridge and Instrumentation Improvements Project, San Jose, CA. *Biologist.* Sharon conducted reconnaissance surveys to assess potential project-related impacts to natural resources and assisted with a wetland delineation within the wastewater facility. She assisted with writing CEQA related reports and permitting.

California American Water, Emergency Spill Response, San Mateo County, CA. *Biologist.* Sharon conducts in-stream ecological assessments during potable water spill events. These assessments include assessing upstream and downstream spill effects on stream habitats and wildlife, including special-status wildlife such as steelhead and California red-legged frog.

Kiewit/Manson JV, MOTCO Pier 2 Replacement Project, Concord, CA. *Biological Monitor*. Sharon was a biological monitor for activities related to the MOTCO Pier 2 Replacement Project. She monitored for nesting birds and special-status species including California Ridgway's rail, California black rail, salt marsh harvest mouse, soft bird's beak, Mason's lilaeopsis, and California red-legged frog, Delta smelt, Chinook salmon, green sturgeon, and marine mammals.

Zone 7 Water District, Phase 3 Repairs, Alameda County, CA. *Biologist.* Sharon conducted research and reconnaissance of the site to assess potential project-related impacts to federally protected wildlife and drafted a Biological Analysis report. She also assisted with a wetland delineation.

Zone 7 Water District, Stanley Reach, Livermore, CA. *Biologist.* Sharon conducted research and reconnaissance of the site to assess potential project-related impacts to federally protected wildlife and drafted a Biological Analysis report. She also assisted with a wetland delineation.

U.S. Fish and Wildlife Service, Pacific Southwest Region Inventory and Monitoring Initiative, San Francisco Bay National Wildlife Refuge Complex, CA. *Biological Science Technician.* Sharon assisted the San Francisco Bay National Wildlife Refuge Complex with regular protocol-level surveys for special status species including but not limited to California Ridgway's rail, black rail, and salt marsh harvest mouse. Sharon conducted multiple years of California Ridgway's rail and black rail surveys at Don Edwards and San Pablo Bay marshes comparing Refuge specific protocols and a pilot protocol and working with partner organizations to develop a standardized secretive marsh bird survey protocol. During this time, Sharon also participated in multiple Ridgway's rail trainings, assisted U.S. Geological Survey staff with California Ridgway's Rail captures for a study on movements of radio-marked Ridgway's Rails, assisted biologists from the University of California, Berkeley with trapping black rails for collection of genetic samples. In 2011, 2012, and 2013, Sharon assisted Refuge staff at San Pablo Bay NWR (Tolay Creek and Tubbs Island Setback) and Don Edwards San Francisco Bay NWR (Mayhews Landing) with salt marsh harvest mouse trapping efforts, observing approximately 20 individual salt marsh harvest mice and receiving handling instructions from both USFWS and CDFW staff.

EDUCATION

B.S., Evolution, Ecology, and Biodiversity, University of California, Davis

8 YEARS' EXPERIENCE

PUBLICATIONS

Leidy, R.A., E. Gonsolin and G.A. Leidy. 2009. Late-Summer Aggregation of the Foothill Yellow-Legged Frog (*Rana boylii*) in Central California. The Southwestern Naturalist 54 (3): 367-368.

Garrett Leidy

Fisheries Biologist

Garrett is a fisheries biologist with 8 years of experience working on environmental planning and engineering projects. His responsibilities primarily include providing biological and technical support for restoration design, regulatory and planning documents, and hydrologic analyses. Garrett has extensive experience as a fisheries biologist, in both a regulatory and field setting.

Relevant Experience

U.S. Army Corps of Engineers, Hamilton Wetlands Monitoring, Marin County, CA. *Fisheries Biologist*. The Hamilton Wetlands restoration project has restored 900 acres of tidal and seasonal wetlands at the former Hamilton U.S. Army airfield. In addition to work on critical design elements of the tidal wetland restoration project, ESA has been conducting fish surveys within the site for the past five years. Garrett has led multiple years of beach seine and trawl surveys aimed at documenting fish use throughout the restoration site in order to better understand how changes in site geomorphology influence community composition and abundance.

Contra Costa County, Lower Walnut Creek Restoration Project, Northern Contra Costa County, CA. *Fisheries Biologist*. The Lower Walnut Creek restoration project will restore and enhance tidal wetlands along the lower four miles of Walnut Creek and its tributary, Pacheco Creek. ESA is assisting the county with the restoration design and permitting. As part of the ESA team, Garrett developed the NMFS Biological Assessment and other permitting documents.

California State Coastal Conservancy, Giant Marsh Living Shorelines, Pinole, CA. *Fisheries Biologist*. Garrett prepared the NMFS Biological Assessment for the California State Coasta Conservancy's proposed habitat enhancement along the Giant Marsh shoreline. This project is designed to restore intertidal and subtidal habitats, and create connectivity between submerged areas and adjacent tidal wetlands and creeks. This includes the revegetation of native Pacific cordgrass, marsh gumplant, eelgrass, and the installation of shallow subtidal native Olympia oyster reefs.

East Bay Regional Park District, Bay Point Restoration and Public Access, Bay Point, CA. *Fisheries Biologist*. Garrett prepared the NMFS Biological Assessment for the EBRPD's proposed habitat restoration within the Bay Point tidal marsh habitat. This project is designed to restore 17 acres of tidal wetlands, 10 acres of seasonal wetlands and 10 acres of coastal prairie. Public access goals include trail and boardwalk installation, fishing access improvement, the installation of a boat launch, upgrades to toilet facilities, and the development of potable water supplies.

Marin-Sonoma Mosquito Abatement District, Sonoma Creek, Marin County, CA. *Biologist/Staff Scientist*. Garrett assisted with stilling-well calibration as part of pre-construction monitoring as well as GIS cartography. This project involved

the enhancement of a 450-acre tidal marsh on the west bank of Sonoma Creek south of Highway 37 in Sonoma County, California. Enhancement consisted of constructing large tidal sloughs into regions of the marsh.

California State Coastal Conservancy, Terminal Four Demolition Project, Richmond, CA. *Fisheries Biologist*. The derelict Terminal 4 Wharf site is made up of over 2,500 concrete and creosote-contaminated timber piles, plus a wharf building, decking, and other appurtenant structures. The removal project consisted of the preparation of 60% construction documents and environmental documentation. Garrett prepared the NMFS Biological Assessment, provided CEQA support, and developed the monitoring program.

Port of San Francisco Mission Bay Ferry Landing and Water Taxi Landing Project, San Francisco, CA. *Fisheries Biologist*. Garrett prepared the NMFS Biological Assessment and other permitting documents for both the Port of San Francisco's proposed Mission Bay Ferry Landing and Water Taxi Landing project. This project involved the construction of a new Ferry Terminal at Mission Bay in support of adjacent developments including the Golden State Warriors Arena.

Port of San Francisco Shoreline Maintenance and Pier 70 Development, San Francisco, CA. *Fisheries Biologist*. Garrett prepared NMFS and USFWS Biological Assessment for both the Port of San Francisco's Shoreline Maintenance Program and Pier 70 Development project. Both projects are part of ongoing as-needed services provided by ESA to the Port. The Port's Shoreline Maintenance program includes the repair and restoration of existing infrastructure along three miles of city waterfront; including both in-water (pile driving) and overwater work.

Marin County Flood Control & Water Conservation District, San Anselmo Flood Risk Reduction Project, San Anselmo, CA. *Fisheries Biologist*. ESA is assisting the District with permitting a flood risk reduction project along San Anselmo and Fairfax Creeks. The project includes a flood diversion and storage basin in the upper portion of Fairfax Creek and the removal of a flow-constricting bridge building in downtown San Anselmo. Garrett developed the aquatic permitting approach with respect to impacts on steelhead, including the development of the NMFS Biological Assessment.

Milliken Creek Flood Reduction, Napa, CA. *Fisheries Biologist*. As part of Napa County Public Works ongoing efforts to address flood issues on Milliken Creek, the County has decided to remove an existing water diversion structure within the Silverado Country Club. The existing water diversion structure causes the creek to leave its banks during high flows, often flooding residences adjacent to the golf course. In conjunction with NMFS, Garrett drafted the aquatic Biological Assessment to address project-related impacts to listed aquatic species, including central California steelhead.

Port of Redwood City, Wharves 3 & 4 Fender Replacement, Redwood City, CA. *Fisheries Biologist*. Garrett prepared the NMFS Biological Assessment and Marine Mammal Impact Assessment for Port of Redwood City's proposed Wharves 3 & 4 Replacement project. Similar in nature to the renovations conducted by the Port to the nearby wharves over the last decade, this impact analysis included an assessment of construction and operational effects to special-status fish and marine mammal species along with their habitat.

Section 3

Project Approach/Methodology and Schedule

This scope and budget provide a biological assessment for mosquito source reduction activities by six county vector control districts in Alameda, Napa, Sonoma, Marin, Solano and San Mateo Counties. It is our understanding that project activities will be located in tidal wetland habitats of these six county vector control districts, and the work will require permits from the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and/or San Francisco Bay Conservation and Development Commission (BCDC), which requires submittal of a Biological Assessment Report in accordance with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) protocols.

Tidal marsh areas in the San Francisco Bay Area typically produce large populations of mosquitoes, including species known to transmit pathogens, such as West Nile Virus, to both wildlife and humans. Mosquito source reduction has been practiced since 1915, and mosquitoes remain an ongoing public health threat and source of discomfort and injury to humans, wildlife, and livestock.

We understand that mosquito source reduction is an important component of an Integrated Vector Management Program, pursuant to California Health and Safety Code Section 2000 *et seq*., which is used to minimize mosquito production and the need for repeated applications of larval or adult control agents. Mosquito source reduction is generally accomplished through maintenance of circulation channels, allowing for tidal exchange which prevents the development of stagnant water areas where mosquitoes multiply, and facilitates access by predatory fish. Tidal exchange additionally improves habitat for numerous tidal marsh species. Federally listed species to be addressed in the biological assessment include endangered Ridgway's rail (*Rallus obsoletus*) and salt marsh harvest mouse (*Reithrodontomys raviventris*), California least tern (*Sterna antillarum browni*), western snowy plover (*Charadrius alexandrinus nervosus*), delta smelt (*Hypomesus transpacificus*), longfin smelt (*Spirinchus thaleichthys*), steelhead (*Oncorhynchus mykiss*), green sturgeon (*Acipenser medirastris*), California seablite (*Suaeda californica*), and soft bird's-beak (*Chloropylon molle* spp. *molle*). Critical habitat for these species will also be addressed in the biological assessment.

The biological assessment will be suitable for submittal to USACE to support consultation with the USFWS and NMFS, and submittal to the RWQCB and other regulatory agencies. ESA team members assigned to the project will include a terrestrial wildlife biologist and fisheries biologist, a botanical/wetland specialist, and a senior reviewer, all with extensive experience working in tidal marshes in the Bay Area. The sequence of tasks to compete the Biological Assessment Report is as follows:

Approach

Task 1 – Data Review

Because members of the present ESA project team wrote the 2015 IBE, we maintain a high level of familiarity with the habitats, species, source reduction activities, and conservation measures that will be included in the Biological Assessment.

ESA staff will review the 2015 Informal Biological Evaluation previously generated for mosquito source reduction activities by these six county vector control districts, and any subsequent biological assessment report or other documentation related to site conditions and mosquito reduction activities in tidal wetland areas. No reconnaissance surveys will be performed in support of this biological assessment.

The USFWS Information for Planning and Conservation, California Department of Fish and Wildlife California Natural Diversity Data Base, and NMFS databases will be reviewed to develop a list of threatened, endangered and candidate fish, wildlife, and plant species and critical habitat, that have been recorded or are likely to occur on or near the action area, and assess their current potential to occur. The action area for the biological assessment will consist of the action areas for each of the six counties. Additional information sources may include biological reporting from tidal wetland areas in the vicinity, scientific journal articles, and historic and current aerial photographs, as appropriate.

Task 2 - Biological Assessment Draft Report

On the basis of the above data, a draft report will be prepared, including a project description, describing all the methods to be used in mosquito source reduction activities. The draft project description, when complete, will be provided as an interim deliverable for review, to ensure that he proposed action meets vector control district needs, and also has sufficient detail to satisfy USFWS and NMFS information needs. The report will define the project action area based on GIS shapefiles provided by each district for each listed species, the report will describe the affected environment, species biology, current conditions for each species, presence of critical habitat, and effects of the proposed action, including direct, indirect, interrelated and interdependent, incidental and potential effects. The analysis will use the recently revised definition of "effects" in *50 CFR 402.02*, which must include the consequences of the proposed action. Conservation measures to reduce the effect of mosquito source reduction activities will be provided for each affected listed species in the report and an effects determination made for each species.

Deliverables: Draft Joint USFWS and NMFS Biological Assessment

Task 3 – Final Report Production

Following electronic submission of the draft report and review by the six county vector control districts, a first set of consolidated comments will be addressed. Our scope also includes an abbreviated second round of ESA revisions to resolve potentially conflicting comments on the first administrative draft that could stem from multiple districts reviewing the document. The biological assessment report will be revised and finalized in a form suitable for submission to regulatory agencies.

Deliverables: Final Joint USFWS and NMFS Biological Assessment

Task 4 – Project Management

We plan to provide responsive project management to meet the District's needs. This task will include as-needed client communications; telephone, video and e-mail communications; and coordination of the project team. We plan to have at least monthly check-ins with the client.

Task 5 – Agency Coordination and Revisions Based on Agency Comments

This task includes coordination with USFWS, NMFS, and/or USACE and/or incorporating revisions into the Biological Assessment based on their comments or concerns. As needed, this task allows for resource agency coordination and possible revisions to the Final Biological Assessment and/or responses to agency comments.

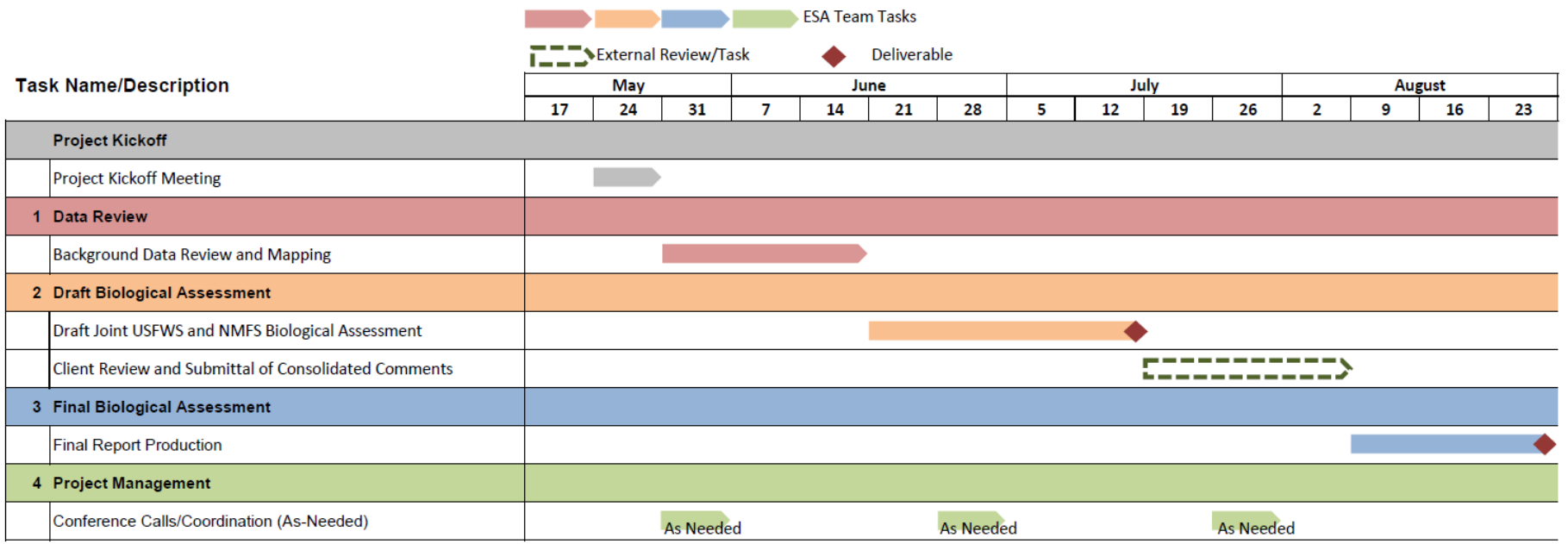
Schedule

Please see following page for **Figure 3-1**. ESA will initiate work promptly upon our receipt of a signed contract or Notice to Proceed.

Assumptions

- This Scope of Work does not include any biological surveys or jurisdictional delineation of any waterways or wetlands. Regulatory agency permitting (USACE, RWQCB, BCDC, CDFW) is not included.
- Alameda County Mosquito Abatement Dictrict will provide a draft project description to ESA that details the proposed action, describes equipment and crews, and provides a schedule for proposed activities. ESA can assist in preparing the project description.
- All necessary data and information needed for the analysis and requested from participating districts will be provided prior to ESA starting the draft report.
- ESA will be provided current digital data pertaining to the action area in acceptable format (georeferenced CAD or GIS) from each vector control district.
- One round of consolidated comments among the six county districts will be provided to ESA following submission of the administrative draft biological assessment.
- ESA will provide one (1) electronic copy (PDF) of the draft and final Biological Assessment Report.

Figure 3-1 Schedule



Section 4

References

Erik Hawk, Assistant Manager
Marin-Sonoma Mosquito Vector District
Ph: 707.285.2200
E: Erikh@msmosquito.org
Project(s): Marin-Sonoma Mosquito Vector District, (WWR) Informal Biological Evaluation for Mosquito Source Reduction Activities in Tidal Habitats of the San Francisco Bay Area

Jennifer Johnson, Principal Planner
Contra Costa Water District
Ph: 925.688.8202
E: jjohnson@ccwater.com
Project(s): Contra Costa Water District, Los Vaqueros Reservoir Expansion Project

Jeff Melby, Project Manager
California State Coastal Conservancy
Ph: 510.286.1015
E: jmelby@scc.ca.gov
Project(s): California State Coastal Conservancy, Bel Marin Keys Wetland Restoration

Dan Sicular, Principal
Sicular Environmental Consulting
Ph: 415.717.6328
E: dan@sicularconsulting.com
Project(s): County of Marin, Santa Venetia Timber Reinforced Berm; County of Sonoma, Roblar Road Quarry Project

Section 5

Cost Proposal

Table 5-1: Cost Proposal
ESA Labor Detail and Expense Summary

Employee Names			**Liza Ryan**								
			Garrett Leidy								
		Brian Pittman	**Stephanie Bishop**	**Stephanie Bishop (GIS)**	**Sharon Dulava**		**Publications**				
Labor Category		Director III	Senior Associate II	Senior Associate II	Associate III	*Subtotal*	Project Technician II	*Subtotal*	Total Hours	Labor Price	
Task #	**Task Name/Description**	**$ 240**	**$ 160**	**$ 160**	**$ 135**		**$ 100**				
1.0	Data Review	2	24		12	*$ 5,940*		*$ -*	38.00	$	5,940
2.0	Biological Assessment Draft Report	4	60	16	30	*$ 17,170*	1	*$ 100*	111.00	$	17,270
3.0	Final Report Preparation	4	32	8	12	*$ 8,980*	1	*$ 100*	57.00	$	9,080
4.0	Project Management	4	16			*$ 3,520*		*$ -*	20.00	$	3,520
5.0	Agency Coordination	2	24		8	*$ 5,400*		*$ -*	34.00	$	5,400
Total Hours		16	156	24	62	*258*	2	*2*	**260**		
Total Labor Costs		$ 3,840	$ 24,960	$ 3,840	$ 8,370	*$ 41,010*	$ 200	*$ 200*		**$**	**41,210**
Percent of Effort - Labor Hours Only		6.2%	60.0%	9.2%	23.8%	*99.2%*	0.8%	*0.8%*	100.0%		
Percent of Effort - Total Project Cost		9.3%	60.6%	9.3%	20.3%		0.5%				100.0%

ESA Labor Cost **$ 41,210**

PROJECT TOTAL **$ 41,210**

Environmental Science Associates & Subsidiaries
2021 Schedule of Fees

I. Personnel Category Rates

Charges will be made at the Category hourly rates set forth below for time spent on project management, consultation or meetings related to the project, field work, report preparation and review, travel time, etc. Time spent on projects in litigation, in depositions and providing expert testimony will be charged at the Category rate times 1.5.

Labor Category	Level I	Level II	Level III
Senior Director	265	280	300
Director	210	225	240
Managing Associate	175	190	205
Senior Associate	150	160	170
Associate	105	125	135
Project Technicians	85	100	120

(a) The range of rates shown for each staff category reflects ESA staff qualifications, expertise and experience levels. These rate ranges allow our project managers to assemble the best project teams to meet the unique project requirements and client expectations for each opportunity.

(b) From time to time, ESA retains outside professional and technical labor on a temporary basis to meet peak workload demands. Such contract labor may be charged at regular Employee Category rates.

(c) ESA reserves the right to revise the Personnel Category Rates annually to reflect changes in its operating costs.

II. ESA Expenses

A. Travel Expenses

1. Transportation
   a. Company vehicle – IRS mileage reimbursement rate
   b. Common carrier or car rental – actual multiplied by 1.15
2. Lodging, meals and related travel expenses – direct expenses multiplied by 1.15

B. Printing/Reproduction Rates

Item	Rate/Page	Sample Pricing
Black & White – 8.5 x 11	$0.10	
Black & White – 11 x 17	$0.20	
Color – 8.5 x 11	$0.40	
Color – 11 x 17	$0.70	
B&W – Plotter (Toner – ECO Quality)	$0.40/sf	24x36 B/W CAD drawing would cost $2.40 per sheet
B&W – Plotter (Toner – Presentation Quality)	$1.00/sf	24x36 B/W CAD drawing would cost $6.00 per sheet
Color – Plotter (Inkjet – ECO Quality)	$2.00/sf	24x36 Color Drawing would cost $12 per sheet
Color – Plotter (Inkjet – Presentation Quality)	$4.00/sf	24x36 Color Drawing would cost $24 per sheet
CD	$10.00	
Digital Photography	$20.00 (up to 50 images)	
All Other Items (including bindings and covers)	At cost plus 10%	

C. Equipment Rates

Item	Rate/Day	Rate/Week	Rate/Month
Project Specific Equipment:			
Vehicles – Standard size	$ 40[a]	$ 180	
Vehicles – 4x4 /Truck	85		
Vehicles – ATV	125		
Noise Meter	100		
Hydroacoustic Noise Monitoring Equipment	150		
Electrofisher	300	1,200	
Sample Pump	25		
Field Traps	40		
Digital Hypsometer (Nikon)	20		
Stilling Well / Coring Pipe (3 inch aluminum)	3/ft		
Backpack Sprayer	25		
Beach Seine	50		
Otter Trawl	100		
Wildlife Acoustics Bat Detector	125	400	
Wildlife Trail Camera	30	100	
Fiber Optic Endoscope	125	500	
Spot Light	30		
Spotting Scope	50	200	
Topographic Survey Equipment:			
Auto Level	40		
Total Station	200	600	
DJI Quad Drone	300	1,200	
RTK-GPS	300	1,200	
RTK-GPS Smartnet Subscription	50	200	
Trimble GPS	75	350	900
iPad/Android Tablet + 1m GNSS External Sensor (Trimble R1, Bad Elf)	75	350	900
iPad/Android Tablet only (includes Garmin Glo external sensor)	50	225	600
Laser Level	60		
Garmin GPS or equivalent	25		250

Item	Rate/Day	Rate/Week	Rate/Month
Hydrologic Data Collection, Water Current, Level and Wave Measurement Equipment:			
ISCO 2150 Area Velocity Flow Logger	$ 25	$ 100	$ 350
Logging Rain Gage	10	40	125
Marsh-McBirney Hand-Held Current Meter	50	200	
FloWav Surface Velocity Radar	50	200	
Logging Water Level - Pressure Transducer	10	30	100
Logging Barometric Pressure Logger	5	15	50
Well Probe / Water Level Meter	20	80	
Bottom-Mounted Tripod / Mooring	25	100	400
Handheld Suspended Sediment Sampler	20		250
Water Quality Equipment:			
Logging Turbidimeter/Water Level Recorder	$ 25	$ 100	$ 400
Logging Conductivity/Water Level Recorder	20	60	200
In-Situ Troll 9500 logging water quality multiprobe		200	800
Logging Temperature Probe	3	10	40
Hach Hand-Held Turbidimeter Recording Conductivity Meter w/Datalogger	50	200	
Refractometer	20	80	
YSI Hand-Held Salinity Meter or pH meter	30	120	
Hand-Held Conductivity/Dissolved Oxygen Probe (YSI 85)	40	160	
HOBO Salinity Gauge			125
Water Quality Sonde			800
YSI 650 with 6920 Multi Probe	180	500	1500
ISCO 6712 Portable Sampler w/ISCO 2105 Module	40	250	900
Sedimentation / Geotechnical Equipment:			
Peat Corer	$ 75	$ 300	
60lb Helly-Smith Bedload Sampler with Bridge Crane	175	700	
Suspended Sediment Sampler with Bridge Crane	75	300	
Guelph Permeameter	50	200	
Vibra-core	100	400	
Shear Strength Vane	50	200	
Auger (brass core @ $ 5/each)	20	80	
Boats:			
14' Aluminum Boats with 15 HP Outboard Motor	$ 100	$ 400	
Single or Double Person Canoe/Kayak	30	120	
20' Lowe Boat w/115 HP Outboard	300	1,500	
17' Boston Whaler w/ 90 HP Outboard	300	1,500	

[a] Actual project charges will be either the IRS mileage reimbursement rate or the daily rate, whichever is higher.

III. Other

The fees above do not include sales tax. Any applicable or potential sales tax will be charged when appropriate.

IV. Payment Terms

Unless otherwise agreed in writing, ESA will submit invoices on a monthly basis. Any unpaid balances shall draw interest at one and one half percent (1.5%) per month or the highest rate allowed by law, whichever is lower, commencing thirty (30) days after date of invoice. All invoices not contested in writing within fifteen (15) business days of receipt are deemed accepted by Client as true and accurate and Client thereafter waives any objection to Clients invoices, which are payable in full.

Slides for presentation to Board of Trustees on Sterile Insect Techniques by Eric Haas-Stapleton, PhD – ACMAD Laboratory Director

Sterile insects for mosquito control

Non-chemical component of Integrated Vector Management Program for controlling *Aedes aegypti* that spread dengue, chikungunya, yellow fever & Zika viruses

Non-biting sterile males mate with females but no new mosquitoes are produced (competition with fertile males)

Three sterile insect techniques (SIT) that can reduce abundance of biting mosquitoes

Eric Haas-Stapleton, PhD • ACMAD Lab Director

1

1 Irradiate male mosquitoes

Medfly and Mexfly - USDA APHIS

Jun 2, 2020 — APHIS-International Programs Action Programs Staff in breeding facilities for the **Medfly** and Mexfly. Flies are **irradiated** (ma

Field Competitiveness of *Aedes albopictus* (Diptera: Culicidae) Irradiated Males in Pilot Sterile Insect Technique Trials in Northern Italy

Romeo Bellini, Marco Carrieri, Fabrizio Balestrino, Arianna Puggioli, Marco Malfacini, Jeremy Bouyer

Journal of Medical Entomology, Volume 58, Issue 2, March 2021, Pages 807–813,

2

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Journal of Medical Entomology, Volume 58, Issue 2, March 2021, Pages 807–813,

3

2 *Wolbachia* bacteria infection

PLOS NEGLECTED TROPICAL DISEASES

Open Release of Male Mosquitoes Infected with a *Wolbachia* Biopesticide: Field Performance and Infection Containment

Successful establishment of *Wolbachia* in *Aedes* populations to suppress dengue transmission

4

2 *Wolbachia* bacteria infection

- Male mosquitoes naturally spread bacteria
- Multi-generation impact
- Reduced mosquito reproduction and virus growth
- EPA-registered non-GMO option
- Must separate male from females
- Identify / replace correct *Wolbachia* strain
- Commercial provider = recurring cost

5

3 Genetically modified

Successful suppression of a field mosquito population by sustained release of engineered male mosquitoes

The Guardian

Genetically modified mosquito larvae to be released in Florida Keys

Edward Helmore

Non-biting male mosquito larvae part of controversial program to curb spread of diseases such as dengue, Zika and yellow fever

6

3 Genetically modified

Female mosquitoes eliminated as immatures

EPA approved & monitored trial in Florida

Eggs-in-a-box simplifies adult release

Public hesitancy to GMO

Recurring cost

7

100,000's of male mosquitoes released regardless of SIT approach used

8

1 Irradiate male mosquitoes

2 *Wolbachia* bacteria infection

3 Genetically modified

9

Ryan Clausnitzer: MVCAC *ad hoc* SIT and Legislative Committees

Erika Castillo: MVCAC Regulatory Affairs and Drone Committees

Eric Haas-Stapleton: MVCAC Laboratory Technologies, Drone, and Vector Control Research Committees

10

Originally sent 4/26/21, updated on 5/5/21.

The Alameda County Mosquito Abatement District (ACMAD) is actively preparing for the arrival of invasive *Aedes* mosquitoes by evaluating all control strategies. Some novel mosquito control strategies include Sterile Insect Technique or SIT. SITs have been used to suppress insects for many years, including mosquitoes. There are many types of SITs being evaluated, but for simplicity, the District is looking at three technologies: irradiation, *Wolbachia,* and genetically modified.

Irradiating mosquitoes requires capital investments in specialized equipment and hiring additional personnel to rear and sterilize male mosquitoes for release. Mosquito populations decrease as females attempt to mate with these sterile males. There are no irradiation facilities in operation in California but many districts that have established invasive mosquitoes are considering this technique.

Wolbachia is a bacterium that infects some insects rendering them sterile and similar to irradiation, decreases the population over time. This technique requires a partnership with a private company that specialized in this process and was tested in the central valley of California.

The genetically modified mosquito technique modifies the male to carry a gene that passes to their offspring killing females in early larval stages, leading to decreased populations over time. This technology requires a partnership with a private company and is currently being tested in the Florida Keys with prior releases in South and Central America along with India.

A genetically modified mosquito technique, though the company Oxitec, recently applied for field testing in California under the name Friendly™ Mosquitoes. ACMAD was one of ten Districts in the state that expressed interest in this technique through an EPA authorization application that will soon be open for public comment. While ACMAD is an unlikely candidate for field testing as there are currently no invasive mosquitoes present, this application will allow the District to be eligible for using this technology in the future if the need should arise. ACMAD is dedicated to protecting public health using the best available scientifically proven Integrated Vector Management techniques.

Ryan Clausnitzer

General Manager

Alameda County Mosquito Abatement District

Alameda County Mosquito Abatement Dist.

Check Register

For the Period From Apr 1, 2021 to Apr 15, 2021

Filter Criteria includes: Report order is by Date.

Check #	Date	Payee	Amount
2620	4/13/21	Airgas	254.68
2621	4/13/21	Argo Adventure	339.33
2622	4/13/21	Campbell, Cornelius	190.00
2623	4/13/21	Cintas	364.65
2624	4/13/21	Coverall North America, Inc.	495.00
2625	4/13/21	Grainger	132.06
2626	4/13/21	Industrial Park Landscape Maintenance	226.00
2627	4/13/21	NRAAA Janitorial Services	300.00
2628	4/13/21	PG&E	522.76
2629	4/13/21	U.S Bank Corporate Payment System	13,778.97
2630	4/13/21	Voya Institutional Trust Company	178.51
2631	4/13/21	Yihong Gu	150.00
ACH	4/13/21	Alameda County Mosquito Abatement Dist (Payroll)	75,694.88
ACH	4/13/21	CalPERS Retirement	14,616.21
ACH	4/13/21	CalPERS 457	3,081.21
		Total Expenditures - April 15, 2021.	**110,324.26**

Alameda County Mosquito Abatement Dist.

Check Register

For the Period From Apr 16, 2021 to Apr 30, 2021

Filter Criteria includes: Report order is by Date.

Check #	Date	Payee	Amount
2632	4/28/21	Airgas	608.50
2633	4/28/21	Argo Adventure	162.87
2634	4/28/21	Bailey Fence Company, Inc.	345.00
2635	4/28/21	Bay Alarm	534.73
2636	4/28/21	California Department of Public Health	2,416.00
2637	4/28/21	Cintas	364.65
2638	4/28/21	Clarke	16,652.33
2639	4/28/21	Delta Dental	4,938.10
2640	4/28/21	D&H Painting	17,000.00
2641	4/28/21	Grainger	674.44
2642	4/28/21	Hentschke, Eric Armin	100.00
2643	4/28/21	KBA Docusys	472.45
2644	4/28/21	Mar-Len Supply, Inc.	393.78
2645	4/28/21	National CineMedia, LLC	7,975.00
2646	4/28/21	NBC Supply Corp	1,160.98
2647	4/28/21	PC Professional	80.00
2648	4/28/21	PFM Asset Management	1,721.36
2649	4/28/21	PG&E	96.04
2650	4/28/21	Pierce, Judith	170.06
2651	4/28/21	Schaeffer MFG.Co.	1,231.05
2652	4/28/21	The Hartford	80.55
2653	4/28/21	Verizon	890.93
2654	4/28/21	Voya Institutional Trust Company	178.51
2655	4/28/21	VSP	710.23
2656	4/28/21	Waste Management of Alameda County	356.74
2657	4/28/21	WEX Bank	3,861.28
2658	4/28/21	Young, George	100.00
ACH	4/28/21	Alameda County Mosquito Abatement Dist (Payroll)	77,899.56
ACH	4/28/21	Aguilar, Victor	100.00
ACH	4/28/21	Beatty, Robert .P	100.00
ACH	4/28/21	Bhat, Subrahmanya Y	100.00
ACH	4/28/21	CalPERS Health	37,541.57
ACH	4/28/21	CalPERS Retirement	14,616.21
ACH	4/28/21	CalPERS 457	3,081.21
ACH	4/28/21	Cooley, Elizabeth	100.00
ACH	4/28/21	Cox, Steven	100.00
ACH	4/28/21	Jordan, Preston	100.00
ACH	4/28/21	Kumagai, Shawn	100.00
ACH	4/28/21	Marquez, Elisa	100.00
ACH	4/28/21	Mingst, Andrew	100.00
ACH	4/28/21	Poulson, Wendi Lynn	100.00
ACH	4/28/21	Roache, Cathy J Pinkerton.	100.00
ACH	4/28/21	Washburn, Jan	100.00
		Total Expenditures - April 30, 2021.	**197,614.13**

Alameda County Mosquito Abatement District
Income Statement
April 30, 2021. (10 of 12 mth, 83%)

REVENUES	Actual 2018/19	Actual 2019/20 [1]	Current Month	Year to Date 2020/21	Budget 2020/21	Actual vs Budget
Total Revenue	**$ 4,922,549.00**	**$ 4,986,220.87**	**$ 1,978,169.84**	**$ 4,916,252.32**	**$ 4,346,513.00**	113%

EXPENDITURES	Actual 2018/19	Actual 2019/20 [1]	Current Month [2]	Year to Date 2020/21	Budget 2020/21	Actual vs Budget
Salaries	**$ 1,894,209.00**	**$ 1,980,518.00**	**$ 169,820.23**	**$ 1,683,501.19**	$2,116,177	80%
CalPERS Retirement	**$ 310,838.00**	**$ 378,833.00**	**$ 17,267.18**	**$ 388,966.42**	$423,350	92%
Medicare	**$ 25,149.00**	**$ 29,651.00**	**$ 2,258.89**	**$ 22,559.48**	$31,278	72%
Fringe Benefits	**$ 452,960.00**	**$ 465,466.00**	**$ 43,270.45**	**$ 420,397.44**	$527,031	80%
Total Salaries, Retirement, & Benefits	**$ 2,683,156.00**	**$ 2,854,468.00**	**$232,617**	**$2,515,425**	**$3,097,836**	**81%**
Clothing and personal supplies (purchased)	**$ 8,899.00**	**$ 6,214.00**	**$ 535.61**	**$ 3,214.71**	$10,000	32%
Laundry service and supplies (rented)	**$ 12,603.00**	**$ 10,648.00**	**$ 729.30**	**$ 7,476.33**	$15,000	50%
Utilities	**$ 30,161.00**	**$ 25,962.00**	**$ 907.62**	**$ 13,992.27**	$12,000	117%
Communications-IT	**$ 108,868.00**	**$ 83,135.00**	**$ 5,465.57**	**$ 51,919.93**	$111,400	47%
Maintenance: structures & improvements	**$ 13,673.00**	**$ 16,679.00**	**$ 733.28**	**$ 16,162.41**	$25,000	65%
Maintenance of equipment	**$ 43,629.00**	**$ 20,600.00**	**$ 3,637.64**	**$ 17,571.99**	$35,000	50%
Transportation, travel, training, & board	**$ 98,433.00**	**$ 95,814.00**	**$ 8,839.27**	**$ 58,176.49**	$122,400	48%
Professional services	**$ 115,324.00**	**$ 112,887.00**	**$ 1,721.36**	**$ 76,080.08**	$176,200	43%
Memberships, dues, & subscriptions	**$ 20,774.00**	**$ 26,317.00**	**$ 100.00**	**$ 18,913.95**	$23,337	81%
Insurance - (VCJPA, UAS)	**$ 124,688.00**	**$ 134,834.00**	**$ -**	**$ 141,405.21**	$137,524	103%
Community education	**$ 34,861.00**	**$ 22,734.00**	**$ 8,153.54**	**$ 14,783.62**	$38,575	38%
Operations	**$ 206,731.00**	**$ 179,659.00**	**$ 18,038.37**	**$ 109,027.83**	$241,000	45%
Household expenses	**$ 18,655.00**	**$ 14,817.00**	**$ 1,350.48**	**$ 12,301.02**	$16,750	73%
Office expenses	**$ 11,796.00**	**$ 13,761.00**	**$ 1,639.99**	**$ 5,972.65**	$12,000	50%
Laboratory supplies	**$ 95,640.00**	**$ 100,878.00**	**$ 4,351.57**	**$ 46,588.37**	$139,000	34%
Small tools and instruments	**$ 2,211.00**	**$ 2,056.00**	**$ 1,152.53**	**$ 2,180.98**	$3,000	73%
Total Staff Budget	**$ 946,946.00**	**$ 866,995.00**	**$ 57,356.13**	**$ 595,767.84**	**$1,118,186**	**53%**
Total Operating Expenditures	**$ 3,630,102.00**	**$ 3,721,463.00**	**$ 289,972.88**	**$ 3,111,192.37**	**$4,216,022**	**74%**

Total Expenditures
1 - As of June 30, 2020.
2 - Total Operating Expenditures in current month may not match the check register due to accounts receivables and petty cash transactions.

Alameda County Mosquito Abatement District
Investment, Reserves, and Cash Balance Report
April 30, 2021. (10 of 12 mth, 83%)

Account #	Investment Accounts	Beginning Balance	Deposits	Withdrawls	Interest Activity	Ending Balance
1004	LAIF	$ 3,029,655.96	$ -	$ (291,000.00)	$ 2,377.97	$ 2,741,033.93
1005	OPEB Fund	$ 5,036,169.15	$ -	$ -	$ 147,620.66	$ 5,183,789.81
1006	VCJPA Member Contingency	$ 376,428.00	$ -	$ -	$ -	$ 376,428.00
1008	CAMP: Repair and Replace	$ 1,040,847.39	$ -	$ -	$ 47.18	$ 1,040,894.57
1009	CAMP: Public Health Emergency	$ 526,151.03	$ -	$ -	$ 23.85	$ 526,174.88
1010	CAMP: Operating Reserve	$ 1,944,072.83	$ -	$ -	$ 88.13	$ 1,944,160.96
1011	CAMP: Capital Reserve Fund [1]	$ 59,099.38	$ -	$ (17,000.00)	$ 2.65	$ 42,102.03
1012	PARS: Pension Stabilization [2]	$ 1,786,137.17	$ -	$ -	$ 683.61	$ 1,786,820.78
	Total	**$ 13,798,560.91**	**$ -**	**$ (308,000.00)**	**$ 150,844.05**	**$ 13,641,404.96**

	Cash Accounts	Beginning Balance	Withdrawls	Activity	Ending Balance
1001	Bank of America (Payroll Account) *	$ 105,287.32	-	-	$ 108,846.98
1002	Bank of The West (Transfer Account) * [1]	$ 244,498.81	-	-	$ 263,637.18
1003	County Account	$ 190,817.60	$ -	$ 1,977,899.26	$ 2,168,716.86
1013	Petty Cash	$ 405.78	$ -	$ -	$ 405.78
	Total	**$ 541,009.51**	**$ -**	**$ 1,977,899.26**	**$ 2,541,606.80**

1 - $17,000.00 transferred from CAMP: Capital Reserve Fund to Bank of the West for painting project.
2 -PARS - Pension Stabilization balance is as of March 31, 2021.
* - Ending balance differs from beginning balance due to checks clearing the account.

Alameda County Mosquito Abatement
Balance Sheet Comparison
April

ASSETS	4/30/2021	4/30/2020	4/30/2019	Explanation
Current Assets				
Cash	$ -	-	-	
Bank of America payroll	105,962.97	108,270.63	116,869.03	Current book balance, different from the ending balance shown on bank statement, due to outstanding deposits (will not match IRC page).
Bank of the West	317,327.55	392,879.92	306,253.58	" "
County	2,168,716.86	2,085,143.67	1,934,761.19	Current balance in County account.
Cash with LAIF	2,741,033.93	1,305,188.85	1,755,235.90	Current balance in LAIF (working capital) account.
VCJPA - Property Contingency	-	-	52,025.00	
VCJPA- Member Contingency	376,428.00	369,337.00	348,346.00	Reserve ammount with VCJPA (updated quarterly)
CAMP - Repair and Replace	1,040,894.57	975,548.35	462,093.48	Reserve committed to repair or replace capital assets.
CAMP - Public Health Emergency	526,174.88	524,889.95	514,618.54	Reserve committed for public health emergencies.
CAMP - Operating Reserve	1,944,160.96	1,939,413.28	1,901,461.47	Reserve committed as an emergency rainy-day fund (= to 60% of current year expenses)
CAMP - Capital Reserve Fund	42,102.03	131,167.57	230,365.26	Reserve for current year capital assets or non-capital facilitiy maintance
PARS	1,786,820.78	1,564,393.87	1,046,919.42	PARS is no longer being reported stand-alone on the balance sheet, would only be reported on the balance sheet if it was a liability to the district.
Petty cash	405.78	240.98	365.88	To reimburse employees - under $50
Total Current Assets	**11,050,028.31**	**9,396,474.07**	**8,669,314.75**	
Property and Equipment				
Acc Dep - equipment	(1,479,068.00)	(1,285,336.98)	(1,306,030.50)	Accumulated depreciation expense from date of purchase through current useful life, which reduces assets book values
Acc Dep - stru & improv	(2,485,267.00)	(2,349,631.01)	(2,316,874.89)	" "
Acc Dep - conts in progress	-	-	-	" "
Construction in progress	17,000.00	602,327.16	260,539.80	Accucumlated cost of a project yet to be completed.
Equipment	1,751,859.00	1,699,506.64	1,619,670.10	Original cost of depreciable equipment item.
Structure/improvement	4,760,618.00	4,638,621.62	4,529,022.67	Original cost of depreciable structure/ improvement item.
Land	61,406.00	61,406.00	61,406.00	Original purchase price of owned land; will not change.
Total Property and Equipment	2,626,548.00	3,366,893.43	2,847,733.18	
Other Assets				
Net OPEB Asset	1,823,556.00	690,338.00	716,666.00	Amount reported on actuary report. Pre-paid amount (overfunded), still considered an asset to the district. The amount has not changed because we have not withdrawn or added to account in the current year.
Total Other Assets	1,823,556.00	690,338.00	716,666.00	
Total Assets	**$ 15,500,132.31**	**$ 13,453,705.50**	**$ 12,233,713.93**	
LIABILITIES AND CAPITAL				
Current Liabilities				
Accounts payable	$ 99,129.10	$ 133,128.24	$ 84,369.59	Invoices due but yet to be paid.
AP Credit Card	-	-	25,602.28	Current credit card purchases, no longer shows up on balance sheet due to credit card clearing out when credit card statement is paid.
Acc payroll/vacation	200,290.26	187,668.43	167,855.50	District's debt from employees' unused vacation time.
Def inflow - 75	931,786.00	49,810.00	41,760.00	Other post employment benefit cost. Projected but yet to be incurred. Actuary is suggesting what is going to happen but hasn't happened yet.
Def inflow pen defer GASB 68	289,664.00	192,480.00	809,861.00	Pension benefit cost projected but yet to be incurred. Actuary is suggesting what is going to happen but hasn't happened yet.
Defer outflow pen cont GASB 68	(1,056,534.00)	(1,208,279.00)	(818,392.00)	Payments into pension incurred but yet to be posted against the outstanding liability at a given point of time.
Net pension liability GASB 68	3,277,554.00	2,952,714.00	2,642,666.00	Unfunded pension accrued liability as estimated by an actuary as of a given point of time.
Total Current Liabilities	3,741,889.36	$ 2,307,521.67	$ 2,953,722.37	
Long-Term Liabilities				
Total Long-Term Liabilities				
Total Liabilities	**3,741,889.36**	**2,307,521.67**	**2,953,722.37**	
Capital				
Designated fund balances	4,440,610.19	4,763,137.19	4,100,295.19	Board approved reserves for designated purposes.
Investment in general fixed as	5,296,151.61	4,637,374.11	3,641,667.79	Value of fixed assets left any acculumlated depreciation and or debt.
Net Income	2,022,034.09	1,745,672.53	1,538,028.58	Net Income = Gross Income - Expenses
Total Capital	11,758,242.95	11,146,183.83	9,279,991.56	Sum of designated fund balances, investment in general fixed assets and net income.
Total Liabilities & Capital	**$ 15,500,132.31**	**$ 13,453,705.50**	**$ 12,233,713.93**	

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MONTHLY STAFF REPORT –1090

1. OPERATIONS REPORT

In April, operations staff spent most of their time inspecting and treating sources for larval *Culex tarsalis, Culex pipiens,* and *Culex erythrothorax.* These three species are our main concern for potential West Nile virus (WNV) transmission in Alameda County. Many of the larger sources for two of these species have dried down significantly due to low rainfall totals and with the onset of warmer temperatures. However, many sources will continue to provide breeding habitat for these species for months to come. Operations staff focused on freshwater marshes, catch basins, storm drains, canals, unmaintained swimming pools, sewer plants, flower containers in cemeteries, and pockets of standing water along creek courses. Many of these sources will need continued inspections and treatments until the rainy season begins. Several dead birds have already been collected this season and have been tested by the ACMAD lab. To date, no WNV positive birds or mosquito samples have tested positive in our county. Next month, the first flights for ACMAD's annual aerial pool survey will be conducted. This program has proven to be very useful for detecting green/unmaintained swimming pools. These unmaintained pools can produce very significant numbers of several species of mosquitoes if left untreated or not chlorinated and operating. This includes at least two species of concern for WNV transmission. Operations staff have already begun inspecting and treating pools with past histories of being unmaintained in efforts to get as much early control as possible.

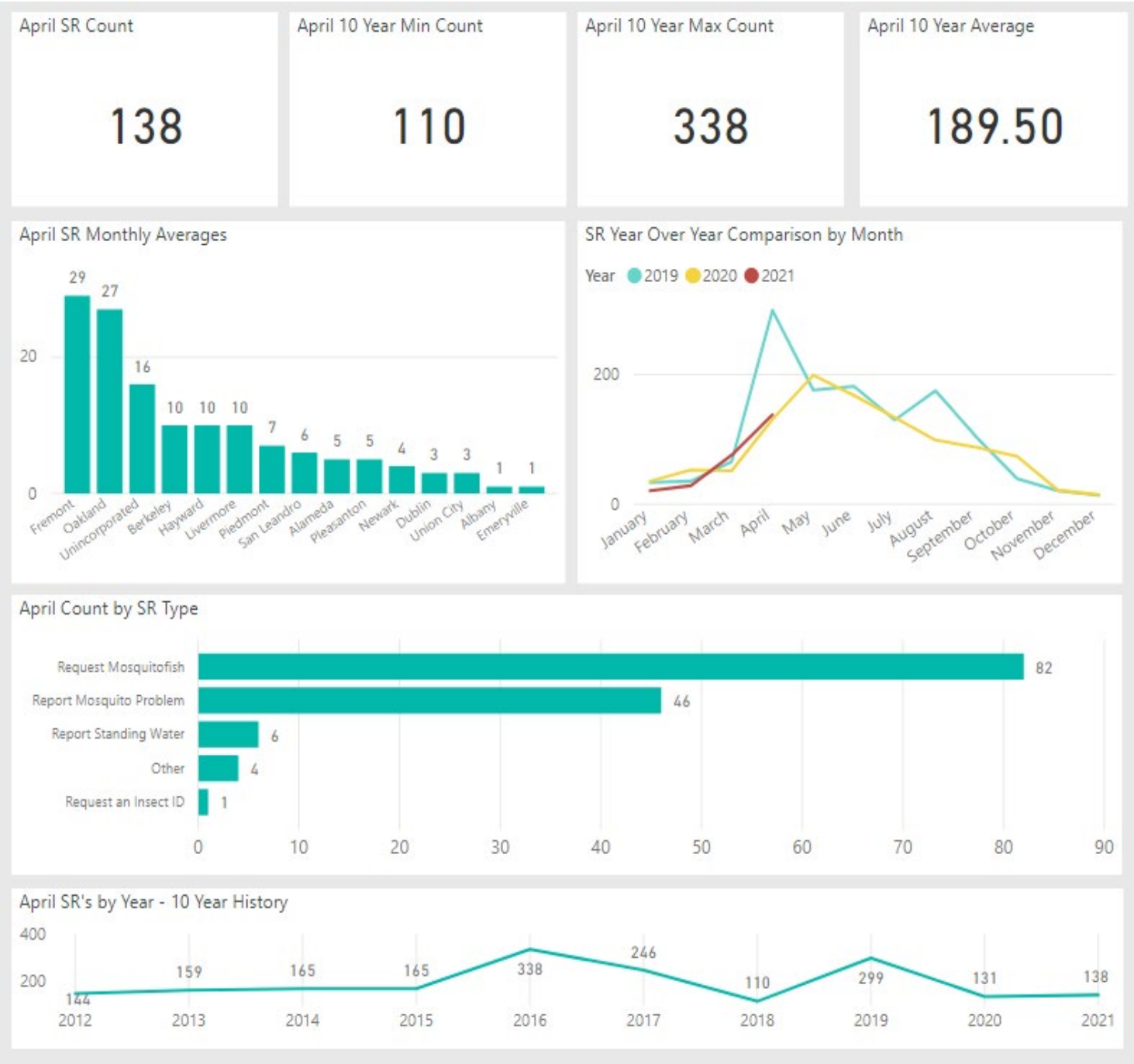
April also saw the first significant high tide event hatching large numbers of eggs of *Aedes dorsalis* for this year. Operations staff conducted inspections and treatments for this species in tidal marsh sources along the bay margins of the county in Albany, Alameda, San Leandro, San Lorenzo, Union City, Newark, and Fremont. As it was last season, the District's A-1 Super Duty Mist Blower proved to be invaluable in treating large areas of tidal marsh at the southern end of the county. Two-hundred acres were treated with this piece of equipment in tidal marshes in Newark and Fremont. These A-1 treatments were conducted in sources where our only other current option is to treat by hand. The A-1 has afforded operations the ability to treat significantly more acreage in these areas than was ever possible by hand. Once *Ae. dorsalis* eggs are hatched by high tides, there is a very limited window of less than a week to treat the larvae before they emerge as adults.

Service requests received from the public were below the ten-year average for April. Well over half of the requests received were requests for mosquito fish for back yard ponds, unmaintained swimming pools, and for livestock watering troughs. During request for service inspections, operations staff determined that half of the requests for "mosquito biting complaints" were attributable to various "mosquito-like" insects such as crane flies, midges, and fungus gnats rather than related to mosquitoes. These three groups of insects are in the insect order Diptera, as are mosquitoes, but do not bite or transmit human disease in our region. To the layperson, all three *do* resemble mosquitoes in some respects. All three of these "mosquito-like" insects will remain active in the environment for many months to come. Operations staff make concerted efforts to explain these insects and their biology/life cycles to callers and utilize these requests for service to educate the public as well as to inspect for potential mosquito sources while on-site. Of the remaining calls that were attributable to mosquitoes, the majority implicated *Culiseta incidens* as the species instigating the call. Larvae of this species were found in the yards or adjacent yards of the callers. Two calls were attributed to *Aedes sierrensis* and two to *Cx. Pipiens*

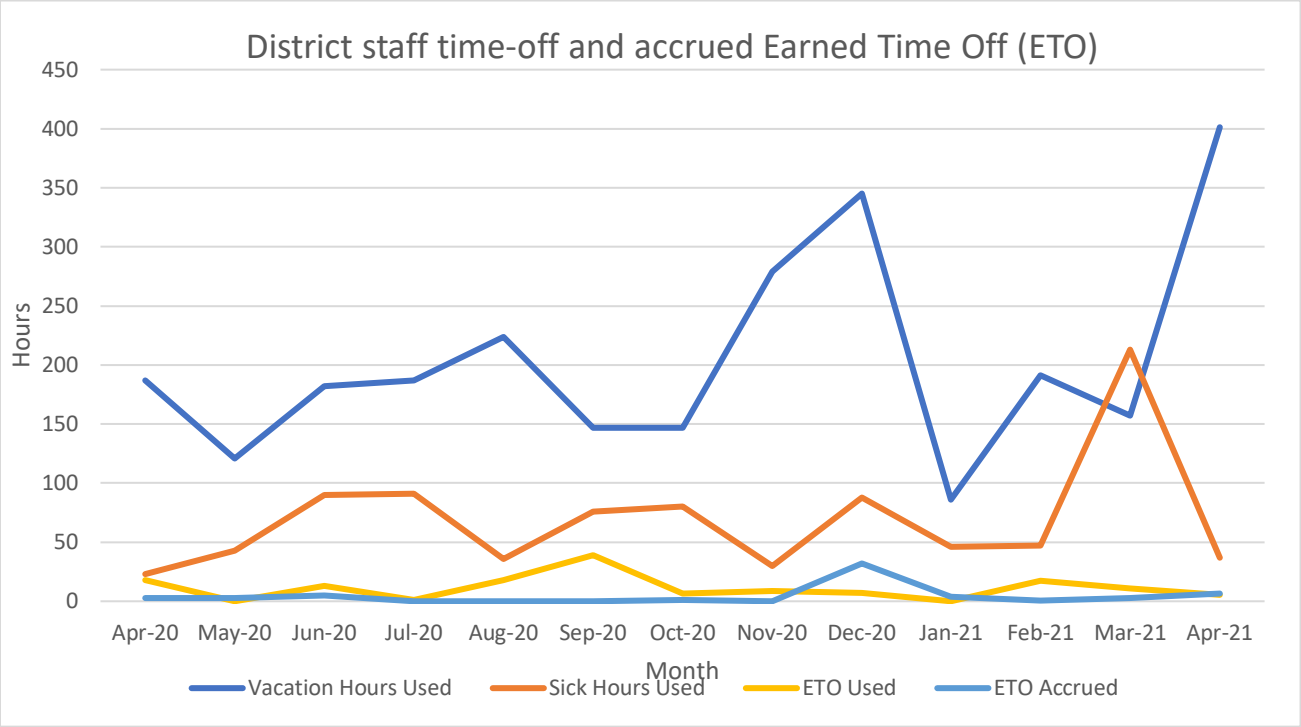
Field Operations Supervisor
Joseph Huston

A. District Data

1. April Service Requests

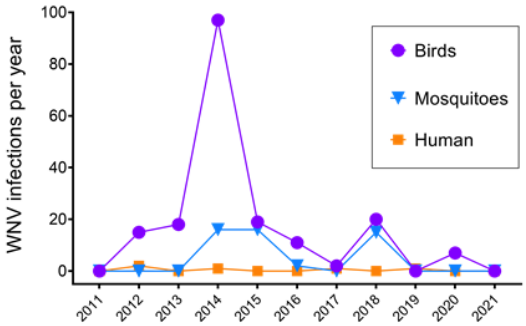


2. Activity Report

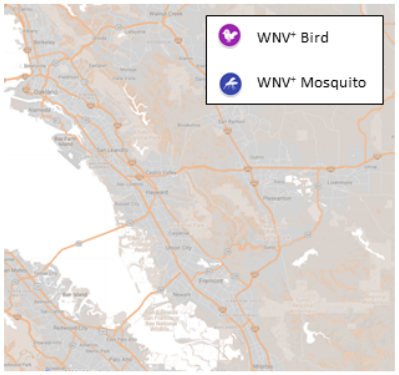


3. WNV Activity

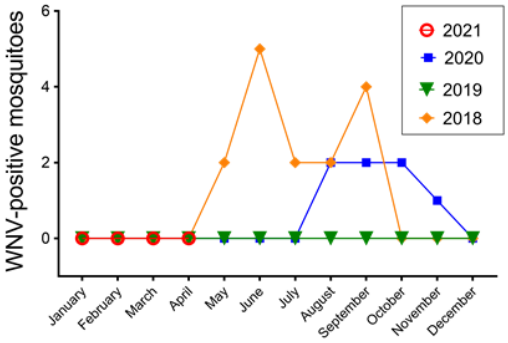
WNV infections detected in Alameda County 2011 – 2021



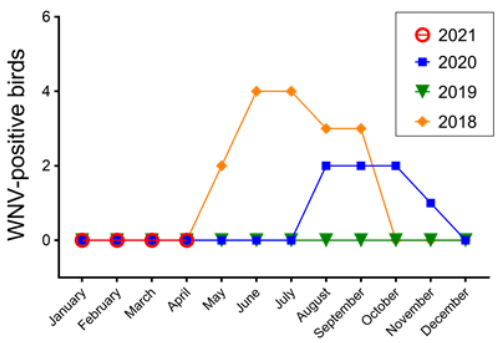
Locations of WNV-infected mosquitoes and birds collected in Alameda County during 2021



WNV-infected birds collected in Alameda County



WNV-infected mosquitoes collected in Alameda County



2. LAB

Summary

- *Arboviruses.* West Nile virus (WNV) was not detected in birds or mosquitoes during April 2021. Saint Louis encephalitis virus (SLEV) and Western equine encephalitis virus (WEEV) was not detected in Alameda County during the prior 5 years.
- *Native mosquitoes.* CO_2-baited encephalitis virus survey (EVS) traps collected 1.5-fold more mosquitoes during April 2021 relative to the prior month (168 nights with mosquitoes collected in trap). New Jersey Light Traps (NJLT) captured 1.8-fold fewer mosquitoes during April compared to the prior month (N = 24 trap collections).
- *Invasive mosquitoes.* Invasive *Aedes* mosquitoes were not detected in Alameda County during 2021.

Arbovirus Monitoring

- WNV was not detected in birds collected in Alameda County during April 2021. WNV was last detected in the county during November 2020 in an American crow.
- None of the mosquitoes that were collected during 2021 contained WNV, SLEV, or WEEV. WNV was last detected in mosquitoes during 2018. SLEV and WEEV have not been detected in the County for over a decade.

Native Mosquito Abundance

- Over the course of 198 trap nights, a total of 2,257 mosquitoes were captured in EVS traps. There were on average 11.4 mosquitoes captured per trap night during March 2021. For the prior month, there were 7.4 mosquitoes captured per trap night (a 1.5-fold increase; Figure 1). *Culex tarsalis*, a WNV vector, was the most common species collected in the EVS traps during April 2021, representing 33% of the mosquitoes that were collected (Figure 2). The second most common species collected in EVS traps was *Aedes washioni* (31% of the total; Figure 1 and Figure 2).
- Increased number of EVS traps were placed throughout the county during April due to the efforts of one additional full-time staff that is temporarily assigned to the lab (Figure 3A). Low mosquito abundance was observed in Albany and Berkeley (Figure 3B). Abundance was moderately higher in Emeryville at the waste water treatment facility. Fortunately, mosquitoes were uncommon in traps placed in the area immediately surrounding that facility (Figure 1A insert and Figure 1B), suggesting that mosquitoes did not enter the neighboring communities. The greatest number of mosquitoes were captured in the Union City area as there is substantial marsh habitat in the region that can support mosquito growth (Figure 3C; e.g., Coyote Hills Regional Park). The most abundant species in that region were *Ae. washioni* and *Cx. tarsalis*, which are common in marsh habitats (Figure 3C). Although extensive trapping efforts were made in Livermore and Dublin, relatively few mosquitoes were captured in EVS traps (Figure 3D). 72 EVS traps that were placed did not capture any mosquitoes (Figure 1A insert).

- Mosquito abundance for April, as measured using NJLT, was 1.8-fold lower relative to the prior month (1.3 mosquitoes / trap night; total of 212 mosquitoes over 168 trap nights during April). *Aedes washioni*, which is not a WNV vector but is an aggressive nuisance biter, was most abundant species collected in NJLT (Figure 4). The greatest number of mosquitoes were collected in the Coyote Hills Regional Park NJLT (n = 112; Figure 5).

FIGURES

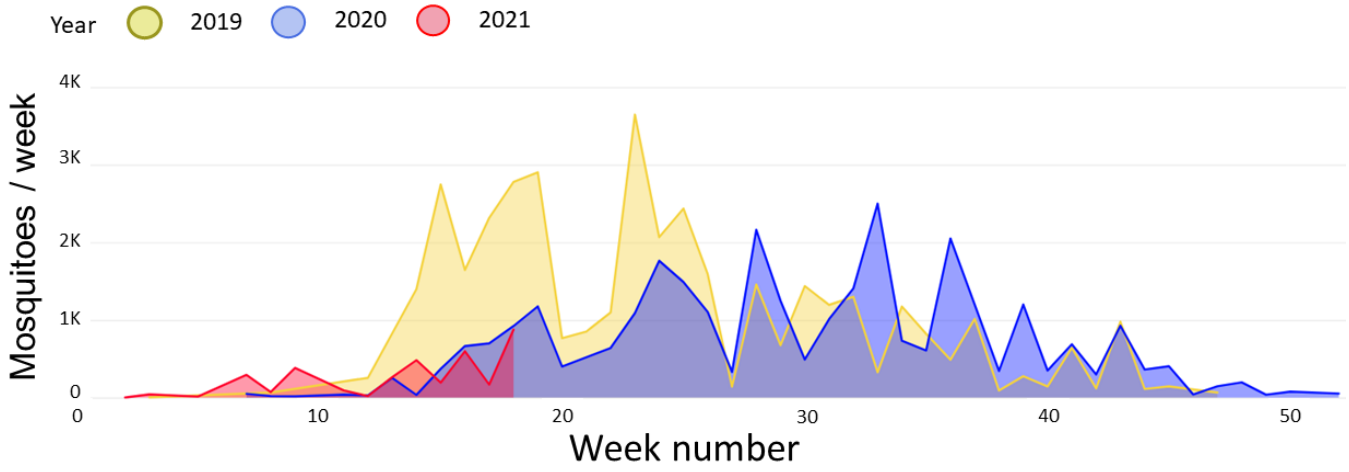


Figure 1. Mosquitoes captured in EVS CO_2 traps from 2019 – 2021. A total of 2,257 mosquitoes were captured in EVS CO_2 traps during April 2021 and identified to species.

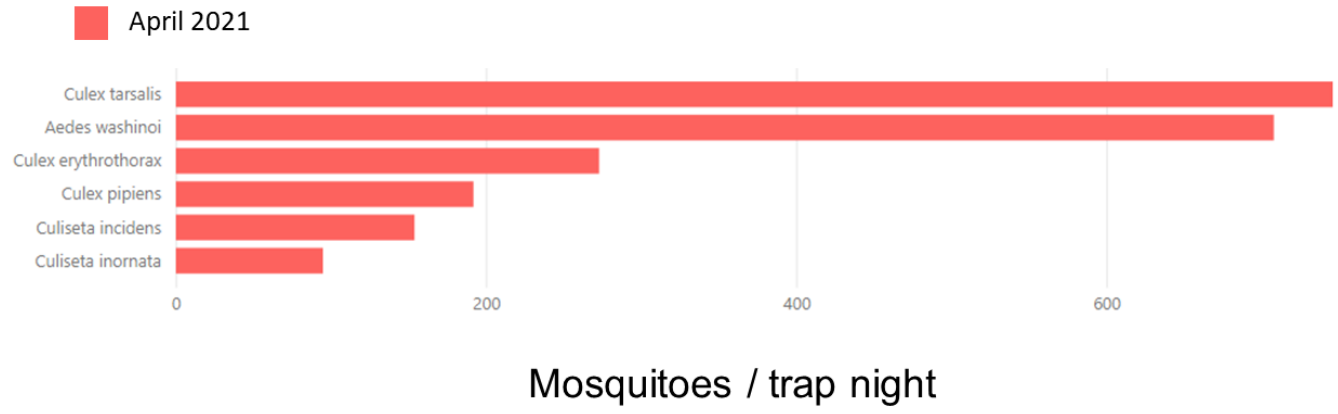
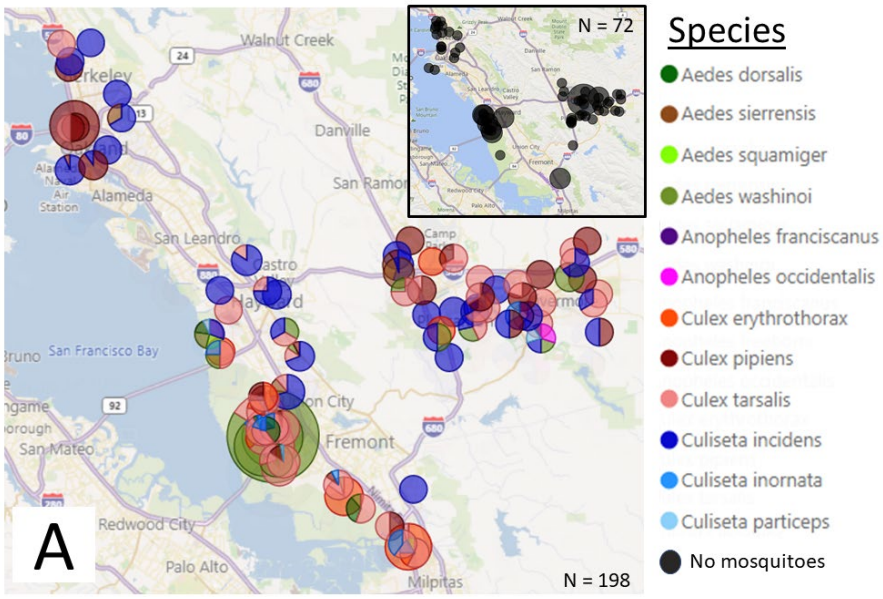


Figure 2. The most abundant species of mosquito captured using EVS CO_2 traps.



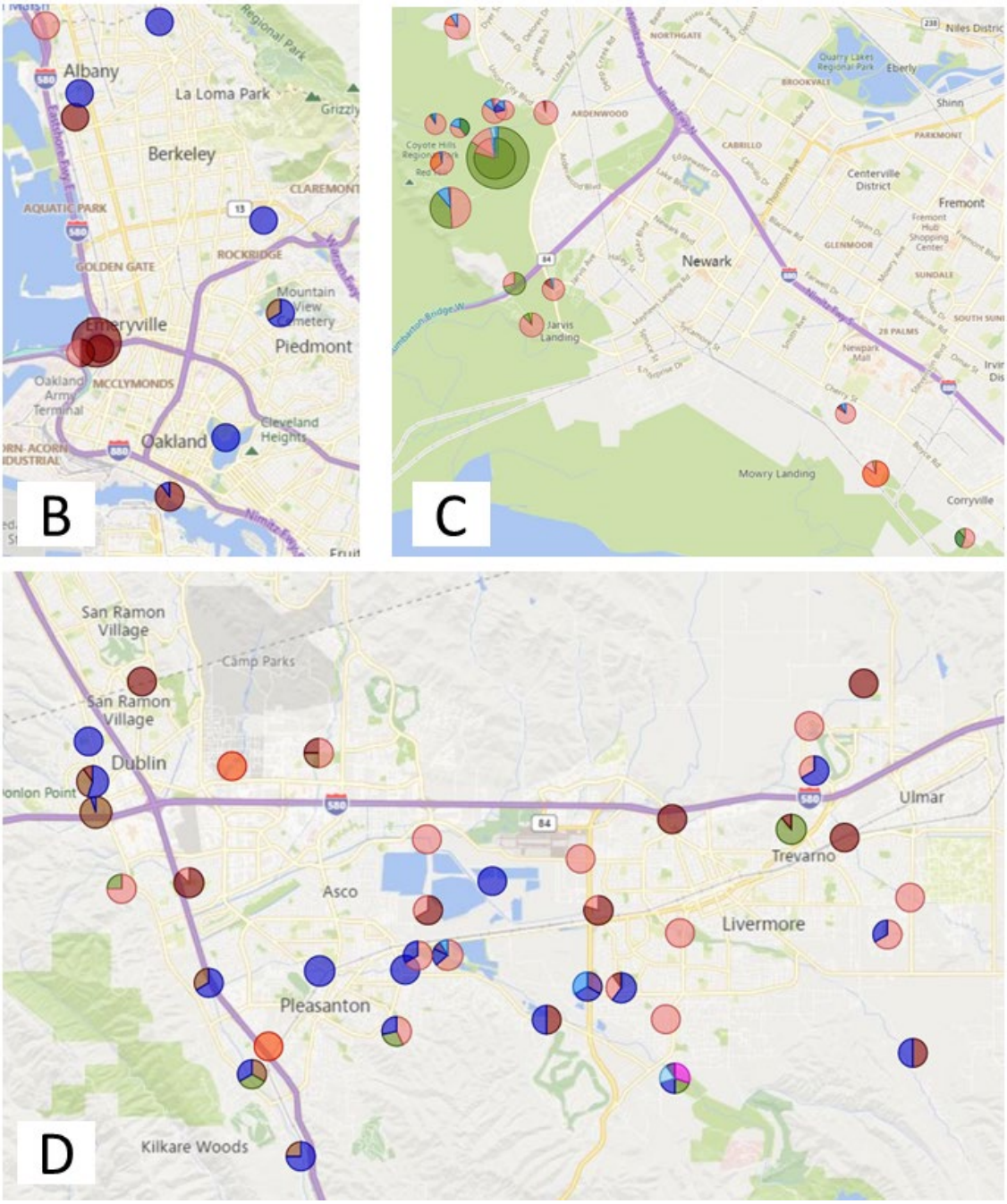


Figure 3. Mosquito abundance by trap site evaluated using EVS CO_2 traps. Pie charts over trap sites indicate the distribution of mosquito species collected at the trap site. The size of the pie charts indicates the relative number of mosquitoes at each site during April 2021. (A) Alameda County. The insert shows traps that were placed but did not collect mosquitoes. (B) North Alameda County with low mosquito abundance. (C) Western Union City and Newark. The largest pie chart in the bayside region of Union City represents 328 *Aedes washioni*, 47 *Cx. tarsalis*, and 12 other mosquito species. (D) East Alameda County where mosquito abundance was low.

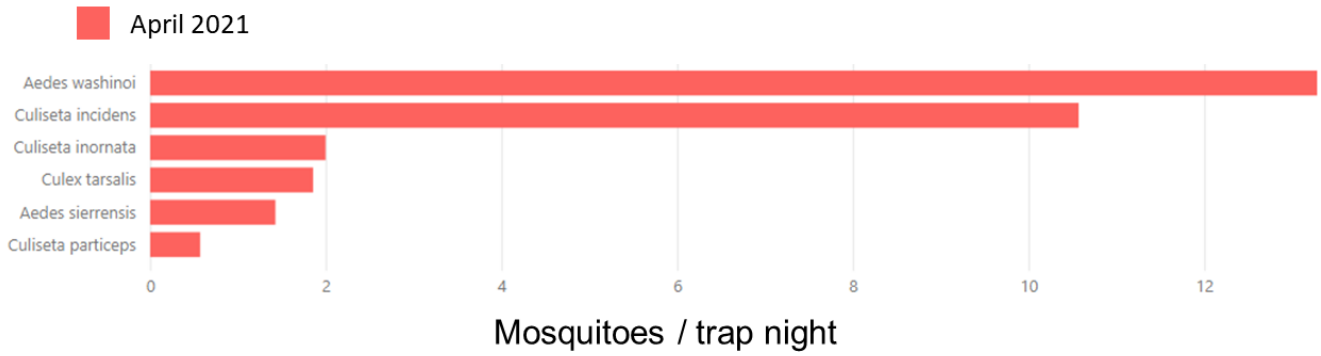


Figure 4. The most abundant species of mosquito captured in NJLT. A total of 212 mosquitoes were captured in NJLT.

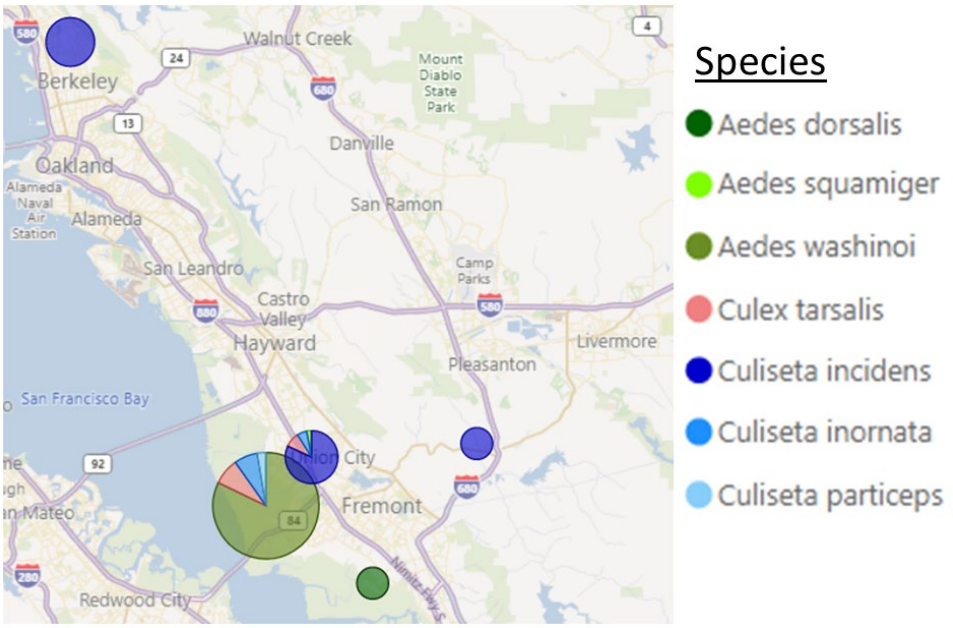


Figure 5. Geographic distribution of mosquito abundance in Alameda County evaluated using NJLT. Pie charts over trap sites indicate the distribution of mosquito species collected at the trap site. The largest pie chart in west Union City represents 112 adult mosquitoes.

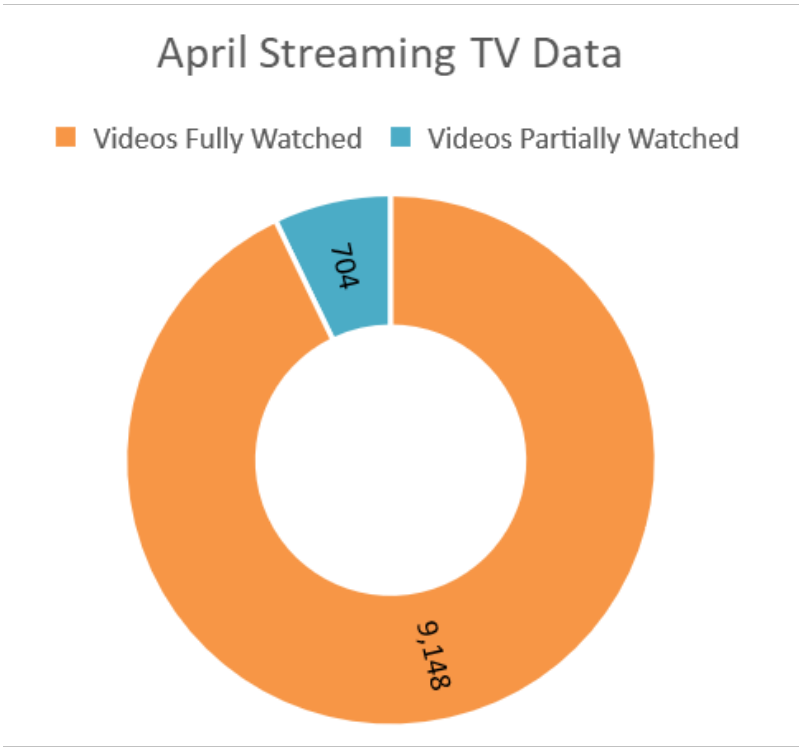
3. PUBLIC EDUCATION

A. Paid Advertisements

The spring/summer advertisement campaign through National CineMedia kicked off on 4/18 (the beginning of CA Mosquito Awareness Week) and will run till 7/31.

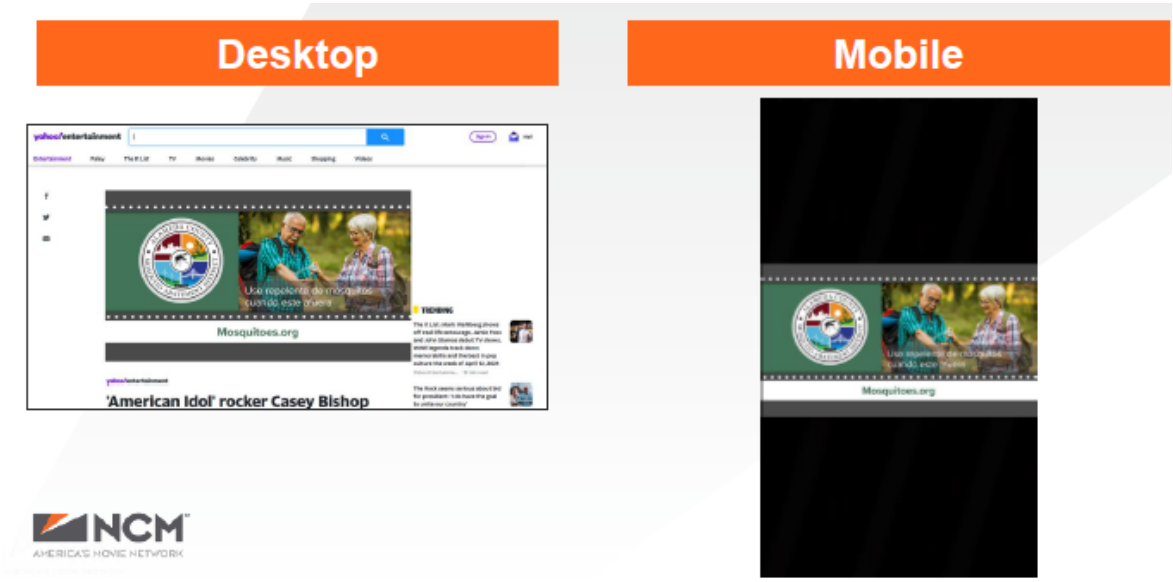
i. Streaming TV

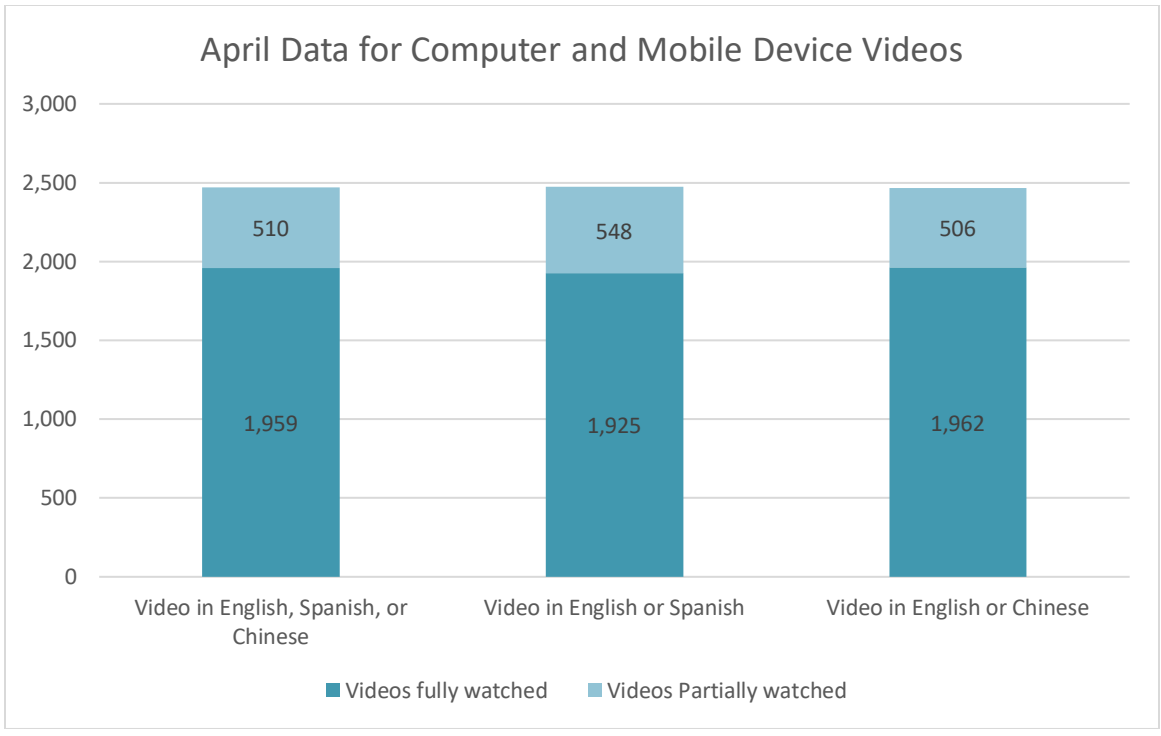
A 30 second English video ad is running in all Alameda County zip codes. The video may air in the following streaming TV programming.



ii. Computer and Mobile Device Videos

Three 15 second videos are running in English (20 zip codes), Spanish (20 zip codes), and Mandarin/Simplified Chinese (6 zip codes) in select areas throughout Alameda County.





iii. Coinstar Machines

A 15 second silent video is running in 9 locations at grocery stores in Alameda County. Locations were chosen based on ethnic diversity of the surrounding community in the available locations.

Figure 1. Coinstar machine at Pak N Save on Floresta Blvd. in San Leandro

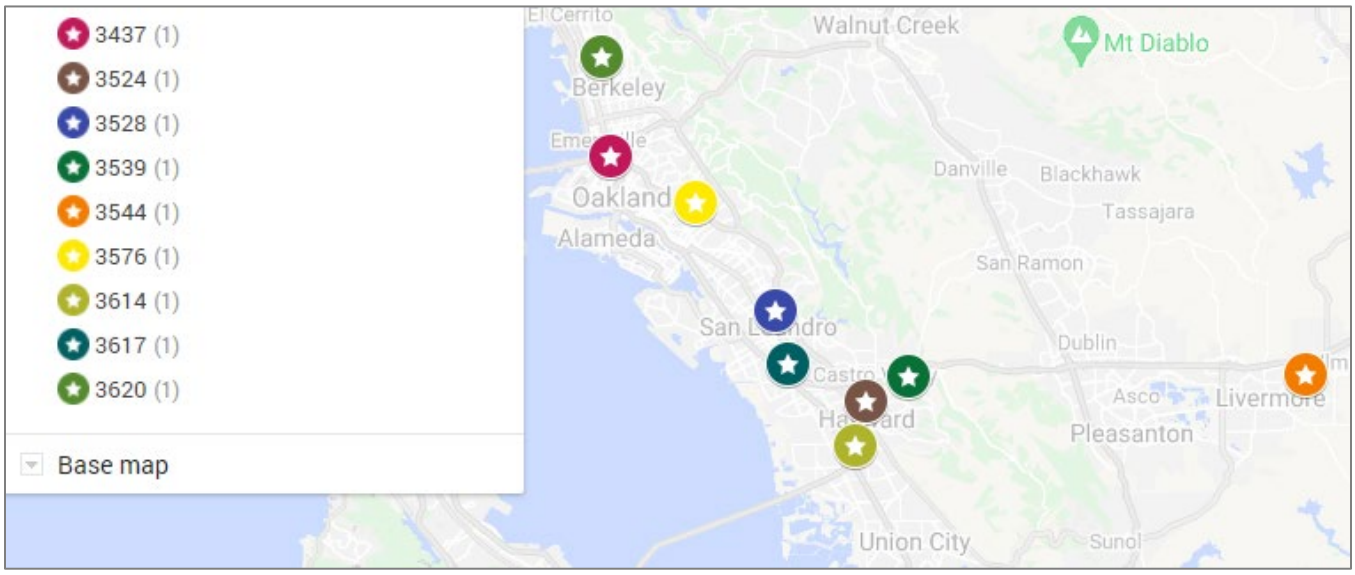


Figure 2. Map of Coinstar machines running ACMAD ads. Legend shows the number of ads shown at each location during the month of April.

B. Google Analytics

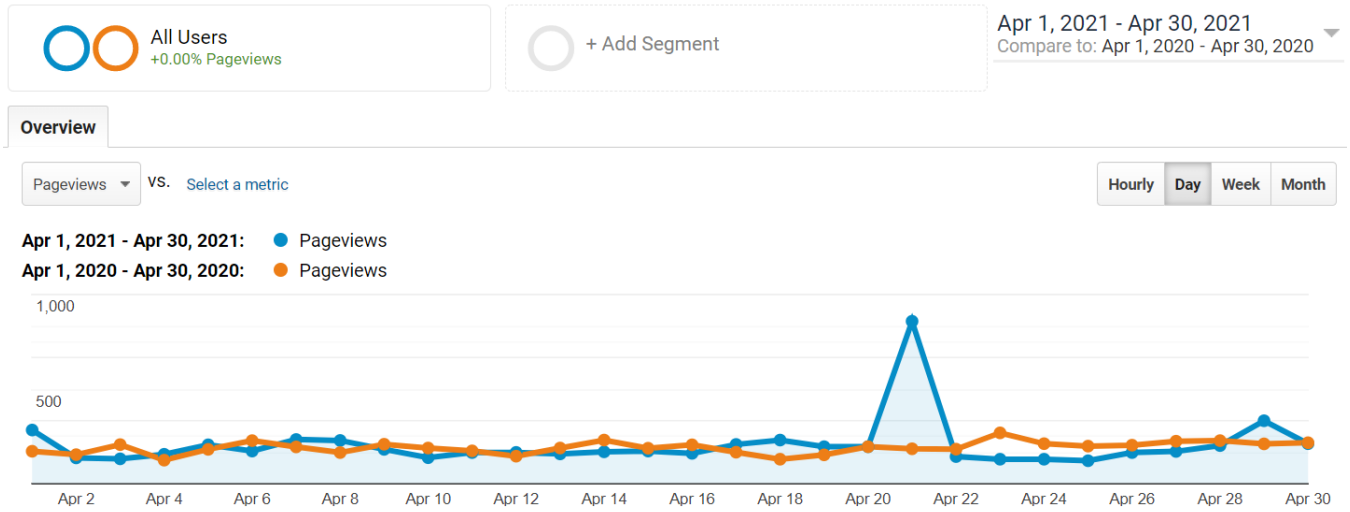


Figure 3. April website users for 2020 compared to 2021.
NOTE: We were unable to identify the cause for the spike on April 21st. It does not appear to be bots or other programming issue.

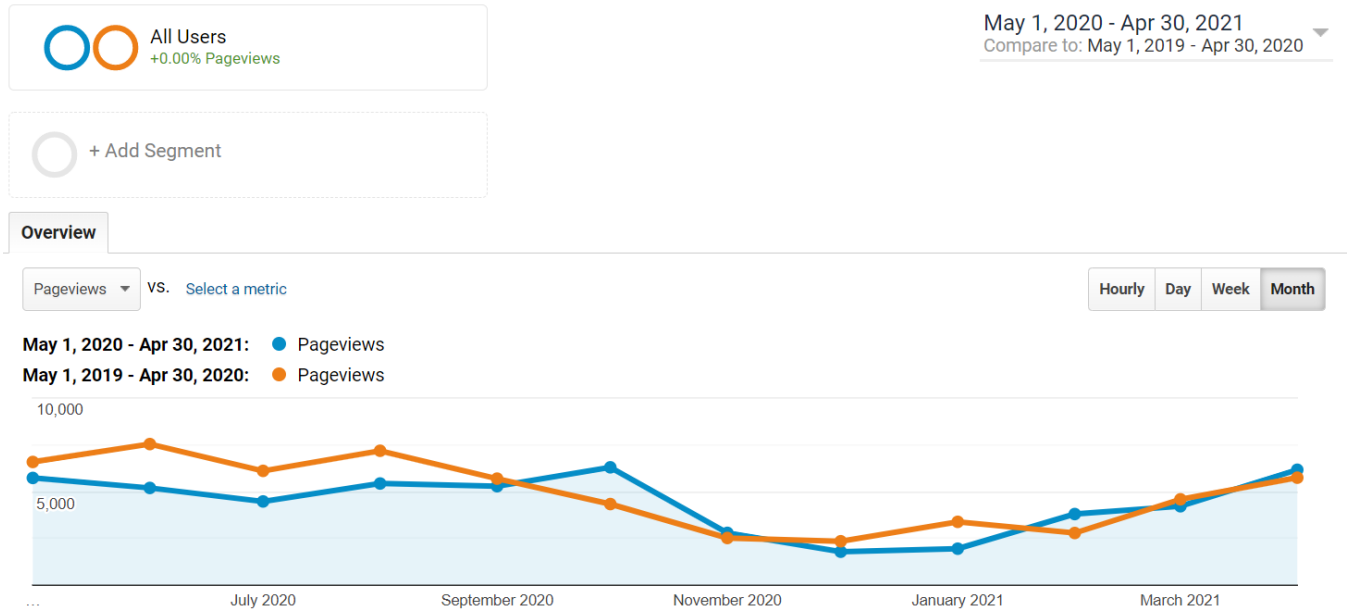
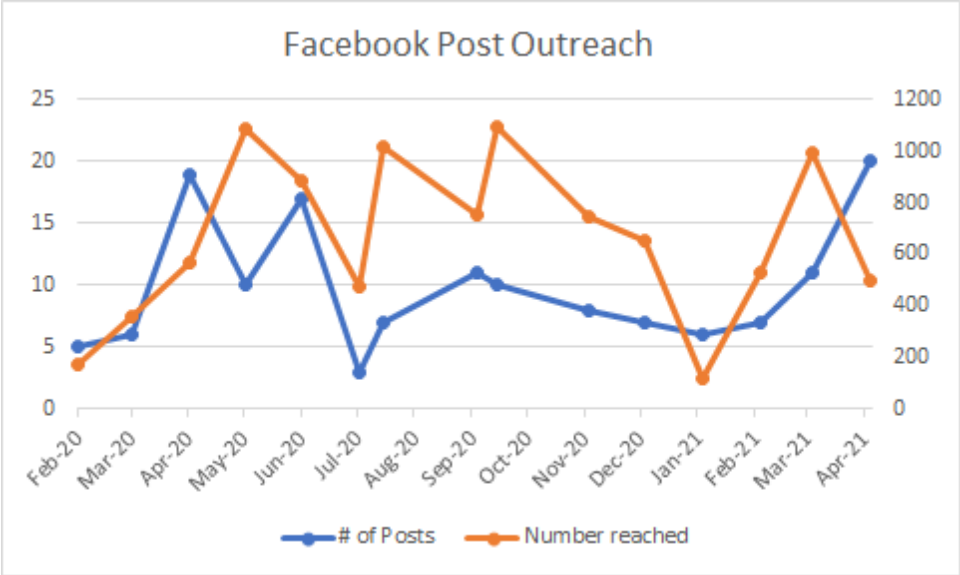


Figure 4. Comparison of website users over the past two years.

C. **Facebook**



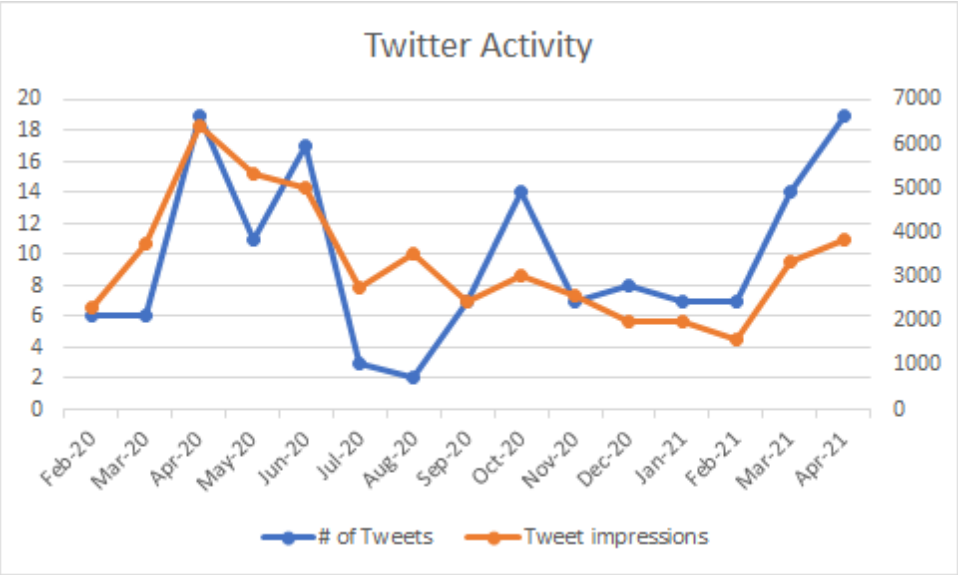
Facebook: 20 posts, 498 number reached

Total Number of Followers: 307 (4 added in March)

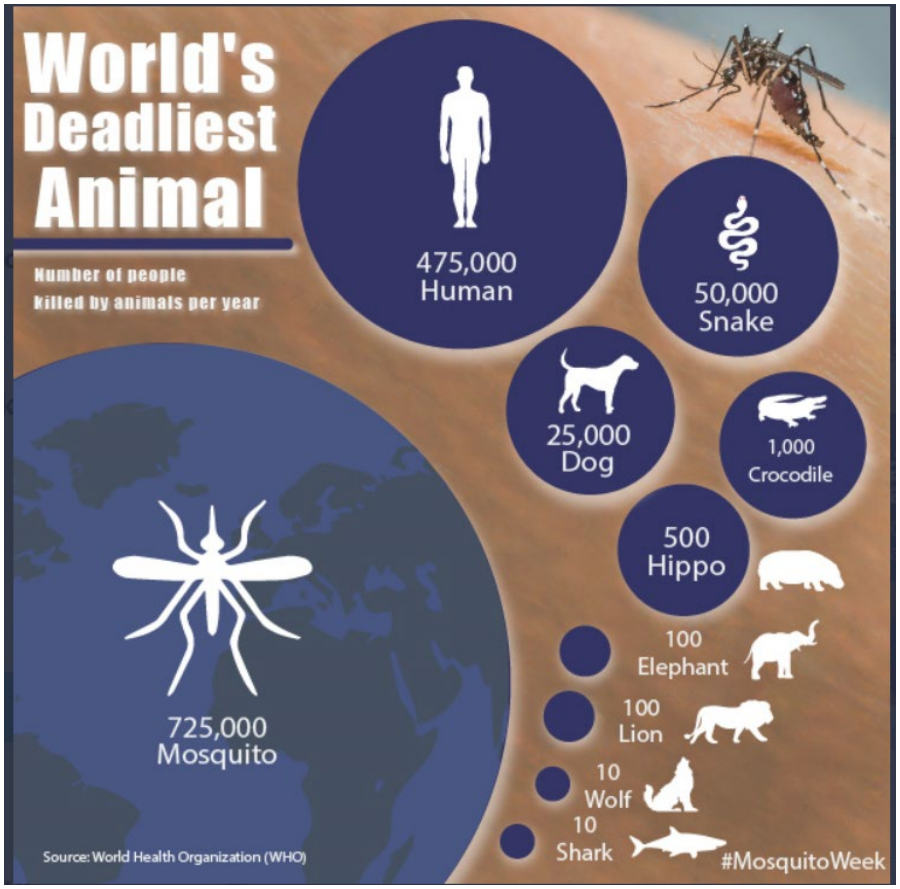
April's Most Popular Post: With alternating periods of rain and warm sunshine, we're hearing about mosquitoes popping up in Alameda County. Do your part to interrupt their life cycle by tipping, tossing or treating standing water.

Facebook note: In April we participated in California Mosquito Awareness Week, where we posted the same social media as other participating districts. Our numbers were significantly lower this month compared to other months, and one hypothesis is that when we create our own material, other mosquito districts share it and then promote it on their pages. But if all mosquito districts have the same image and message, then we are not cross promoting, and in turn, getting less views.

D. Twitter

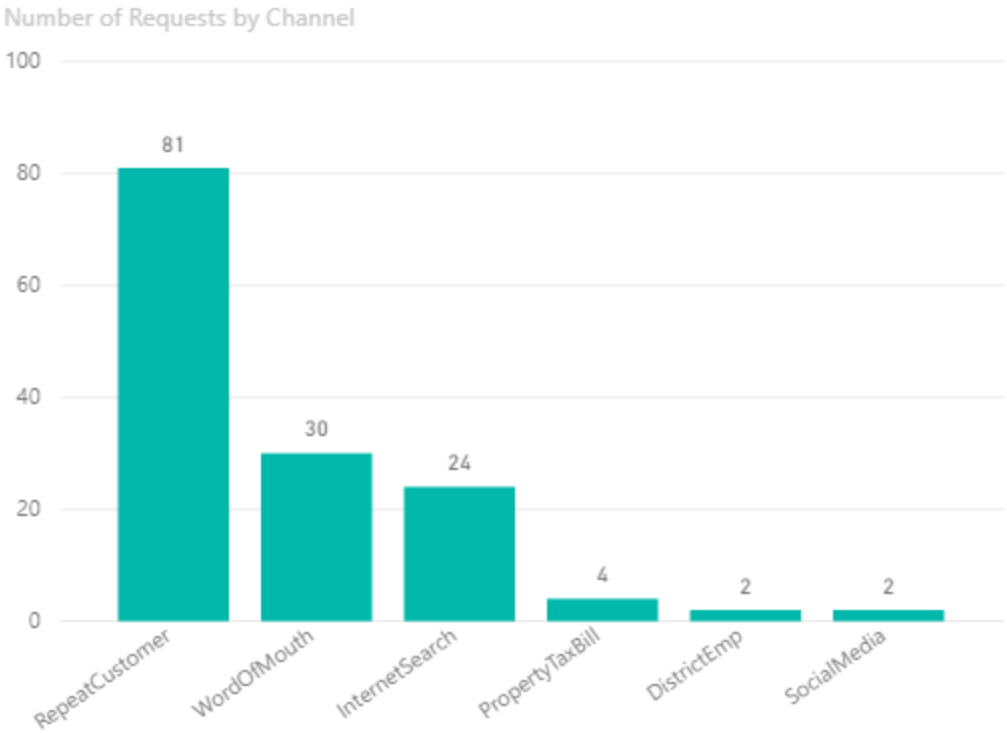


Number of Profile Visits in April: 222
Total Number of Followers: 750 (+5 followed since March)



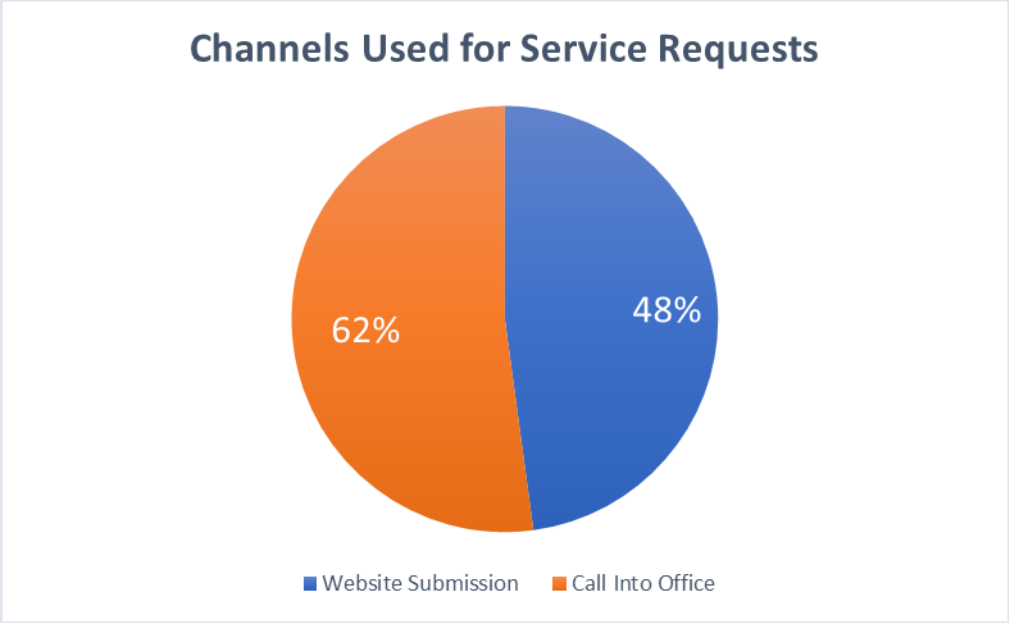
Top April Tweet: Mosquitoes are the most dangerous creatures on the planet. They can spread diseases, which can be devastating for human & animal health. Together we can #FightTheBite #MosquitoWeek

E. Service Request Referral Summary for April



Note: Multiple residents listed two or more referrals

F. Channels Used by Residents to Request Service



140 requests in total, 67 web submissions and 73 calls

23187 Connecticut Street
Hayward, CA 94545

T: (510) 783-7744
F: (510) 783-3903

acmad@mosquitoes.org

Trustee & Staff Anniversary Recognition:

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

Trustee	City	Years of Service	Anniversary Date
Andrew Mingst	Piedmont	1	May 26th
Employee	**Title**	**Years of Service**	**Anniversary Date**
Jeremy Sette	Vector Biologist	6	May 18th

4/16/21 ACMAD Facility Break-in

Facility cameras' time is 20 minutes faster than actual time.

Thieves' vehicle on street:	12:21 AM
Thieves caught on facility cameras:	12:35 AM
Bay Alarm cameras activated:	12:51 AM
Police received call at	12:53 AM (per HPD)
Joseph Huston spoke with Bay Alarm:	1:05 AM
Thieves left facility at	1:13 AM
Thieves left with personal vehicles:	1:15 AM
HPD arrived	1:20 AM (per HPD)
HPD seen on camera:	1:24 AM

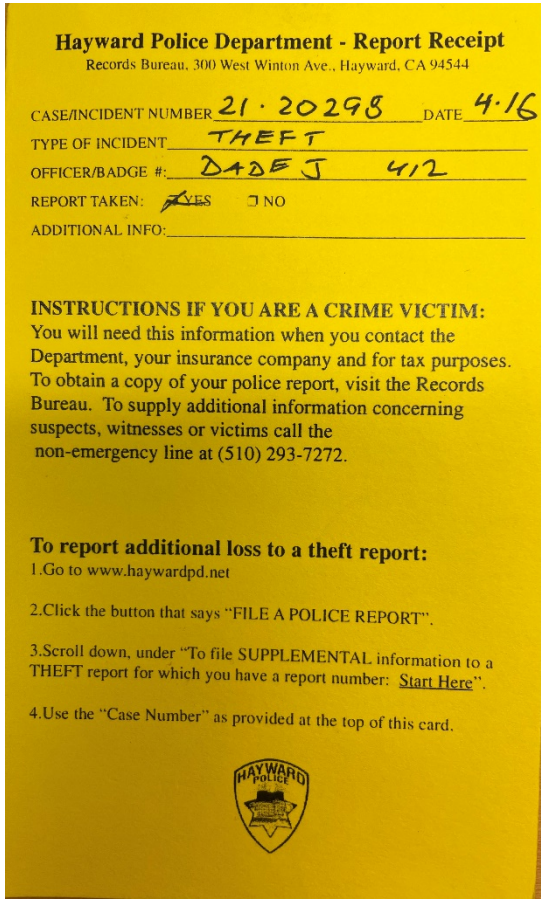
Spoke with HPD Officer Dadej 10:30 AM, met onsite 11:00 AM: **case #21-20298.**

- Materials stolen:
  - 33 battery packs @ $15 each
  - Tool kit estimated at $100.
    -Plus-
  - Fence repair estimated at $250.

- **TOTAL LOSS: around $750**

Actions:

- Police will monitor area more often.
- Tree used to scale fence will be removed.
- Damaged razor wire fencing repaired in two locations.
- Additonal security fencing to be evaluated.
- Will adjust facility cameras to reflect correct time.



Hayward Police Department - Report Receipt
Records Bureau, 300 West Winton Ave., Hayward, CA 94544

CASE/INCIDENT NUMBER 21-20298 DATE 4-16
TYPE OF INCIDENT THEFT
OFFICER/BADGE #: DADEJ 412
REPORT TAKEN: ☒ YES ☐ NO
ADDITIONAL INFO:

INSTRUCTIONS IF YOU ARE A CRIME VICTIM:
You will need this information when you contact the Department, your insurance company and for tax purposes. To obtain a copy of your police report, visit the Records Bureau. To supply additional information concerning suspects, witnesses or victims call the non-emergency line at (510) 293-7272.

To report additional loss to a theft report:
1.Go to www.haywardpd.net

2.Click the button that says "FILE A POLICE REPORT".

3.Scroll down, under "To file SUPPLEMENTAL information to a THEFT report for which you have a report number: Start Here".

4.Use the "Case Number" as provided at the top of this card.


04-16-2021 12:41:20 AM


04-16-2021 12:55:46 AM
04-16-2021 12:56:17 AM
04-16-2021 12:56:41 AM

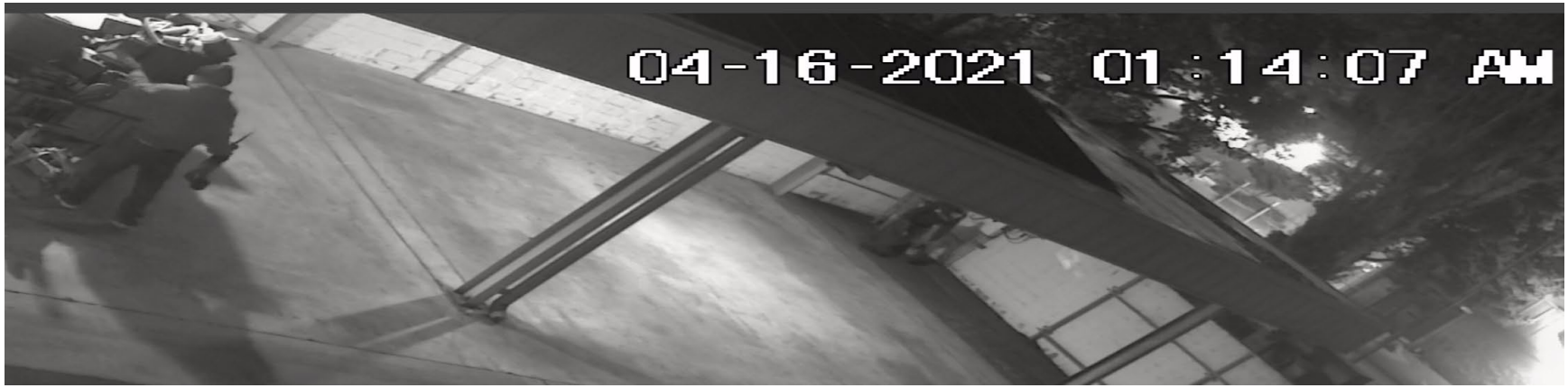

04-16-2021 01:12:22 AM


04-16-2021 01:13:14 AM


04-16-2021 01:13:25 AM


04-16-2021 01:13:41 AM


04-16-2021 01:13:51 AM
04-16-2021 01:13:59 AM


04-16-2021 01:14:07 AM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04-16-2021 01:15:43 AM


04-16-2021 01:15:53 AM


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04-16-2021 01:45:02 AM