

AGENDA

1044th MEETING OF THE BOARD OF TRUSTEES OF THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT

MAY 10TH, 2017

TIME: 5:00 P.M.
PLACE: Office of the District, 23187 Connecticut Street, Hayward
TRUSTEES: Kathy Narum, President, City of Pleasanton
Elisa Marquez, Vice-President, City of Hayward
Wendi Poulson, Secretary, City of Alameda
Humberto Izquierdo, County-at-Large
P. Robert Beatty, City of Berkeley
Richard Guarienti, City of Dublin
Betsy Cooley, City of Emeryville
George Young, City of Fremont
James N. Doggett, City of Livermore
Eric Hentschke, City of Newark
Jan O. Washburn, City of Oakland
Robert Dickinson, City of Piedmont
Ed Hernandez, City of San Leandro
Ronald Quinn, City of Union City

1. Call to order.
2. Roll call.
3. President Narum invites any member of the public to speak at this time on any issue relevant to the District. (Each individual is limited to five minutes).
4. Approval of the minutes of the 1043th meeting held April 12, 2017 (**Board action required**).
5. Presentation and approval of the final budget for fiscal year 2017-18 (**Board action required**)
6. Presentation of the preliminary Engineers Report for fiscal year 2017-2018 by Melanie Guillory-Lee from SCI Consulting Group (Information only).
7. Resolution 1044-1 intending to continue assessments for fiscal year 2017-18, preliminarily approving the engineer's report, and providing for notice of hearing. (**Board action required**)
8. Financial Reports:
 - a. Review of warrants dated April 15, 2017 numbering 049617 through 052417 amounting to \$135,998.90 and warrants dated April 30, 2017 numbering 052517 through 056117 amounting to \$123,890.84 (Information only).
 - b. Review of Budget as of April 30, 2017. (Information only).
 - c. Investments, Reserves, and Cash Balance as of April 30, 2017.

9. Presentation of the Monthly Staff Report for April 2017 (Information only).
10. Presentation of the Manager's Report for April 2017 (Information only).
 - a. Upcoming legislative days for AMCA, CSDA on May 16-17
 - b. Four staff members attending UAS (drone) training May 11-22
 - c. Presentation to EBRPD sub-committee on May 17th by staff
 - d. Abstract invitation and submittal to Annual Storm water Quality Conference in September
 - e. Banking and finance options currently under review by Finance Committee
 - f. Awaiting report from electrician on solar options to Sustainability Committee
11. Board President asks for reports on conferences and seminars attended by Trustees.
12. Board President asks for announcements from members of the Board.
13. Board President asks trustees for items to be added to the agenda for the next Board meeting.
14. Adjournment.

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

Please Note: A copy of this agenda is also available at the District website, www.mosquitoes.org or via email by request. Alternative formats of this agenda can be made available for persons with disabilities. Please contact the district office at (510) 783-7744, via FAX (510) 783-3903 or email at acmad@mosquitoes.org to request an alternative format.

Agenda item: 1044.4

MINUTES

1043rd MEETING OF THE BOARD OF TRUSTEES
OF THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT

APRIL 12TH, 2017

TIME: 5:00 P.M.
PLACE: Office of the District, 23187 Connecticut Street, Hayward
TRUSTEES: Kathy Narum, President, City of Pleasanton
Elisa Marquez, Vice-President, City of Hayward
Wendi Poulson, Secretary, City of Alameda
Humberto Izquierdo, County-at-Large
P. Robert Beatty, City of Berkeley
Richard Guarienti, City of Dublin
Betsy Cooley, City of Emeryville
George Young, City of Fremont
James N. Doggett, City of Livermore
Eric Hentschke, City of Newark
Jan O. Washburn, City of Oakland
Robert Dickinson, City of Piedmont
Ed Hernandez, City of San Leandro
Ronald Quinn, City of Union City

Board President Narum called the regularly scheduled Board meeting to order at 5:00 P.M.

Trustees Narum, Marquez, Izquierdo, Beatty, Guarienti, Cooley, Doggett, Hentschke, Washburn, Hernandez, and Quinn were present; Trustees Poulson and Dickinson were absent. Trustee Young arrived at 5:15 P.M.

Board President Narum invited members of the public to speak on any issue relevant to the District, Dr. Eric Haas-Stapleton, ACMAD Lab Director, was present.

The Board approved the minutes of the 1042st meeting held March 8th, 2017. (Narum, Izquierdo)— unanimous; Board President Narum clarified abstention rules—an absence from a prior meeting does not require an abstention unless calling for or seconding a motion.

Trustee Washburn recused himself from the meeting because of the conflict of interest inherent in the discussion on the Temporary District Manager. Trustee Beatty stated that the assignment is not full-time. Trustee Guarienti commented that the Temporary Manager would drop-in at most 20 hours/ week. Trustee Quinn asked if this was the same contract as the last time Trustee Washburn served in a managerial capacity (the same contract template was used, but some terms and the payrate changed). Trustee Marquez asked if there would be continuity with staff (staff is aware and supportive). Trustee Hernandez

asked if the District Manager would be attending board meetings (he would prefer to and make it a priority to do so). The motion passed (Doggett, Beatty)– unanimous

The District Manager, along with the Finance Committee, presented the first draft of the 2017-18 budget. Beatty asked if reserves are required and if there was a mandated payment to CalPERS (the reserves are not required by law, but are defined in ACMAD policies, the mandated payment is included in the budget). Trustee Hernandez asked if the proposed change to the District's banking would create more efficiencies/ less paperwork (eventually, yes). He also asked when these additional reserve accounts would be opened (in the fall, with consultation with the Finance Committee and approval of the Board). Trustee Izquierdo asked if more staff will be needed to handle the more complex financial processes (no, but it will be more work for the District Manager). Trustee Washburn asked who the regulatory consultant is on a budget line-item (Karl Malamud-Roam, Ph.D). Trustee Guarienti requested clarification on the \$1,500,000 deposit on the cash carried over spreadsheet (estimated revenue from property taxes in April). Trustee Hernandez suggested budgeting for an additional UAS (drone) for surveillance as a back-up.

Dr. Robert Beatty, ACMAD Trustee, presented "Zika virus epidemiology, infection and disease". Trustee Hernandez asked for more clarification on the virus in bodily fluids. Trustee Marquez asked about the life expectancy of Zika congenital syndrome affected infants (generally less than 3 years). Dr. Eric Haas-Stapleton, ACMAD Lab Director, presented "Surveillance and control of invasive Aedes". Trustee Hernandez asked if the lab has enough money to fund this enhanced surveillance (grant funded this year, may be budgeted next year), do we get an address of a Zika patient (around 40% of the time, depends on what the patient offers), and if we are planning any public service announcements (yes). Trustee Beatty asked if sufficient nutrients would be present in a bottlecap to sustain growth of an *Aedes* mosquito (detritus would need to be present), what is the flight distance for mosquito species (answered by Trustee Washburn, depends on the species—some fly over 20 miles), does carbon dioxide attract invasive *Aedes* (somewhat, but not like other mosquito species), would the trapping strategy change from an initial detection to an infestation (yes, to autocidal traps), and offered that invasive *Aedes* mosquitoes spread other diseases besides the Zika virus. Trustee Izquierdo asked if there are new trapping strategies (yes), and on what authority can you access property (health and safety code with the backing of a blanket warrant). Board President Narum asked for the life expectancy of an invasive *Aedes* mosquito (around 2 weeks). Trustee Washburn asked if the octanol attractant is effective for *Aedes* mosquitoes (no, it can be a deterrent), what risk factors are determined in the modeling (travel, pottery, imports, etc.). Trustee Washburn also offered the effectiveness of fogging with Bti. Trustee Cooley asked to predict when we expect the invasive *Aedes* mosquito to arrive in Alameda County (Trustee Washburn estimates about three years).

The Board reviewed warrants dated March 15, 2017 numbering 043317 through 045717 amounting to \$99,383.40 and warrants dated March 30, 2017 numbering 045817 through 049717 amounting to \$118,792.41.

The Board reviewed the budget summary received as of March, 31th, 2017.

The District Manager and Lab Director presented the Staff report for March 2017.

The District Manager presented the Manager's report for March 2017. Board President Narum suggested advertising on the Alameda County Fair's billboard. Trustee Quinn agreed with the placement of public service announcements prior to movies in theaters, especially at Union Landing.

Board President Narum asked for reports on conferences and seminars attended by Trustees, Trustees Washburn and Beatty attended the annual MVCAC conference. Trustee Washburn commented on the high quality of this past annual MVCAC conference being perhaps the best he has attended in over thirty years. Board President Narum mentioned that her, along with several other Trustees, attended the annual ACSDA dinner.

Board President Narum asked for announcement from the Board. Trustee Hernandez enjoyed his field inspection tour with ACMAD Vector Biologist Ben Rusmisl. He also promoted the annual San Leandro Cherry Festival on June 3rd and asked if the District will be present (yes).

Board President Narum asked trustees for items to be added to the agenda for the next Board meeting. Trustee Marquez asked when the report on solar energy on-site production will be available. The District Manager hoped to have it by now, but will ask the electrician when he comes to the District on April 20th for an update.

The meeting adjourned at 6:45 P.M.

Respectfully submitted,

Approved as written and/or corrected
at the 1044th meeting of the Board of
Trustees held May 10th, 2017

Kathy Narum, President
BOARD OF TRUSTEES

Wendi Poulson, Secretary
BOARD OF TRUSTEES

Salaries 7/1/17 - 6/31/18

Date of hire	Pos	2017/18 3.5% COLA	Longevity	Longevity Amount	New Salary	# mo	Subtotal		
Apr-16	Admin3	\$ 4,906.75	0%	\$ -	\$ 4,906.75	3	\$ 14,720		
	Admin4	\$ 5,152.09	0%	\$ -	\$ 5,152.09	9	\$ 46,369	\$ 61,089	
Jul-99	BIO5	\$ 8,594.16	3%	\$ 257.82	\$ 8,851.98	12	\$ 106,224		
Mar-14	MCT4	\$ 6,973.62	0%	\$ -	\$ 6,973.62	2	\$ 13,947		
	MCT5	\$ 7,321.07	0%	\$ -	\$ 7,321.07	8	\$ 58,569		
	VB1	\$ 7,687.12	0%	\$ -	\$ 7,687.12	2	\$ 15,374	\$ 87,890	
Apr-02	VB2	\$ 8,070.65	3%	\$ 242.12	\$ 8,312.77	12	\$ 99,753		
Nov-03	VB2	\$ 8,070.65	2%	\$ 161.41	\$ 8,232.06	12	\$ 98,785		
Feb-12	VB2	\$ 8,070.65	1%	\$ 80.71	\$ 8,151.36	12	\$ 97,816		
Mar-02	RPA5	\$ 8,676.41	3%	\$ 260.29	\$ 8,936.70	12	\$ 107,240		
Jul-12	Mgr	\$ 12,368.00	0%	\$ -	\$ 12,368.00	12	\$ 148,416		
Sep-15	MCT3	\$ 6,641.52	0%	\$ -	\$ 6,641.52	8	\$ 53,132		
	MCT4	\$ 6,973.62	0%	\$ -	\$ 6,973.62	4	\$ 27,894	\$ 81,027	
Jul-15	IT5	\$ 8,635.28	0%	\$ -	\$ 8,635.28	12	\$ 103,623		
Jul-15	LAB5	\$ 9,283.96	0%	\$ -	\$ 9,283.96	12	\$ 111,408		
Jul-91	Sup 5	\$ 9,748.22	5%	\$ 487.41	\$ 10,235.63	12	\$ 122,828		
Apr-14	VB2	\$ 8,070.65	0%	\$ -	\$ 8,070.65	12	\$ 96,848		
Sep-15	VB2	\$ 8,070.65	0%	\$ -	\$ 8,070.65	12	\$ 96,848		
May-15	MCT3	\$ 6,641.52	0%	\$ -	\$ 6,641.52	4	\$ 26,566		
	MCT4	\$ 6,973.62	0%	\$ -	\$ 6,973.62	8	\$ 55,789	\$ 82,355	
Feb-15	Mech 4	\$ 8,218.99	0%	\$ -	\$ 8,218.99	1	\$ 8,219		
	Mech 5	\$ 8,430.43	0%	\$ -	\$ 8,430.43	11	\$ 92,735	\$ 100,954	
							\$	1,603,103	

Seasonals:

Rate (ave)	#	Hours
\$ 17.00	9	1,000
		\$153,000
Unemployment	14,000	\$5,202.00
		\$158,202.00

Employer paid PERS	\$ 253,662
Seasonals	\$ 158,202
Subtotal	\$ 2,014,967
Proposed Reclassification	\$ 5,570.38
Temporary Manager	\$ 18,000
Medicare tax	\$ 25,881
Grand Total	\$ 2,064,418.34

CaIPERS

Wages	Employer rate	Unfunded Liability Payment	Total PERS Payments
9.558% Classic \$989,317.41	\$ 94,558.96	\$ 123,389.00	\$ 217,947.96
6.930% <i>Pepra</i> \$510,162.30	\$ 35,354.25	\$ 360	\$ 35,714.25
			\$ 253,662.20

Temp Manager

Hourly rate	Hours/day	Days/week	Cost per week	Total Cost
\$ 125	6	3	\$ 2,250	\$ 18,000

Account	BUDGET CATEGORY	FY 15-16	Actual 15-16	FY 16-17	% change	FY 17-18	% change	
610001	CLOTHING AND PERSONAL SUPPLIES (PURCHASED)	\$8,500	\$7,169	\$8,500	0%	\$8,500	0%	
610011	LAUNDRY SERVICE AND SUPPLIES (RENTED)	\$9,000	\$7,162	\$9,000	0%	\$9,000	0%	
610021	UTILITIES	\$22,000	\$22,415	\$35,900	63%			
610021.1	Garbage (Waste Mgmt)	\$1,500 x		\$2,400	60%	\$3,000	25%	
610021.2	PG & E	\$15,000 x		\$24,000	60%	\$24,000	0%	
610021.3	Hayward Water & Sewage	\$5,500 x		\$6,000	9%	\$7,000	17%	
610021.4	Biohazard and Chemical Waste Disposal	x		\$3,500 NA		\$4,000	14%	This line item was added by EHS.
610022	COMMUNICATIONS	x						
610022.1	Telephone Service & Internet (Telepacific)	\$13,500	\$13,539	\$13,800	2%	\$14,000	1%	
610022.3	Website hosting	\$270	\$242	\$850	215%	\$1,200	41%	
(NEW)	Microsoft Office 365					\$4,000		
610022.4	Cell phone service (Verizon)	\$10,000	\$8,433	\$9,000	-10%	\$17,000	89%	service and replacements, cell and tablets
610122	MAINTENANCE STRUCTURES & IMPROVEMENTS	\$15,000	\$6,739	\$15,000	0%			
61022.1	Landscaping service	x		\$3,600		\$3,600	0%	\$2,100 for reg maint, \$1,500 for new plants
61022.2	Facility Maintenance	x		\$10,000		\$25,000	150%	bird abatement,mark office, (change to FACILITY MAINT.)
610141	MAINTENANCE OF EQUIPMENT	\$40,000	\$24,175	\$45,000	13%	\$45,000	0%	
610191	TRANSPORTATION, TRAVEL, and TRAINING							
610191.1	Fuel and GPS (WexMart)	\$40,000	\$37,042	\$40,000	0%	\$45,000	13%	
610191.3	Meetings, conferences, & travel	\$45,000	\$21,956	\$35,000	-22%	\$35,000	0%	
610191.4	Board meeting expenses	\$800	\$501	\$1,000	25%	\$800	-20%	
610191.5	Board payments in lieu	\$16,800	\$12,056	\$16,800	0%	\$16,800	0%	
610461.53	Continuing Education fees	\$4,000	\$3,771	\$4,000	0%	\$4,210	5%	increase from \$120-\$134 pp
610191.7	Staff Training (staff development/ college courses)	\$15,000 x		\$80,000	433%	\$55,000	-31%	\$46,000 for MPA
610261	PROFESSIONAL SERVICES	\$172,500	\$159,499 x	x	x	x	x	
610261.1	Audit	\$13,000 x		\$13,000	0%	\$13,000	0%	
610261.2	Actuarial reports	\$3,000 x		\$3,000	0%	\$5,500	83%	CalPers (2,000) and OPEB (3,500)
610261.3	Helicopter service	\$25,000 x		\$30,000	20%	\$35,000	17%	
610261.4	Legal Services	\$15,000 x		\$20,000	33%	\$13,000	-35%	
610261.5	MVCAC Research Foundation	\$5,000 x		\$5,000	0%	\$5,000	0%	
	Pre-employment physicals, hearing tests, respirator tests	\$1,000 x		\$0	-100%	\$0		May be added in future, currently not a policy
610261.7	Tax collection service (SCI)	\$35,000 x		\$35,000	0%	\$35,000	0%	
610261.8	Payroll service (OnePoint)	\$5,500 x		\$6,000	9%	\$10,000	67%	
610261.9	Environmental consultant services for regulatory issues	\$10,000 x		\$5,000	-50%	\$15,000	200%	
610261.10	HR Services (Municipal Resource Group)	\$60,000 x		\$25,000	-58%	\$15,000	-40%	
610261.11	OPEB management (PFM)	x		\$0		\$22,000		Interfund transfer
(NEW)	Financial advising	x	x	x		\$16,270 NA		new

Account	BUDGET CATEGORY	FY 15-16	Actual 15-16	FY 16-17	% change	FY 17-18	% change	
610351	MEMBERSHIPS, DUES & SUBSCRIPTIONS	\$20,625	\$14,540					
	AMCA (sustaining membership)	\$4,000 x		\$4,000	0%	\$4,000	0%	
	CSDA	\$5,500 x		\$5,500	0%	\$5,000	-9%	
	ACSDA					\$100		separated out in 16/17
	MVCAC	\$10,000 x		\$12,000	20%	\$12,000	0%	
	SOVE	\$325 x		\$200	-38%	\$0	-100%	
	LAFCo	\$650 x		\$778	20%	\$780	0%	
	ESA	\$150 x		\$172	15%	\$150	-13%	
	Misc Memberships (REHS, HAZWOPR)	x		\$285		\$100	-65%	HAZWOPR (100)
610378	INSURANCE - VCJPA	\$44,083	\$42,532					
610374	Pooled Workers Compensation Insurance	\$63,736	\$63,736	\$61,560	-3%	\$76,957	25%	
	Pooled Liability	\$31,824 x		\$37,473	18%	\$39,488	5%	
	Pooled Auto Physical Damage					\$556		separated out in 16/17
	Grouped Property	\$1,934 x		\$6,429	232%	\$2,025	-69%	
	General Fund	\$8,325 x		\$7,676	-8%	\$8,154	6%	
	Fidelity/Fraud	\$2,000 x		\$2,000	0%	\$750	-63%	
(NEW)	Employee Assistant Program					\$880		
	Earthquake & UAS insurance					\$5,000		Proposed
610451	COMMUNITY EDUCATION	\$33,000	\$12,450					
	Supplies	\$11,000 x		\$11,000	0%	\$11,000	0%	
	WNV Ads	\$11,000 x		\$11,000	0%	\$11,000	0%	
	Printing	\$11,000 x		\$11,000	0%	\$11,000	0%	
(NEW)	Website redesign					\$20,000		
610461	DISTRICT SPECIAL EXPENSE							
610461.1	Pesticides	\$175,000	\$155,761	\$200,000	14%	\$200,000	0%	
610461.2	Field supplies (dippers etc)	\$500	\$576	\$1,000	100%	\$2,200	120%	
	Sentinel Chickens	\$0	\$0	\$0		\$0		
610461.4	Fish and Fish Maint.	\$4,000	\$4,534	\$4,000	0%	\$6,000	50%	ULV lights, food upgrade, fry project
610461.51	Aerial Pool Survey	\$17,000	\$17,000	\$17,000	0%	\$20,000	18%	
610461.52	Permits	\$3,000	\$1,104	\$3,000	0%	\$100	-97%	NPDES, Ditching
610461.54	Board plaques and nameplates	\$500	\$240	\$1,000	100%	\$500	-50%	
(NEW)	Safety	\$2,000 x		\$2,000	0%	\$2,000	0%	
610461.6	Spray equipment	\$15,000	\$8,276	\$12,000	-20%	\$30,000	150%	adulcider/sprayer tracking module
620021	HOUSEHOLD EXPENSES	\$5,500	\$4,629	\$5,000	-9%			
	Janitorial service	\$0 x		\$0		\$6,500		new srvc & 1/yr floor & carpet cleaning
	Supplies	\$0 x		\$0		\$2,000		liners, wipes, kitchen, TP, paper towels
	Drinking water system & filter	\$450	\$137	\$480	7%	\$510	6%	
	Alarm service - Sonitrol	\$8,000	\$9,025	\$9,000	13%	\$11,000	22%	

\$127,180

Account	BUDGET CATEGORY	FY 15-16	Actual 15-16	FY 16-17	% change	FY 17-18	% change	
620041	OFFICE EXPENSES	\$21,400	\$14,195					\$1,800 purchase, or \$190*12, + \$130/mo. Also, shredding-\$200
	Office Supplies (2 copiers + 5000 supplies)	\$20,000 x		\$20,000	0%	\$10,000	-50%	
	Postage	\$1,000 x		\$2,000	100%	\$2,500	25%	
	Pitney Bowes - postage meter rental	\$400 x		\$400	0%	\$550	38%	
620042	INFORMATION TECHNOLOGY							
620042.1	Computers, supplies and software	\$12,000	\$10,541	\$15,000	25%	\$15,000	0%	
620042.3	3rd party IT consultant	\$30,000		\$25,000	-17%	\$30,000	20%	
(NEW)	Mapvision service fee					\$27,800		
(NEW)	Backhaul					\$600		
620141	LABORATORY SUPPLIES	\$79,240	\$50,891					
620141.1	Mosquito Surveillance - traps, dry ice, reimbursements	\$9,400	\$13,833	\$20,000	113%	\$25,000	25%	Increased mosquito abundance surveillance & resistance testing.
620141.2	Disease surveillance	\$7,155	\$6,995	\$4,000	-44%	\$42,500	963%	Reduction because of supply carryover from FY 15-16
620141.5	Lab equipment and supplies	\$6,285	\$4,411	\$5,500	-12%	\$21,500	291%	Autoclave & storage shed
620141.4	Pesticide resistance testing of mosquitoes (e.g. kdr)	\$20,000 x		\$8,744	-56%	\$7,000	-20%	
	Research	\$0 x		\$9,000		\$9,000	0%	
620261	SMALL TOOLS AND INSTRUMENTS	\$1,500	\$1,155	\$2,500	67%	\$8,500	240%	new argo lift, band saw, Go-Devil(outboard)
	Total	\$985,642		\$1,043,047	6%	\$1,174,580	13%	

<u>Employee</u>	PERS Plan Code	PERS RATES 2017	PERS RATES 2018 (est)	Total PERS Costs	Dental 2018 Rates	Total Dental	Life Ins. Rates 2017/18	Total Life Ins. 2017/18	Vision 2016/17 Rates	Total Vision	SDI	Benefit Cost per person
	3753	1,906.81	2,059.35	23,796.99	251.93	3,023.16	9.25	111.00	32.52	390.24	982.12	28,303.51
	1041	733.29	791.95	9,151.46	94.06	1,128.72	9.25	111.00	13.20	158.40	770.03	11,319.61
	1043	1,906.81	2,059.35	23,796.99	251.93	3,023.16	9.25	111.00	32.52	390.24	954.44	28,275.83
	1041	733.29	791.95	9,151.46	251.93	3,023.16	9.25	111.00	13.20	158.40	954.44	13,398.46
	1041	733.29	791.95	9,151.46	94.06	1,128.72	9.25	111.00	13.20	158.40	848.82	11,398.40
	1043	1,906.81	2,059.35	23,796.99	251.93	3,023.16	9.25	111.00	32.52	390.24	972.59	28,293.98
	4503	1,906.81	2,059.35	23,796.99	251.93	3,023.16	9.25	111.00	32.52	390.24	1,414.40	28,735.79
	1041	733.29	791.95	9,151.46	94.06	1,128.72	9.25	111.00	13.20	158.40	663.77	11,213.35
	4542	1,466.78	1,584.12	18,305.41	161.05	1,932.60	9.25	111.00	20.50	246.00	929.53	21,524.54
	1042	1,466.78	1,584.12	18,305.41	161.05	1,932.60	9.25	111.00	20.50	246.00	1,175.44	21,770.45
	1062	1,466.78	1,584.12	18,305.41	251.93	3,023.16	9.25	111.00	20.50	246.00	1,076.40	22,761.97
	1041	733.29	791.95	9,151.46	94.06	1,128.72	9.25	111.00	13.20	158.40	515.97	11,065.55
	1041	733.29	791.95	9,151.46	94.06	1,128.72	9.25	111.00	13.20	158.40	891.26	11,440.84
	1041	733.29	791.95	9,151.46	94.06	1,128.72	9.25	111.00	13.20	158.40	848.82	11,398.40
	1041	733.29	791.95	9,151.46	94.06	1,128.72	9.25	111.00	13.20	158.40	698.45	11,248.03
	1043	1,906.81	2,059.35	23,796.99	251.93	3,023.16	9.25	111.00	32.52	390.24	905.95	28,227.34
<i>Subtotal</i>		19,800.71		247,112.86	2,744.03	32,928.36	148.00	1,776.00	329.70	3,956.40	14,602.43	300,376.05
.5% Admin Cost				1,235.56								1,235.56
Staff Totals				248,348.43		32,928.36		1,776.00		3,956.40	14,602.43	301,611.62

<u>Annuitant</u>	PERS Plan Code	PERS RATES 2017	PERS RATES 2018 (est)	Total PERS Costs	Dental 2017 Rates	Total Dental	Life Ins. Rates 2016/17	Total Life Ins. 2016/17	Vision 2016/17 Rates	Total Vision	SDI	Benefit Cost per person
	1141	300.48	324.52	3,749.99	-	1,200.00			33.80	405.60		5,355.59
	3391	389.76	420.94	4,864.20	94.06	1,128.72			33.80	405.60		6,398.52
	1041	733.29	791.95	9,151.46	94.06	1,128.72			33.80	405.60		10,685.78
	1321	389.76	420.94	4,864.20	94.06	1,128.72			33.80	405.60		6,398.52
	0	-	-	-	94.06	1,128.72			33.80	405.60		1,534.32
	3322	707.26	763.84	8,826.60	161.05	1,932.60			33.80	405.60		11,164.80
	1161	353.63	381.92	4,413.30	94.06	1,128.72			33.80	405.60		5,947.62
	1042	1,466.78	1,584.12	18,305.41	161.05	1,932.60			33.80	202.80		20,440.81
	3291	733.29	791.95	9,151.46	94.06	1,128.72			33.80	405.60		10,685.78
	1322	733.29	791.95	9,151.46	-	2,400.00			33.80	405.60		11,957.06
	3342	707.26	763.84	8,826.60	161.05	1,932.60			33.80	405.60		11,164.80
	1142	600.96	649.04	7,499.98	161.05	1,932.60			33.80	405.60		9,838.18
	1042	1,466.78	1,584.12	18,305.41	161.05	1,932.60			33.80	405.60		20,643.61
	1032	1,381.12	1,491.61	17,236.38	161.05	1,932.60			33.80	405.60		19,574.58
	1043	1,906.81	2,059.35	23,796.99	251.93	3,023.16			33.80	405.60		27,225.75
<i>Subtotal</i>		11,870.47		148,143.47	1,782.59	24,991.08			507.00	5,881.20		179,015.75
		.5% Admin Costs=		740.72								740.72
<u>Annuitant Totals</u>				148,884.18		24,991.08				5,881.20		179,756.46
Grand Total				397,232.61		57,919.44		1,776.00		9,837.60	14,602.43	481,368.08
										<i>Additional Retiree</i>		25,000.00
												506,368.08

CAPITAL EXPENDITURES

	2015-2016	2016-2017	2017-2018
Pesticide Shed	\$120,000		
Locker Room Expansion	\$70,000		
Brake Lathe	\$9,000		
Metal Brake	\$10,000		
New fish tank with filter and pump system	\$16,000		
Total	\$225,000		
Computer Database	\$	218,000	
Hardware (monitors & tablets)	\$	10,000	
Board room expansion	\$	40,000	
Lab equip	\$	27,000	
Total	\$	295,000	
Board room expansion			\$55,000
V21 Explorer replacement			\$35,000
V31 Lab Truck replacement			\$35,000
New Argo with trailer			\$35,000
Three UASs (application & surveillance)			\$46,000
ATV & Trailer			\$9,000
Smart board & library monitor			\$15,000
Server			\$10,000
Total			\$240,000

Estimate of Cash Carryover from Fiscal Year 2015-16 to 2016-17

	debits	credits	balance	
Balance as of January 31 2017			\$ 5,181,245	
Warrants February 15	\$ 116,691			
Warrants February 28	\$ 128,356			
Balance as of February 28 2017			\$ 5,052,996	
Warrants March 15	\$ 99,383		\$ 4,953,613	
Warrants March 31	\$ 118,792		\$ 4,834,821	
Balance as of March 31 2017			\$ 4,754,676	
Warrants April 15	\$ 135,999		\$ 4,618,677	
Warrants April 30	\$ 123,891		\$ 4,494,786	
Balance as of April 30 2017		\$ 1,813,830	\$ 6,316,702	<u>estimates below</u>
Warrants May 15	\$ 125,000		\$ 6,191,702	
Warrants May 30	\$ 125,000		\$ 6,066,702	
Balance as of May 31 2017				
Warrants June 15	\$ 125,000		\$ 5,941,702	
Warrants June 30	\$ 125,000		\$ 5,816,702	
Balance as of June 30 2017				
Totals	\$ 978,065	\$ 1,813,830	\$ 5,816,702	



ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT

MOSQUITO AND DISEASE CONTROL ASSESSMENT

ENGINEER'S REPORT

FISCAL YEAR 2017-18

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

ENGINEER OF WORK:
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Preliminary

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ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT

BOARD OF TRUSTEES

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DISTRICT MANAGER

Ryan Clausnitzer

ENGINEER OF WORK

SCI Consulting Group

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INTRODUCTION

OVERVIEW

The Alameda County Mosquito Abatement District (“District”) is an independent special District in Alameda County (“County”) that covers all cities within the county except for the City of Albany. The District’s services encompass more than 800 square miles and are provided to properties accommodating over 1.6 million residents.

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 fourteen 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 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)).

"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.

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

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

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

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

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

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

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

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

(b) The Legislature further finds and declares:

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

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

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

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

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

(d) It is also the intent of the Legislature that mosquito abatement and vector control districts cooperate with other public agencies to protect the public health, safety, and welfare. Further, the Legislature encourages local communities and local officials to adapt the powers and procedures provided by this chapter to meet the diversity of their own local circumstances and responsibilities.

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

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

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

LEGISLATIVE ANALYSIS

PROPOSITION 218

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

Proposition 218 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 benefits²
- 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.

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

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."

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 XIII C and XIII D 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 XIII D 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 this Engineer's Report and the assessments it establishes for fiscal year 2017-18, the assessments would be submitted to the County Auditor for inclusion on the property tax rolls for fiscal year 2017-18.

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 16 employees including a District Manager, Field Operations Supervisor, Entomologist, Mechanic, Environmental Specialist, Systems Specialist, Administrative/Financial Manager, five Vector Biologists and one Mosquito Control Technician, two Assistant Mosquito Control Technicians, a Biological Specialist and other support 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
<i>Aedes dorsalis</i> (Salt marsh mosquito)	Salt marshes	All year	Humans and other mammals	Serious Pest
<i>Aedes sierrensis</i> (Tree hole mosquito)	Tree holes, Tires, Miscellaneous Containers	Spring, Summer	Humans and other large mammals	Serious pest; Vector of Canine Heartworm
<i>Aedes squamiger</i> (Winter salt marsh mosquito)	Salt marshes	Spring	Humans and other large mammals	Serious pest
<i>Aedes washinoi</i> (Woodland pool mosquito)	Temporary woodland ponds	Spring, Summer	Humans and other large mammals	Serious Pest
<i>Anopheles freeborni</i> (Western malaria mosquito)	Seepages, Streams, Lakes, Gravel Pits	Summer	Humans and other large mammals	Vector of Malaria
<i>Anopheles punctipennis</i>	Cool, shaded grassy pools in creeks and lake seepages	Summer	Humans and other large mammals	Vector of Malaria
<i>Culex erythrorhax</i> (Tule mosquito)	Ponds, lakes, marshes with tules and cattails	Spring, Summer	Humans, Other Mammals, and Birds	Serious Pest; Vector of Encephalitis
<i>Culex pipiens</i> (House mosquito)	Storm Drain Systems, Septic Tanks, Roadside Ditches, Utility	Spring, Summer, Fall, Winter	Humans, Other Mammals, and Birds	Serious Pest; Vector of Encephalitis, West Nile Virus

<i>Culex stigmatosoma</i> (Foul water mosquito)	Foul Water, Sewage, Temporary Pools	Spring, Summer, Fall, Winter	Birds	Vector of West Nile Virus
<i>Culex tarsalis</i> (Encephalitis mosquito)	Creeks, Marshes, Temporary Pools, Roadside Ditches, Fresh Water	Spring, Summer, Fall, Winter	Birds, humans, and other mammals	Moderate Pest; Vector of Encephalitis, West Nile Virus
<i>Culiseta incidens</i> (Fish pond mosquito)	Fish Ponds, Temporary Pools, Catch Basins, Roadside Ditches	Spring, Summer, Fall, Winter	Humans and other large mammals	Serious Pest; Possible Vector of Canine Heartworm
<i>Culiseta inornata</i> (Winter salt marsh mosquito)	Marshes, Temporary Pools, Roadside Ditches	Fall, Winter, Spring	Humans and other large mammals	Serious Pest

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

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

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

Mosquito-transmitted diseases in the District are caused by several pathogens. These include the following viruses: St. Louis encephalitis (SLE), Western equine encephalitis

(WEE) and West Nile virus (WNV); the protozoan parasite of malaria, *Plasmodium falciparum* or *P. vivax*; or the nematode parasite of canine heartworm, *Dirofilaria immitis*. This region has historically had sporadic detections of WEE and SLE, two arboviruses (arthropod-borne) that have been established in California for decades. Starting in 2004, WNV was found in wild birds, sentinel chicken flocks, mosquito pools and horses. To date there have been no human cases of West Nile Virus locally acquired in Alameda County.

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

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

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

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

INTEGRATED PEST MANAGEMENT

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

In order to accomplish effective and environmentally sound mosquito management, control of mosquitoes must be based on careful surveillance of their abundance, habitat (potential

abundance), pathogen load, and potential contact with people and animals; the establishment of treatment criteria (thresholds); and appropriate selection from a wide range of control methods. This dynamic combination of surveillance, treatment criteria, and use of multiple control activities in a coordinated program is generally known as Integrated Pest Management (IPM).

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

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

The District has the capability of applying liquid and granular larvicides to treat sources of immature mosquitoes and aerosolized adulticides for area treatment of adult mosquitoes. Adulticiding is used to reduce significant populations of adult mosquitoes and to prevent or to reduce the spread of mosquito-borne disease in the environment. Applications are made by personnel licensed by the California Department of Public Health (or under the direct supervision of certified personnel) who are trained in the proper use of the products and specialized equipment used for this type of public health pest control. All insecticide products employed by the District are used with consideration of existing environmental conditions in order to minimize the impact on non-target organisms.

GENERAL SURVEILLANCE AND CONTROL PROCEDURES

Surveillance: Surveillance of mosquitoes in the District is accomplished by a combination of methods. First, technicians actively examine potential sites by sampling water, collecting

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

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

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

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

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

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

is judged to be the best action to be taken. Other methods of biological control include the use of mosquito pathogens, parasites and predators.

Chemical control agents employed by the District to control immature mosquitoes include stomach toxins bacterial derived control agents, insect growth regulators (IGR's) and other contact pesticides. Stomach toxins are products of natural bacteria that are commercially manufactured and formulated as bacterial larvicides. The District employs two agents, *Bacillus thuringiensis israelensis* (Bti) and *Bacillus sphaericus* (Bs). The spores of these bacteria can be applied as either a liquid or a granule. The stomach toxin is activated after the spores are eaten by larvae, restricting use of these agents to the feeding stages of larval development. Bti has the advantage of specificity, only affecting mosquitoes and related groups of flies. Bs has the added advantage over Bti of effectively controlling larvae in highly polluted water and sometimes reproducing, extending the duration of its effectiveness. Another product utilized by ACMAD is Spinosad, derived from the fermentation of the naturally occurring soil bacterium, *Saccharopolyspora spinosa*. It causes the excitation of the mosquito nervous system, ultimately leading to paralysis and death. Its action on the target organism is either by contact or by ingestion. This product can be applied in liquid or granular formulations.

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

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

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

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

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

PUBLIC RELATIONS, OUTREACH, AND EDUCATION

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

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

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

RESEARCH AND TESTING

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

SERVICE REQUESTS

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

ESTIMATE OF COST

FIGURE 1 – COST ESTIMATE – FY 2017-18

Alameda County Mosquito Abatement District	
Mosquito and Disease Control Assessment	
Estimate of Cost - Fiscal Year 2017-18	
	Preliminary Budget
Mosquito Control Services and Related Expenditures	
Mosquito Control and Disease Prevention	\$2,545,175.00
Materials, Utilities and Supplies	\$1,156,810.00
Capital Expenditures	\$240,000.00
Total Mosquito Control Services and Related Expenditures	\$3,941,985.00
Incidental Costs ¹	
Allowance for Uncollectable Assessments	\$500.00
County Collection, Levy Administration, and Other Incidentals	\$30,400.50
Total Incidental Costs	\$30,900.50
Total Budget	\$3,972,885.50
Total Benefits of Mosquito and Disease Control	\$3,972,885.50
Single Family Equivalent Units (SFEs)	\$453,550.30
Benefit Received per SFE Unit	\$8.76
Less	
Contributions from Other Sources²	
Revenue from property taxes/ other sources	(\$2,839,009.96)
Total Mosquito & Disease Control Services and Incidentals	\$1,133,875.54
Budget Allocation to Property	
Total Assessment Budget³	\$1,133,875.54
	Total SFE Units ⁴ \$453,550.30
	Assessment Rate per SFE⁵ \$2.50

Consolidated ER Notes:

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

METHOD OF ASSESSMENT

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

The Mosquito and Disease Control Assessment area consists of the Assessor Parcels within the Alameda County Mosquito Abatement District, with the exception of the City of Albany (*which decided not to be part of the District*).

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

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

DISCUSSION OF BENEFIT

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

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

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

The below benefit factors, when applied to property in the Assessment Area, confer special benefits to property and ultimately improve the safety, utility, functionality and usability of property in the Assessment Area. These are special benefits to property in the Assessment

Area in much the same way that storm drainage, sewer service, water service, lighting, sidewalks and paved streets enhance the safety, utility and functionality of each parcel of property served by these improvements, providing them with more utility of use and making them safer and more usable for occupants.

It should also be noted that Proposition 218 included a requirement that existing assessments in effect upon its effective date were required to be confirmed by either a majority vote of registered voters in the Assessment Area, or by weighted majority property owner approval using the new ballot proceeding requirements. However, certain assessments were excluded from these voter approval requirements. Of note is that in California Constitution Article XIID 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 XIID of the California Constitution to finance mosquito and disease control projects and programs. The intent of the Legislature to allow and authorize benefit assessments for mosquito and disease control services after Proposition 218 is shown in the Assembly and Senate analysis the Mosquito Abatement and Vector Control District Law where it states that the law:

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,

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

industrial and other types of properties because all such properties will directly benefit from reduced mosquito populations and properties with lower mosquito populations are more usable, functional and desirable.

Excessive mosquitoes in the area can materially diminish the utility and usability of property. For example, prior to the commencement of mosquito control and abatement services, properties in many areas in the State were considered to be nearly uninhabitable during the times of year when the mosquito populations were high.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:

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:

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:

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 recently 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.

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 mosquitoes¹⁶

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:

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/cnabs/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.

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

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

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

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

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

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

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

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.

GENERAL VS. SPECIAL BENEFIT

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

In other words:

$$\text{Total Benefit} = \text{General Benefit} + \text{Special Benefit}$$

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

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.

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 contain all parcels which will receive a special benefit from a proposed public improvement or property-related service.” (Art. XIII D, § 2, subd. (d), italics added.) In a well-drawn district — limited to only parcels receiving special benefits from the improvement — every parcel within that district receives a shared special benefit. Under section 2, subdivision (i), these benefits can be

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
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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. XIII D, 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

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.”

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:

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
 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.

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.

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

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

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

The Mosquito and Disease Control Assessment total mosquito abatement, disease control, and capital improvement is \$3,941,985. Of this total budget amount, the District will contribute \$2,839,010 or 72.02% 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

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."

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 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 calculation of the special benefit apportionment and relative benefit to properties in the Assessment Area from the Services is summarized in the following equation:

$$\text{Special Benefit (per property)} = \sum f(\text{Special Benefits}) * \sum f(\text{Property Specific Attributes}^1)$$

1. Such as use, property type, size, as well as vector-specific attributes such as destination potential and population potential

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.

RESIDENTIAL PROPERTIES

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

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

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

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

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

FIGURE 2– RESIDENTIAL ASSESSMENT FACTORS

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

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

COMMERCIAL/INDUSTRIAL PROPERTIES

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

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

To determine employee density factors, this Report utilizes the findings from the San Diego County Association of Governments Traffic Generators Study (the “SANDAG Study”) because these findings were approved by the State Legislature which determined the SANDAG Study to be a good representation of the average number of employees per acre of land area for commercial and industrial properties. As determined by the SANDAG Study, the average number of employees per acre for commercial and industrial property is 24. As presented in Figure 3, the SFE factors for other types of businesses are determined relative to their typical employee density in relation to the average of 24 employees per acre of commercial property.

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

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	0.021
Wineries	12	0.250
Golf Course	3.00	0.063
Cemeteries	1.20	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 XIID 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 2017-18 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 District Manager or his or her designee will promptly review the appeal and any information provided by the property owner. If the District 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 District 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 District Manager, or his or her designee, shall be referred to the District Board of Trustees. The decision of the District Board of Trustees shall be final.

ASSESSMENT

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

NOW, THEREFORE, the undersigned, by virtue of the power vested in me under Article XIID 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 4, 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 2017-18 is generally as follows:

FIGURE 5– SUMMARY COST ESTIMATE – FY 2017-18

Mosquito Abatement & Disease Control Services	\$2,545,175
Materials, Utilities and Supplies	\$1,156,810
Capital Equipment and Fixed Assets	\$240,000
Total Mosquito Control Services and Related Expenditures	\$3,941,985
Incidentals	\$30,901
Total Budget	\$3,972,886
Less Contributions from Other Sources:	
Other Revenue	<u>(\$2,839,010)</u>
Net Amount To Assessments	\$1,133,876
General Contribution to Total Mosquito Control Services and Relate Expenditures	72.02%

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 2015 to December 2016 was 3.53% and the Unused CPI carried forward from the previous year is 17.69%. Therefore, the maximum authorized increase in the Assessment rate for fiscal year 2017-18 is 21.22%, and the maximum authorized assessment rate is \$6.12 per single family equivalent benefit unit. The estimate of cost and budget in this Engineer's Report proposes assessments for fiscal year 2017-18 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 2017-18. 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 2017-18 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 4, 2017

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 GENERAL MANAGER OF THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT, COUNTY OF ALAMEDA, CALIFORNIA, THIS ____ DAY OF _____, 20__.

CLERK OF THE BOARD OF SUPERVISORS

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

CLERK OF THE BOARD OF SUPERVISORS

AN ASSESSMENT WAS CONFIRMED AND LEVIED BY THE BOARD OF SUPERVISORS OF ALAMEDA COUNTY, ON THE LOTS, PIECES AND PARCELS OF LAND ON THIS ASSESSMENT DIAGRAM ON THE ____ DAY OF _____, 20__ FOR THE FISCAL YEAR 2016-17 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.

CLERK OF THE BOARD OF SUPERVISORS

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

SCI Consulting Group
 4745 Mangels Blvd.
 Fairfield, CA 94534

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

ASSESSMENT ROLL

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

RESOLUTION NO. 1044-1

A RESOLUTION INTENTION TO CONTINUE ASSESSMENTS FOR FISCAL YEAR 2017-18, PRELIMINARILY APPROVING THE ENGINEER'S REPORT, AND PROVIDING FOR NOTICE OF HEARING FOR THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT MOSQUITO AND DISEASE CONTROL ASSESSMENT

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

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

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

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

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

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

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

1. SCI Consulting Group, the Engineer of Work, has prepared an Engineer's Report in accordance with Article XIID of the California Constitution and Section 2082, et. seq., of the Health and Safety Code (the "Report"). The Report has been made, filed with the secretary of the board and duly considered by the Board and is hereby deemed sufficient and preliminarily approved. The Report shall stand as the Engineer's Report for all subsequent proceedings under and pursuant to the foregoing resolution.
2. It is the intention of this Board to levy and collect the continued assessments for the Mosquito and Disease Control Assessment for fiscal year 2017-18 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 levy of the Assessment may be continued annually and may be adjusted by up to the maximum annual CPI adjustment without any additional assessment ballot proceeding. The change in the CPI in 2016 was 3.53% and the Unused CPI carried forward from the previous year is 17.69%. Therefore, the maximum authorized increase in the Assessment rate for fiscal year 2017-18 is 21.22%, and the maximum authorized assessment rate is \$6.12 per single family equivalent benefit unit. The estimate of cost and budget in this Engineer's Report proposes assessments for fiscal year 2017-18 at the rate of \$2.50, which is below the maximum authorized assessment rate.
4. The estimated fiscal year 2017-18 cost of providing the Services is \$1,133,875.54. This cost results in a proposed assessment rate for fiscal year 2017-18 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 14, 2017, at the hour of 5:00 p.m. at the Alameda County Mosquito Abatement District office located at 23187 Connecticut Street, Hayward, California; the Board will hold a public hearing to consider the ordering of the Services, and the levy of the continued assessments for fiscal year 2017-18.
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 10, 2017, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

President, Board of Trustees, Alameda County Mosquito
Abatement District

ATTEST:

Secretary, Board of Trustees, Alameda County
Mosquito Abatement District

ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT
LIST OF WARRANTS DATED **APRIL 15 2017**.

WAR NO	PAYEE	ACCT NO	AMT OF CHARGE	AMT OF WARRANT
049617	Biological Specialist			
	Total salary less deductions for payroll period	600001	\$2,747.92	
049617	Mosq Control Tech	600001	\$2,254.65	
049617	Lab Seasonal	600001	\$1,053.35	
049617	Vector Biologist	600001	\$2,853.13	
049617	Vector Biologist	600001	\$2,881.09	
049617	Mosq Control Tech	600001	\$2,220.80	
049617	Regulatory & Public Affairs Director	600001	\$2,832.65	
049617	District Manager	600001	\$3,628.10	
049617	Asst Mosq Control Tech	600001	\$2,259.33	
049617	Lab Seasonal	600001	\$244.40	
049617	Field Seasonal	600001	\$1,263.38	
049617	IT Director	600001	\$3,033.88	
049617	Lab Director	600001	\$2,951.19	
049617	Field Operations Supervisor	600001	\$3,562.92	
049617	Office Assistant	600001	\$1,729.79	
049617	Vector Biologist	600001	\$3,539.77	
049617	Mosq Control Tech	600001	\$2,718.56	
049617	Mosq Control Tech	600001	\$2,225.02	
049617	Office Seasonal	600001	\$1,229.36	
049617	Mechanical Specialist	600001	\$3,228.46	
049617	IRS	600001	\$8,038.80	
049617	Federal tax withheld (payroll)	600001	\$907.96	
049617	Medicare Tax Withheld (payroll)	600001	\$907.96	
049617	District Contribution to Medicare (payroll)	600401	\$907.96	
049617	State of California	600001	\$2,435.89	
049617	EDD	600001	\$523.82	\$61,272.18
049717	Public Employees' Retirement System	600001	\$16.00	
	Employee Contributions	600001	\$4,394.47	
	Employee Paid Member Contributions, 7% & 6.5%	600001	\$5,524.28	
	Employer Contribution 9.558% & 6.930%	600201		\$9,934.75
049817	Aetna Life & Annuity	600001		\$150.00
049917	CALPERS 457 Plan	600001		\$2,255.00
050017	Delta Dental Plan	600601		\$4,411.85
050117	Vision Service Plan	600601		\$651.36
050217	The Hartford	600601		\$78.71
050317	Airgas	620141.1		\$118.37
050417	All-Ways Green Services	620021		\$410.00
050517	Adapco	610461.1	\$28,322.95	
	Test kit	620141.2	\$1,060.12	\$29,383.07
050617	Alemayehu, Dereje	610191.3		\$37.98
050717	Beatty, Robert P.	610191.3		\$824.69
050817	California Board of Equalization	620141.5		\$295.00
050917	Cintas	610011		\$491.32
051017	Corporate Park Landscaping	610122		\$1,355.00
051117	Carquest Auto Parts	610141		\$97.35
051217	Grainger	610122.2	25.07	
	Shop supplies	620261	22.30	\$47.37
051317	Hayward Water System	610021		\$560.85
051417	Mello, Melvin	600601		\$104.40
051517	Mar-Len Supply Inc	610141		\$240.54
051617	NBC Supply Corp	610461.6		\$528.56
051717	Namakan West Fisheries	610461.4		\$555.00
051817	PFM Asset Management	610261		\$1,544.39
051917	PG & E	610021.2		\$274.09
052017	Pitney Bowes	620041		\$94.82
052117	Rusmisl, Benjamin	610191.3		\$76.85
052217	VCJPA	610261.4		\$217.92
052317	Waste Management	610021		\$218.67

WAR NO	PAYEE	ACCT NO	AMT OF CHARGE	AMT OF WARRANT
052417	U.S Bank			
	Saco - Weather face shield	610001	\$31.99	
	Amazon - Antibacterial wipes	610001	\$53.20	
	Cafepress - Mouse pad	620041	\$18.09	
	Canon Financial - Copier rental	620041	\$340.23	
	Amazon - Monitor stand	620041	\$19.99	
	Iron Mountain - Shredding	620041	\$239.31	
	Amazon - Headset for phone	620041	\$187.40	
	Amazon - Monitor	620042.1	\$477.32	
	Amazon - Telephone extension cord	620042.1	\$5.27	
	Amazon - Desktop computer	620042.1	\$559.99	
	Amazon - HDMI - Cable cord	620042.1	\$29.97	
	Amazon - Line cord	620042.1	\$11.60	
	Mayaco Marketing - Virus clean up	620042.3	\$1,875.00	
	Amazon - Batteries	620141.1	\$227.84	
	Amazon - Key holder	620141.1	\$15.05	
	The Webstaurant - Lid/cups	620141.1	\$35.21	
	Lampire - Chicken blood	620141.1	\$231.75	
	Mosquito Control Technology - Trapping	620141.1	\$365.14	
	Walmart.com - Trap supplies	620141.1	\$71.88	
	Smart N Final - Water	620141.1	\$36.90	
	Tech Safety - Labor	620141.3	\$580.53	
	Stericycle - Monthly energy charge	620141.3	\$188.53	
	Biospec - Mini bead beater	620141.3	\$87.00	
	Applied Biosystems - Quantstudio	620141.3	\$4,631.88	
	Apple Store - Keyboard	620141.5	\$184.63	
	Rainin - Electronic Pipette	620141.5	\$986.65	
	Gempler's - Water sensitive spray cards	620141.5	\$228.56	
	Tableau - Desktop renewal	620141.8	\$400.00	
	Amazon - Power point clicker	620141.8	\$39.99	
	Fisher Scientific - Screw cap grad	620141.8	\$351.90	
	Fisher Scientific - Distilled water	620141.8	\$179.99	
	Fisher Scientific - PBS PH 7.2	620141.8	\$65.95	
	Amazon - Wireless endoscope	620261	\$51.98	
	The Home Depot - Command wire hook	610122.2	\$49.95	
	Amazon - Radio for V-31	610141	\$185.00	
	Bay Area Battery - Battery service	610141	\$85.12	
	GoDaddy - Standard SSL Renewal	610022.3	\$69.99	
	Microsoft - Disputing charge- unknown charge	610022.3	\$99.99	
	GoDaddy - Hosting renewal	610022.3	\$9.99	
	Industrial Emergency - Emergency response	610351	\$75.00	
	Fastrak - Fastrak	610191.1	\$25.00	
	MVCAC - Registration for J.H & B.R	610191.3	\$525.00	
	Southwest - Flight for conference J.H	610191.3	\$368.87	
	Daiziel Garage - Parking for meeting E.C	610191.3	\$16.00	
	Embassy Suites - Parking for meeting M.M	610191.3	\$22.00	
	Target - Board supplies	610191.4	\$24.33	
	Safeway - Board supplies	610191.4	\$58.49	
	UCD Unex Student service - Course Enrollment	610191.7	\$360.00	
	Clipper service - Refill for clipper card	610191.7	\$40.00	
	Amazon - Chloramine remover	610461.4	\$36.95	
	Amazon - Marineland cartridge	610461.4	\$77.07	
	Amazon - Fish flakes	610461.4	\$29.99	
	Amazon - Atlantic crushed coral	610461.4	\$42.74	
	Amazon - Fish flakes	610461.4	\$62.96	
	Amazon - Ammonia remover	610461.4	\$19.72	
	Amazon - Safety equipment	610461.6	\$1,285.93	
	Amazon - Hip belts for backpacks	610461.6	\$32.93	
	Amazon - Backpack sprayer	610461.6	\$185.64	
	Yellow Pages - Yellow pages posting	610451	\$1,568.00	
	Peralta Colleges Foundation - Education	610451	\$50.00	
	Constant Contract - Contract	610451	\$20.00	
	Craigslist - Job posting	610261.2	\$75.00	
	Apple Store - I pad	650031.1	\$1,381.43	
	Amazon - Bluetooth keyboard for I pad	650031.1	\$75.00	
				\$19,768.81
				\$135,998.90

ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT
LIST OF WARRANTS DATED **APRIL 30, 2017**

WAR NO	PAYEE	FOR	ACCT NO	AMT OF CHARGE	AMT OF WARRANT
052517	Biological Specialist	Total salary less deductions for payroll period	600001	\$2,834.57	
052517	Mosq Control Tech	"	600001	\$2,254.67	
052517	Lab Seasonal	"	600001	\$768.42	
052517	Vector Biologist	"	600001	\$2,929.03	
052517	Vector Biologist	"	600001	\$2,881.09	
052517	Mosq Control Tech	"	600001	\$2,220.81	
052517	Regulatory & Public Affairs Director	"	600001	\$2,906.93	
052517	District Manager	"	600001	\$4,117.87	
052517	Asst Mosq Control Tech	"	600001	\$2,259.32	
052517	Lab Seasonal	"	600001	\$1,100.92	
052517	Field Seasonal	"	600001	\$1,263.38	
052517	IT Director	"	600001	\$3,144.64	
052517	Lab Director	"	600001	\$3,121.78	
052517	Field Operations Supervisor	"	600001	\$3,609.74	
052517	Office Assistant	"	600001	\$1,729.78	
052517	Vector Biologist	"	600001	\$3,539.76	
052517	Mosq Control Tech	"	600001	\$2,678.64	
052517	Mosq Control Tech	"	600001	\$2,225.00	
052517	Office Seasonal	"	600001	\$1,015.65	
052517	Mechanical Specialist	"	600001	\$3,317.71	
052517	IRS	Federal Tax Withheld	600001	\$8,479.88	
052517		Medicare Tax Withheld	600001	\$938.50	
052517		District Contribution to Medicare	600401	\$938.50	
052517	State of California	State Tax Withheld	600001	\$2,589.65	
052517	EDD	Ca Disability	600001	\$539.11	
052517	Underpayment to Bank of America	Underpayment to Bank of America	600001	\$2,834.12	\$60,571.23
052617	Public Employees' Retirement System	Employees contributions	600001	\$16.00	
		Employee paid member contributions, 7%, 6.5%	600001	\$4,390.02	
		District contribution 9.558%, 6.930%	600201	\$5,519.54	\$9,925.56
052717	Aetna Life & Annuity	Employee contributions	600001		\$150.00
052817	CalPERS 457 Plan	Employees contributions - PERS 457	600001		\$2,255.00
052917	CalPERS	Health insurance	600601		\$31,685.40
053017	P. Robert Beatty	Trustee in lieu expenses - 1043rd meeting	610191.5		\$100.00
053117	Elizabeth Cooley	Trustee in lieu expenses - 1043rd meeting	610191.5		\$100.00
053217	James Doggett	Trustee in lieu expenses - 1043rd meeting	610191.5		\$100.00
	Robert Dickinson	Trustee in lieu expenses - 1043rd meeting	610191.5		
053317	Richard Guarienti	Trustee in lieu expenses - 1043rd meeting	610191.5		\$100.00
053417	Eric Hentschke	Trustee in lieu expenses - 1043rd meeting	610191.5		\$100.00
053517	Ed Hernandez	Trustee in lieu expenses - 1043rd meeting	610191.5		\$100.00
053617	Humberto Izquierdo	Trustee in lieu expenses - 1043rd meeting	610191.5		\$100.00
053717	Elisa Marquez	Trustee in lieu expenses - 1043rd meeting	610191.5		\$100.00
053817	Katherine Narum	Trustee in lieu expenses - 1043rd meeting	610191.5		\$100.00
	Wendi Poulson	Trustee in lieu expenses - 1043rd meeting	610191.5		
053917	Ronald Quinn	Trustee in lieu expenses - 1043rd meeting	610191.5		\$100.00
054017	Jan Washburn	Trustee in lieu expenses - 1043rd meeting	610191.5		\$100.00
054117	George Young	Trustee in lieu expenses - 1043rd meeting	610191.5		\$100.00
054217	Airgas	Dry ice pellets	620141.1		\$384.41
054317	Bay Central Printing	General Booklets	610451		\$1,975.98
054417	Beck's Shoes	Boots for J.F	610001		\$176.97
054517	Cintas	Personal supplies	610001		
		Laundry service	610011	\$287.66	\$287.66
054617	Clarke Mosquito Control	Natular XRT	610461.1		\$1,383.67
054717	Dale Hardware Ace	Invasive Aedes Kits	610461.2		\$139.67
054817	Grainger	Shop Supplies	620021	\$80.82	
		Shop Supplies	620261	\$40.40	\$121.22
054917	Kimball Midwest	Shop Supplies	610461.6		\$142.98
055017	Liewer Enterprises Inc	Shop supplies	610141		\$195.21
055117	MVCAC	MVCAC Conference	610191.3		\$290.00
055217	Mobile Modular Public Storage	Shed Project	800002		\$113.59
055317	Mar-Len Supply Inc	Shop supplies	610141		\$482.42
055417	Praxair	Shop Supplies	610141		\$27.84
055517	PG & E	Utilities	610021		\$1,346.30
055617	PC Professional	Data base development	620042.3		\$4,299.75
055717	Sonitrol	Monitoring charges and CCTV Fees	620021		\$743.00
055817	Techniclean	Towels	620021		\$65.67
055917	Verizon	Communication expenses	610022.4	\$676.11	
		Equipment	650031.1	\$925.63	\$1,601.74
056017	Washburn, Jan	Reimbursement for MVCAC Conference	610191.3		\$1,000.73
056117	Wright Express	Fuel expenses, statement ended 04-15-17	610191.1		\$3,324.84
Total Warrants					\$123,890.84
Total Warrants April 30th					\$ 123,890.84
Total Warrants April 15th					\$ 135,998.90
Total March Warrants					\$ 259,889.74

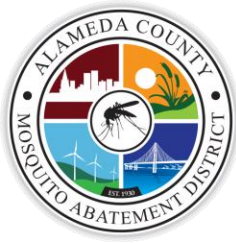
Alameda County Mosquito Abatement District Budget Summary
As of April 30, 2017. (10 of 12 mth, 84%)

Account #		EXPENDED IN (April)	EXPENDED TO DATE	BUDGETED	BALANCE	% EXPEND ED
SALARY & BENEFITS						
600001	Salary and Wages	\$ 133,084.33	\$ 1,382,357.94	\$ 1,700,594.00	\$ 318,236.06	81%
600401	Contribution to Medicare	\$ 1,846.46	\$ 17,602.24	\$ 24,659.00	\$ 7,056.76	71%
600201	Contribution to Retirement	\$ 11,043.82	\$ 397,813.62	\$ 422,589.00	\$ 24,775.38	94%
600601	Contribution to Health Care	\$ 37,470.83	\$ 378,595.57	\$ 500,000.00	\$ 121,404.43	76%
SERVICE AND SUPPLIES						
610001	Clothing and personal supplies	\$ 262.16	\$ 3,664.74	\$ 8,500.00	\$ 4,835.26	43%
610011	Laundry services and supplies	\$ 778.98	\$ 6,546.05	\$ 9,000.00	\$ 2,453.95	73%
610021	Utilities total	\$ 2,399.91	\$ 22,518.02	\$ 35,900.00	\$ 13,381.98	63%
Communications						
610022.1	Telephone Service & Internet	\$ -	\$ 7,968.57	\$ 13,800.00	\$ 5,831.43	58%
610022.3	Website and email hosting	\$ 179.97	\$ 708.30	\$ 850.00	\$ 141.70	83%
610022.4	Cell phone service (Verizon)	\$ 676.11	\$ 5,502.74	\$ 9,000.00	\$ 3,497.26	61%
610141	Maintenance of equipment	\$ 3,289.46	\$ 18,744.37	\$ 45,000.00	\$ 26,255.63	42%
Maintenance of structure and improvements						
610122.1	Landscaping service	\$ 195.00	\$ 1,950.00	\$ 3,600.00	\$ 1,650.00	54%
610122.2	Building Maintenance and repairs	\$ 75.02	\$ 13,934.05	\$ 10,000.00	\$ (3,934.05)	139%
610122.3	Yard Maintenance and repairs	\$ 1,160.00	\$ 1,160.00	\$ 1,400.00	\$ 240.00	83%
Transportation, travel, & training						
610191.1	Fuel and GPS (WexMart)	\$ 3,349.84	\$ 30,101.33	\$ 40,000.00	\$ 9,898.67	75%
610191.3	Meetings, conferences, & travel	\$ 3,162.12	\$ 17,391.26	\$ 35,000.00	\$ 17,608.74	50%
610191.4	Board meeting expenses	\$ 82.82	\$ 461.93	\$ 1,000.00	\$ 538.07	46%
610191.5	Board payments in lieu	\$ 1,200.00	\$ 9,800.00	\$ 16,800.00	\$ 7,000.00	58%
610461.53	Continuing Education fees	\$ -	\$ 145.00	\$ 4,000.00	\$ 3,855.00	4%
610191.6	Training for trustees	\$ -	\$ -	\$ 1,000.00	\$ 1,000.00	0%
610191.7	Staff Training (automotive, IT, staff development)	\$ 400.00	\$ 10,309.47	\$ 80,000.00	\$ 69,690.53	13%
Professional services						
610261.1	Audit	\$ -	\$ 13,135.00	\$ 13,000.00	\$ (135.00)	101%
610261.2	Actuarial reports	\$ -	\$ 1,300.00	\$ 3,000.00	\$ 1,700.00	43%
610261.3	Helicopter service	\$ -	\$ -	\$ 30,000.00	\$ 30,000.00	0%
610261.4	Legal services	\$ 217.92	\$ 1,473.76	\$ 20,000.00	\$ 18,526.24	7%
610261.5	MVCAC Research Foundation	\$ -	\$ -	\$ 5,000.00	\$ 5,000.00	0%
610261.6	UC Davis Zika virus vector competency research	\$ -	\$ 7,500.00	\$ 7,500.00	\$ -	100%
610261.7	Tax collection service - SCI	\$ -	\$ 32,371.98	\$ 35,000.00	\$ 2,628.02	92%
610261.8	Payroll service	\$ -	\$ 49.95	\$ 6,000.00	\$ 5,950.05	1%
610261.9	Environmental consultant services for regulatory issues	\$ -	\$ -	\$ 5,000.00	\$ 5,000.00	0%
610261.1	HR Services (RGS)	\$ 75.00	\$ 174.90	\$ 25,000.00	\$ 24,825.10	1%
610261.11	OPEB service	\$ 1,544.39	\$ 14,742.21	\$ 22,100.00	\$ 7,357.79	67%
610351	Annual memberships and dues total	\$ 75.00	\$ 17,250.00	\$ 22,935.00	\$ 5,685.00	75%
610378	Insurance total	\$ -	\$ 113,867.00	\$ 140,138.00	\$ 26,271.00	81%
610451	Community education total	\$ 1,638.00	\$ 10,218.81	\$ 35,000.00	\$ 24,781.19	29%
Special expenses						
610461.1	Pesticides	\$ 29,706.62	\$ 76,732.48	\$ 200,000.00	\$ 123,267.52	38%
610461.2	Field supplies (dippers etc)	\$ 139.67	\$ 253.82	\$ 1,000.00	\$ 746.18	25%
610461.4	Fish and Fish Maint.	\$ 824.43	\$ 2,140.29	\$ 4,000.00	\$ 1,859.71	54%
610461.51	Aerial Pool Survey	\$ -	\$ -	\$ 17,000.00	\$ 17,000.00	0%
610461.52	Permits	\$ -	\$ 3,232.00	\$ 3,000.00	\$ (232.00)	108%
610461.54	Board plaques and nameplates	\$ -	\$ 215.80	\$ 1,000.00	\$ 784.20	22%
610461.6	Spray equipment & Safety	\$ 2,176.04	\$ 9,009.51	\$ 14,000.00	\$ 4,990.49	64%
620021	Household expenses total	\$ 1,299.49	\$ 14,552.80	\$ 14,480.00	\$ (72.80)	101%
620041	Office supplies total	\$ 899.84	\$ 13,538.26	\$ 22,400.00	\$ 8,861.74	60%
Information technology						
620042.1	Computers, supplies and software	\$ 1,084.15	\$ 8,092.52	\$ 15,000.00	\$ 6,907.48	54%
620042.2	Contract services for Computer network	\$ -	\$ 475.00	\$ 4,000.00	\$ 3,525.00	12%
620042.3	Database consultant	\$ 6,174.75	\$ 10,892.25	\$ 25,000.00	\$ 14,107.75	44%
620141	Laboratory total	\$ 10,767.28	\$ 48,292.75	\$ 88,594.00	\$ 40,301.25	55%
620261	Small tools and instruments	\$ 114.68	\$ 2,118.93	\$ 2,500.00	\$ 381.07	85%
650031.1	Capital expenditures	\$ 2,382.06	\$ 165,088.37	\$ 295,000.00	\$ 129,911.63	56%
TOTAL EXPENDITURES		\$ 259,776.15	\$ 2,893,993.59	\$ 4,039,339.00	\$ 1,145,345.41	72%
TOTAL WARRANTS		\$ 259,889.74				
Discrepancy from Expenditures and Warrant list ¹		\$ 113.59				

1- \$113.59 spent in Capital Replacement, account 800002

Investments, Reserves, and Cash Balance

Account #		Activity in April	Activity to Date	Beginning Balance 7/1/16	April Balance	% change
Budget Reserves						
800001	Working Capital (Dry Period Cash)	\$ -	\$ -	\$ 2,427,743.00	\$ 2,427,743.00	0.0%
800002	Capital Replacement	\$ 113.59	\$ 21,050.80	\$ 544,731.00	\$ 523,680.20	-3.9%
800003	Public Health	\$ -	\$ -	\$ 500,000.00	\$ 500,000.00	0.0%
800004	Contingency		\$ 250.00	\$ 25,000.00	\$ 24,750.00	-1.0%
VCJPA Reserve						
800006	VCJPA Contingency		\$ 77,000.00	\$ 210,282.00	\$ 287,282.00	36.6%
<hr/>						
		March Balance			April Balance	% change
Investment Accounts						
800005	LAIF	\$ 150,599.37			\$ 150,887.49	0.2%
	OPEB Fund	\$ 4,048,507.14			\$ 4,097,643.97	1.2%
<hr/>						
		March Balance	April Expenditures	Deposits	April Balance	% change
Bank of America (Payroll Account)						
	County Account	\$ 4,762,762.66	\$ 259,889.74	\$ (1,813,829.50)	\$ 6,316,702.42	32.6%



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MONTHLY STAFF REPORT – April 2017

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1. OPERATIONS

A. Narrative

Significant amounts of water remained in most of the county during the month of April. Thus, treatments for *Culex tarsalis* continued throughout the month. Many of these treatments were conducted via Argos, in multi-acre sources. This will continue in the months to come until these sources completely dried down. Several vernal pool sources in the Fremont area were treated by multiple members of the field staff by hand. These are large and expansive sources that are under the jurisdiction of the U.S. Fish & Wildlife Service (USFWS). These areas are habitats for several listed endangered species. This means that trucks and Argos cannot be utilized and that the treatments must be conducted by hand with a limited suite of materials. Cooperation and team work among the field staff have proven to be the only way to achieve effective and timely treatments in sources of this magnitude. In the months to come, this will also be the case for treatments of *Aedes dorsalis* in tidal marsh sources controlled by the USFWS.

Trap numbers received from the lab continue to support the assertions from the last few months that operations directed toward ACMAD's winter species of mosquitoes were very effective. This has also been reflected in service request data.

With spring-like weather becoming more the norm, field staff have also been keeping close tabs on catch basins and sewer plants in anticipation of *Culex pipiens* becoming more prevalent in the environment. Operations staff are also expecting to see above normal *Cx. pipiens* issues related to standing water under private residences, apartments, and commercial buildings due to the significant amounts of rain received this season, the resulting raise in seepages, and the overall water table. These situations can be difficult to locate and can generate high numbers of *Cx. pipiens*. These inspections often require a significant amount of detective work to locate and treat.

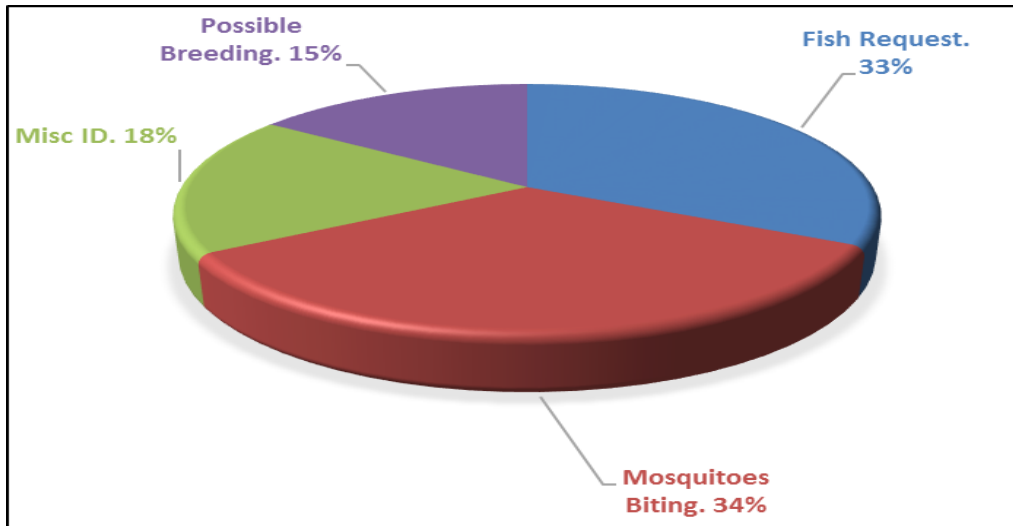
As was the case last month, significant numbers of "mosquito like" insects (midges, crane flies etc.) are present in almost all regions of Alameda County. Service requests from the public related to these insects often read something like: "thousands" or "huge swarms". Upon arriving at many of these calls, especially those generated by midges, field staff are encountering homes and businesses with indeed thousands of *Chironomidae* midges resting on the walls, windows and eaves. These insects do not bite nor transmit disease but can cause great concern and generate a lot of calls from the public. Field staff are doing their best to educate the public on these and other non-mosquito look-alikes.

Service requests for mosquito fish also spiked in the month of April. These were for ornamental ponds, horse troughs, and swimming pools. Operations staff expect this trend to continue in the months to come as well. This will likely be the case for service requests related to possible mosquito breeding sources including standing water, swimming pools, containers, and seepages.

Joseph Huston
Field Operations Supervisor

B. Operational Data

1. Service Requests



April 2017	
Total service requests	243
April- Ten year average	194
April- Five year average	191
Last April	333
Range (last 10 years)	124 - 333
Mosquito species attributed to service requests	
	#
<i>Cs. incidens</i>	72
<i>Cs. inornata</i>	11
<i>Cx. tarsalis</i>	6
<i>Cx. pipiens</i>	2
<i>Ae. sierrensis</i>	1

2. Other

Number of all injuries during 2017 = 2

3. Activity Report

Vacation Hours Used	285.50
Sick Hours Used	105.5
Workers Comp.	0
ETO Used	0
Total Leave	=391
ETO Hours Accrued	11.75

2. LAB

Budget

As of April 30, 2017 (month 9 of 12, 75 % of the year), 38 % of the lab budget has been expended.

Mosquito Abundance Monitoring

- **Native mosquito abundance monitoring.**
 - Weather for the month of April 2017 was warmer and had less rainfall compared to the prior month (minimum and maximum average temperatures of 45.2 °F and 80.2 °F, respectively; average temperature of 58.5 °F; 1.93 inches of rain; 174 heat degree days; data from Vantage Pro2 weather station installed at ACMAD headquarters; Figure 1). Only four rainy days prevented CO₂ trapping during the month. Consequently, 145 CO₂ traps were placed during the month of April.
 - *CO₂ Traps.* An average of 11.0 mosquitoes were collected per CO₂ trap night (range of 0 – 427 mosquitoes / trap night). When only traps that contained mosquitoes were included (n = 105 traps), during April there were 15.2 mosquitoes per trap night. Geographically, the highest number of mosquitoes for the month of April was observed in cities adjacent to the San Francisco Bay (Figure 2). Cities with highest abundance were: Hayward and Fremont where *Aedes washioni* predominated, and Oakland and Alameda where *Culex tarsalis* (a West Nile virus vector) were the most common species captured in the CO₂ traps. Mosquito abundance for April 2017 as measured using CO₂ traps was generally similar or lower relative to the two prior years (2015 and 2016; Figure 3A). While the abundance of *Aedes squamiger* was higher in April 2017 relative to the two prior years, intensified trapping efforts for *Ae. squamiger* are ongoing in 2017 to better pinpoint breeding locations and adult emersion times.
 - *New Jersey Light traps.* New Jersey Light traps (NJLT) are monitored each week of the year. During April, an average of 3.32 mosquitoes were captured per NJLT trap night (n = 273 trap nights). Mosquito abundance, as measured using NJLT, was lower for 2017 relative to the prior two years (Figure 3B).
- **Invasive *Aedes* mosquito monitoring** (*prepared by Dereje Alemayehu, Biological Specialist*). The Lab has continued to deploy traps targeting invasive *Aedes* mosquitoes. However, to date there has been no detection of invasive *Aedes* mosquitoes collected in any of the invasive *Aedes* traps we have deployed throughout the County. For the month of April 2017, we had a total of 103 invasive *Aedes* mosquito traps deployed throughout Alameda County. Out of these 51 traps are AGO (autocidal gravid oviposition) traps, 51 Ovi-bucket traps and 7 BG-Sentinel.

Table 1. Invasive mosquito traps deployed and inspected in April 2017 throughout Alameda County.

TRAP TYPES	AGO	OVI	BG- SENTINEL	TOTAL # OF TRAPS
PERMANENT TRAPS	20	20	7	47
TOTAL # OF TRAPS INSPECTED IN THE MONTH OF MARCH 2017	20	20	7	47

Arbovirus Monitoring

- **WNV in birds and mosquitoes.** No WNV-positive birds or mosquitoes were detected in Alameda County for the month of April. For the year 2017, no mosquitoes or birds have been found to contain WNV, SLE or WEE.

Preparations for Abundance Surveillance during 2017

- Materials for constructing 300 invasive *Aedes* oviposition bucket traps have been purchased and a seasonal employee hired to manufacture the traps using CDC ELC funds.
- The lab continues to test and provide comment on the beta version of the MapVision database and data visualization software.

Research

- Research efforts were focused upon developing methods for mosquito blood meal analysis.

Figures

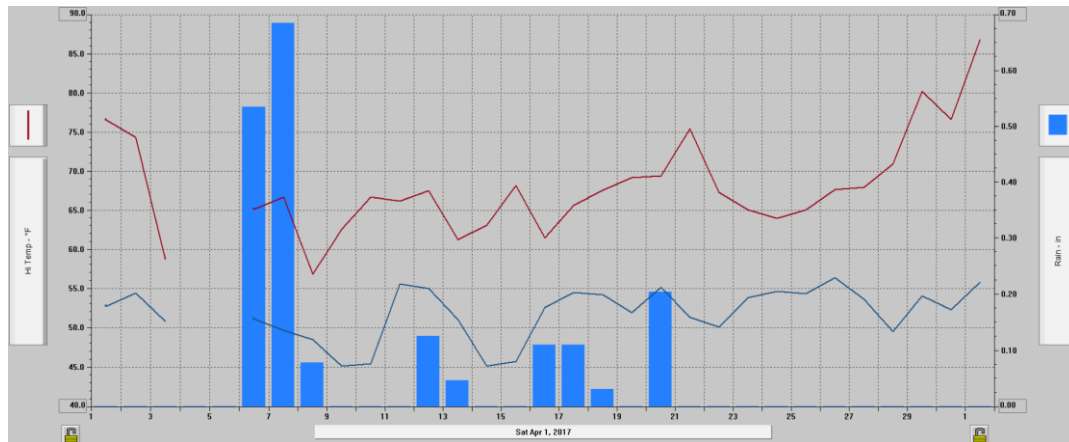


Figure 1. Temperature during the month of April, 2017 (red line is daily high temperature, blue line is daily low temperature) and rainfall (blue bars).

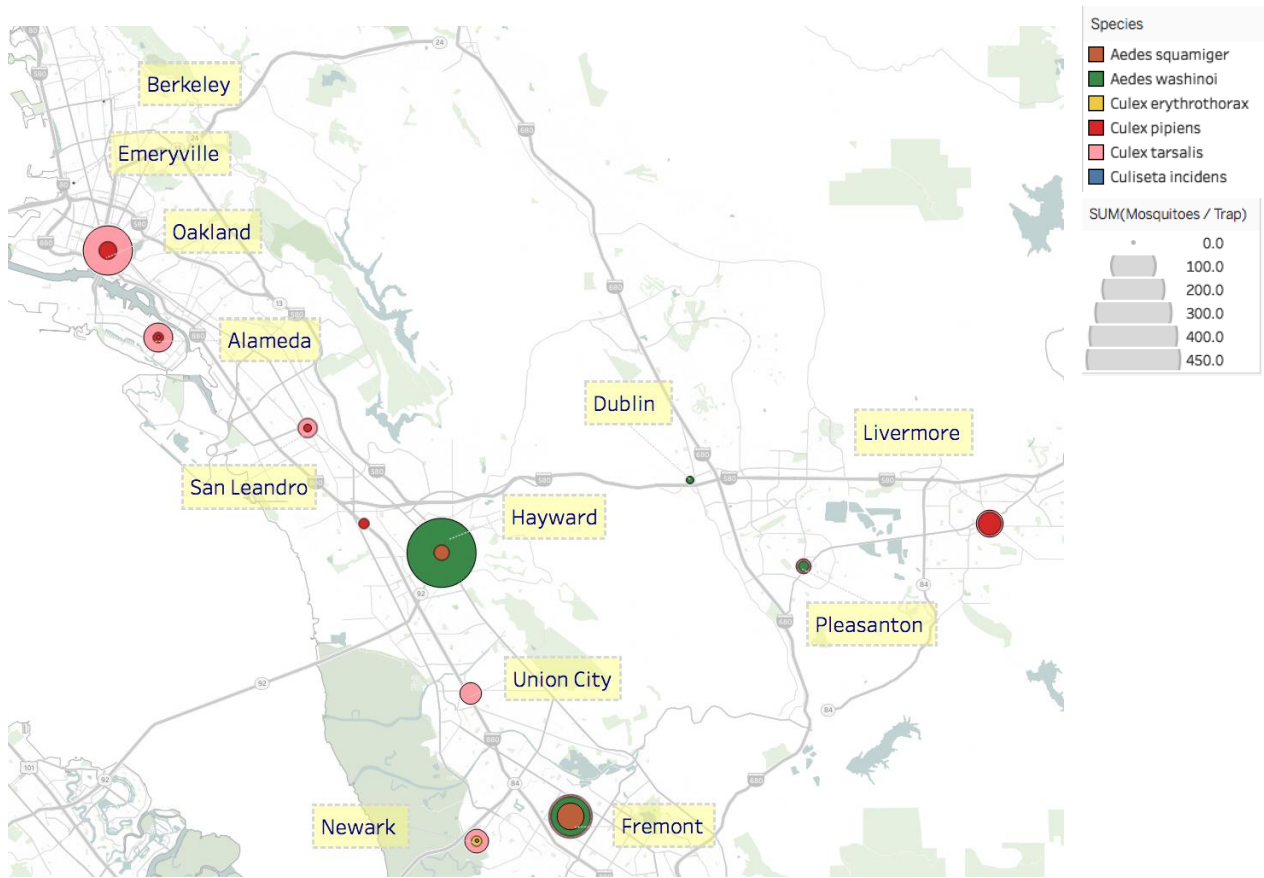
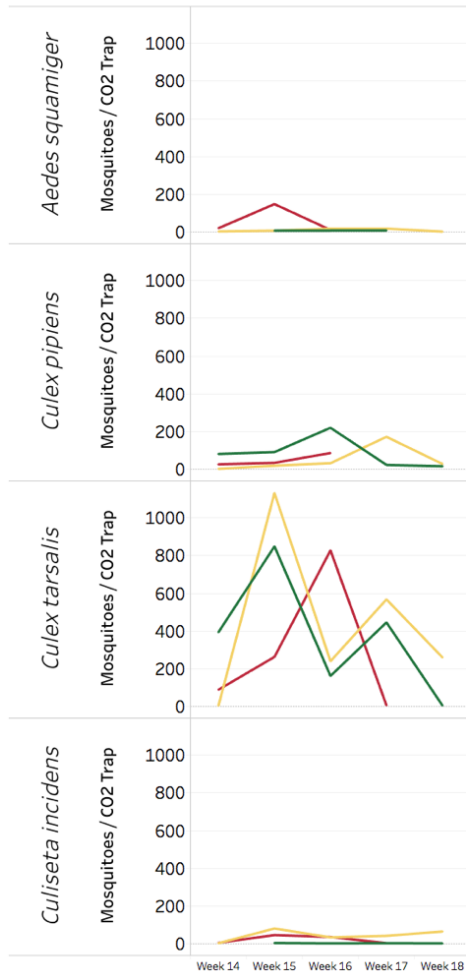


Figure 2. Geospatial distribution of the most prevalent mosquito species collected in each City during the month of April 2017. Larger diameter circles indicate higher numbers of mosquitoes while color of the nested circles indicate the species.

AApril Mosquito Abundance (CO₂ Traps)**B**

April Mosquito Abundance (NJLT Traps)

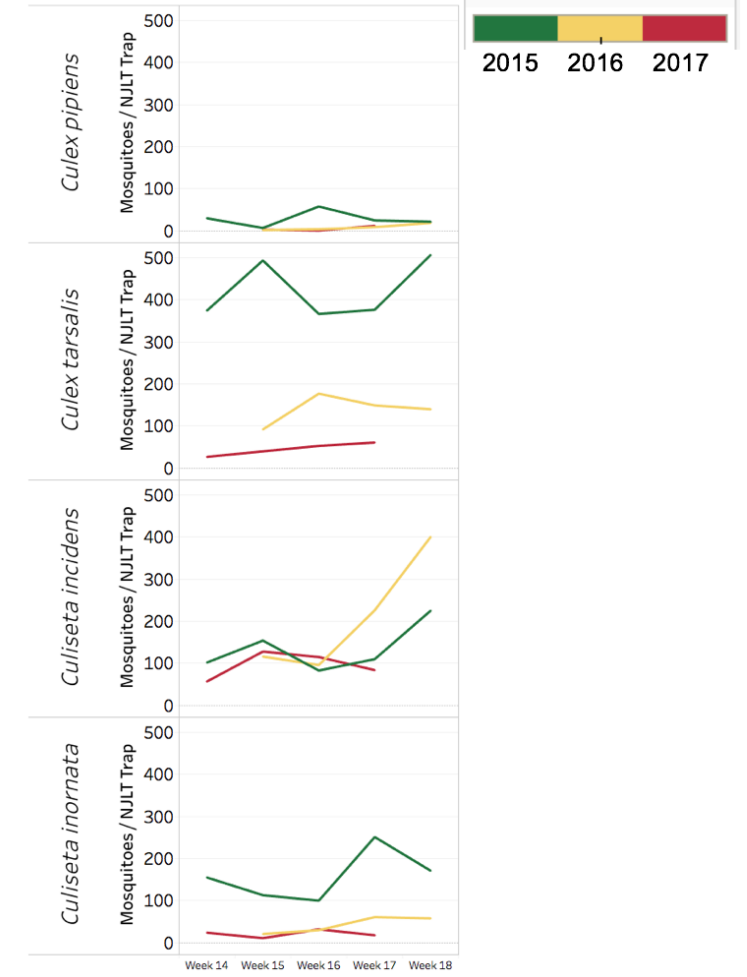


Figure 3. Abundance of the most prevalent mosquito species collected in the County using CDC EVS CO₂ traps (A) and NJLT (B) during the month of April for 2015 (green line), 2016 (yellow line) and 2017 (red line).

Submitted respectfully by Eric Haas-Stapleton, PhD on May 3, 2017.

3. PUBLIC EDUCATION

A. Upcoming Events

- **Alden Lane Nursery Mosquitofish Giveaway** – Saturday, May 13th, 10am-2pm (981 Alden Lane, Livermore)
- **EBRPD Presentation** – Wednesday, May 17th, 12:30pm
- **Palomares Elementary Science Expo** – Thursday, May 18th, 8am-2pm (6395 Palo Verde Rd, Castro Valley)
- **Niles Art, Garden, & Quilt Show** – Sunday, May 21st, 10am-3pm (Downtown Niles)
- **San Leandro Cherry Festival** – Saturday, June 3rd, 11am-6pm (Downtown San Leandro)
- **Alameda County Fair** – Friday, June 16th to Sunday July 9th, (Alameda County Fairgrounds, Pleasanton)

B. Google Analytics

	April 2017	March 2017	April 2016
Users	2,075	2,097	2,144
Number of Sessions	2,479	2,411	2,528
Sessions by New Visitors	2,029 (81.8%)	2,063 (85.6%)	2,088 (82.6%)
Pageviews	4,774	4,344	5,286
Average Session Duration	1 minute 38 seconds	1 minute 30 seconds	2 minutes 10 seconds
Top Cities	San Francisco (8.6%), Hayward (6.1%), Los Angeles (5.9%), Oakland (4.1%), Berkeley (4%)	Los Angeles (12.2%), Hayward (4.5%), San Francisco (4.2%), Oakland (4%), San Diego (2.9%)	San Francisco (6.8%), Oakland (6.2%), Fremont (5.8%), Hayward (5%), Los Angeles (4.4%)
Top Pages	CA Species (21.2%), Homepage (15.8%), Report Mosquito Problem (7.5%), Mosquitofish Request (6.6%), Education (5.3%)	CA Species (30.2%), Homepage (15.9%), Mosquito Like Insects (5.7%), Education (5.6%), Mosquitofish Request (5.1%)	Homepage (23%), CA Species (15.2%), Report Mosquito Problem (8.9%), Mosquitofish Request (6.2%), Mosquito Like Insects (4%),

C. Facebook

	April 2017	March 2017
Total Posts	11	5
Number Reached	809	533
Most Popular	Spring and flying insects article	DEET still the best recommended repellent
Total Number of “Likes”	123	122

D. Twitter

	April 2017	March 2017
Total Tweets	11	5
Tweet Impressions	1,643	2,883
Top Tweet (# Impressions)	Flooding causes explosion of mosquitoes in Stanislaus County	DEET still the best recommended repellent
Profile Visits	108	95
New Followers (Total Followers)	5 (475)	15 (470)