SACRAMENTO-YOLO MOSQUITO & VECTOR CONTROL DISTRICT

SEPTEMBER 17, 2019

BOARD OF TRUSTEES
REGULAR MEETING

BOARD PACKET

10:00 A.M.

8631 Bond Road
Elk Grove, CA 95624

SACRAMENTO/YOLO MOSQUITO
& VECTOR CONTROL DISTRICT
BOARD OF TRUSTEES REGULAR MEETING

8631 Bond Road
Elk Grove, CA 95624

AGENDA
September 17, 2019
10:00 AM

In compliance with the Americans with Disability Act, if you are a disabled person and you need a disability-related modification or accommodation to participate in this meeting, please contact the District office at (916) 685-1022 or (916) 685-5464 (fax). Requests must be made as early as possible, and at least one-full business day before the start of the meeting.
Documents and materials relating to an open session agenda item that are provided to the SYMVCD Board less than 72 hours prior to a regular meeting will be available for public inspection and copying at 8631 Bond Road, Elk Grove, Ca 95624. The documents will also be available on the agency's website at www.fightthebite.net.

CALL TO ORDER:
- **Roll Call**
- **Pledge of Allegiance**

1. **Items for Approval by General Consent:**
   a. **Minutes of the August 20, 2019 Board of Trustees Meeting**
   b. **Expenditures for August 2019**
   c. **District Investment Report for Period Ending June 30, 2019**
   d. **Annual Cooperative Agreement Between the California Department of Public Health and the Sacramento-Yolo Mosquito and Vector Control District**

2. **Opportunity for Public Comment**
   This item is reserved for members of the public who wish to speak on items not on the agenda

3. **Reports to the Board**
   a. **Manager's Report**
   b. **Reports from District Departments**
      - **Lab/Surveillance**
      - **Ecological Management**
      - **Biological Control**
      - **Larval and Adult Control**
      - **Public Outreach**

4. **Board Review and Consideration of CalPERS Valuation Report**

5. **Status of Invasive Species Detection and District Response**

6. **Board Review and Consideration of a Sterile Insect Technique Program**

7. **Closed Session- Conference with Legal Counsel – Threatened or Anticipated Litigation (Gov. Code s. 54956.9 (d)(1), (d) (2)) – One (1) Matter – Unfair Labor Practice Charge Filed with Public Employment Relations Board by Operating Engineers Local No. 3.**

8. **Board/Staff Reports and Requests**

9. **Adjournment**

Sacramento-Yolo Mosquito and Vector Control District

September 17, 2019 Board Meeting

1. Items for Approval by General Consent:

a. Minutes of the August 20, 2019 Board of Trustees Meeting;
b. Expenditures for August 2019;
c. District Investment Report for Period Ending June 30, 2019;
d. Annual Cooperative Agreement Between the California Department of Public Health and the Sacramento-Yolo Mosquito and Vector Control District.

Recommendation:

Approve the Items by General Consent

MINUTES OF THE AUGUST 20, 2019
MEETING OF THE BOARD OF TRUSTEES OF THE
SACRAMENTO-YOLO MOSQUITO & VECTOR CONTROL DISTRICT

PLACE: 8631 Bond Road, Elk Grove, CA 95624
TIME: 10:00 a.m.

TRUSTEES PRESENT:

Raymond LaTorre	President	Sacramento
Jayna Karpinski-Costa	Vice President	Citrus Heights
Craig Burnett	Secretary	Folsom
Raul DeAnda		West Sacramento
Sean Denny		Woodland
Bruce Eldridge		Yolo County
Lyndon Hawkins		Elk Grove
Gar House		Winters
Susan Maggy		Sacramento County
Robert McGarvey		Rancho Cordova
Rosemarie Moore		Isleton

TRUSTEES ABSENT:

Christopher Barker	Davis
Vacant	Galt

LEGAL COUNSEL:

Jennifer Buckman

STAFF PRESENT:

Gary Goodman	Manager
Samer Elkashef	Assistant Manager
Janna McLeod	Administrative Manager
Marcia Reed	Laboratory Director
Steve Ramos	Program Coordinator
Marty Scholl	Ecological Management Supervisor
Tony Hedley	Fisheries Supervisor
Luz Robles	Public Information Officer

CALL TO ORDER

The meeting was called to order at 10:00 a.m. by President Raymond LaTorre.

Roll Call
Trustee Christopher Barker was absent; however, a quorum was present.

Pledge of Allegiance
All phones and electronic devices are requested to be silenced during the meeting.

1. ITEMS FOR APPROVAL BY GENERAL CONSENT

Manager Goodman pulled item 1d. for discussion. On a motion by Trustee Karpinski-Costa seconded by Trustee Denny, the Board voted to approve General Consent Items a. through c, and e. The motion passed by the following vote: Ayes: 11, Noes: 0, Absent: 1

a. Minutes of the July 16, 2019 Board of Trustees Meeting;
b. Expenditures for July 2019;
c. Board Consideration of Resolution Honoring Randy Burkhalter for His Years of Service;
d. Board Authorization to Grant a Leave of Absence for District Employee Pursuant to Section 6.05 (b) of the District Personnel Manual;
e. Board Review and Approval of Yolo County Department of Financial Services Office Authorization Form for FY 2019-2020.

Manager Goodman pulled item 1d. to inform the Board that a recent update had been received from the doctor indicating that more time would be needed for the employee's treatment. Manager Goodman requested a change in the extension date to October 15, 2019. On a motion by Trustee Moore, seconded by Trustee Denny, the Board voted to approve a medical leave of absence for Henry Estrada from June 13, 2019 through October 15, 2019. The motion passed by the following vote: Ayes: 11, Noes: 0, Absent: 1.

2. OPPORTUNITY FOR PUBLIC COMMENT

This item is reserved for members of the public who wish to speak on items not on the agenda.

There were none.

3. REPORTS TO THE BOARD

a. Manager's Report:

The District's West Nile season is the slowest one on record since the introduction to our area in 2004. We continue to follow the Districts Mosquito Borne Disease Management Plan with enhanced surveillance and control efforts in response to positive dead birds or positive mosquito collections. The spread of *Aedes aegypti* is getting closer to the District boundaries with San Joaquin and Stanislaus counties finding the invasive mosquito. The laboratory staff is continuing our extensive trapping program to monitor their status within our boundaries. The District has been contacted by US EPA for a site visit to discuss our operations and mosquito control challenges in California. They are scheduled for a visit during the week of September 9th. The MVCAC supported bill, AB 320, which would create and codify the California Mosquito Surveillance and Research Program, was heard and passed out of the Senate Appropriations Committee on August 12th.

b. Reports from District Departments: Written reports were provided in the Board packet from each department. Department supervisors gave an oral presentation and were available to answer any questions.

<u>Lab/Surveillance:</u> Laboratory Director, Marcia Reed discussed department activities including mosquito abundance, EVS surveillance, studies and collaborations. Of the 4047 mosquito pools (samples) collected and tested we have found 26 to be positive for WNv. Twenty-three from Sacramento County and 3 from Yolo County. In addition, trapping being done by UC Davis found 3 more positives in Yolo County. Response trapping is being conducted around all of the positive sites. Additional training for staff has been conducted in light of *Aedes aegypti* mosquitoes being found in our neighboring county of San Joaquin.

<u>Ecological Management:</u> Ecological Management Supervisor, Marty Scholl discussed department activities including Stormwater/Drainages, Wetland Program, Pool Program, and the UAS Program. Staff has been working with California DWR maintenance division to remove beaver dams and stream bed sediment blockages within the Natomas Main Drainage Canal and included pictures of the work in his report. Throughout the season so far Ecological Management has served 19 swimming pool warrants with 5 more to be submitted. A Blanket warrant request has been submitted with the judge giving specifics to include in the request for potential approval. Mr. Scholl took and passed the CDPR certification for Vector Control applications by UAS.

<u>Biological Control:</u> Fisheries Supervisor, Tony Hedley discussed department activities including fish plants and usage, the ongoing pond dye study, crayfish control challenges, solar aerators and dissolved oxygen levels, and regular maintenance tasks. Crayfish control has been improving; therefore, fish yields have increased. Stocking in rice will continue through the first two weeks of August and as needed for late season rice plantings.

<u>Larval and Adult Control:</u> Program Coordinator, Steve Ramos reported on department activity including rice acreage, abundance responses, green swimming pools and trial work. Catch Basin numbers have increased as technicians have been able to visit a lot more based on the addition of two more bikes for the crew to use in congested areas. With virus activity low the aerial adulticide contract treatment acreage is down when compared to last year. Steve gave an update on the progress of product trials for Merus 3.0, Pyronyl 525 and Pyronyl Crop Spray, and Sumilarv 0.5G.

<u>Public Outreach:</u> Public Information Officer, Luz Robles reported on department activities including Advertising and Media, Events, and Repellent and Materials Distribution. July and August advertising is in heavy rotation for the most active part of the season through mid-September. A press release was sent out regarding repellent distribution for events and outdoor activities including National Night Out with many community groups picking some up for their planned events. Staff attended the Yolo County Children's Alliance Back to School Health Fair, the Yolo County Fair and new this year we attended the Galt Hot Air Balloon Festival.

At this time Luz presented the District web site update and demonstrated the new Mosquito Buster site for children and teachers. The web site is recommended to teachers when we visit and give classroom presentations to educate kids through fun and age appropriate games and activities. Our web site averages approximately 7000 visits per month. Clicks or visits are generally driven by District spray and virus activities and tend to increase further with media coverage.

<u>4. STATUS OF WEST NILE VIRUS ACTIVITY AND DISTRICT RESPONSE</u>

Assistant Manager Samer Elkashef presented this item and was available to answer questions. He reviewed maps of virus surveillance with positive sites and positive dead bird pick up locations. Identifying about 2-3 positives per week on average this season. Larval and adult responses in the evenings with some morning ULV activity. Rice acreage at about 40,000 acres. Reviewed a map of the aerial adulticide treatments for rice in areas of higher abundance and virus activity such as Davis, Natomas, Vic Fazio Wildlife area, etc. He also reviewed the statewide activity including problem areas.

5. BOARD/STAFF REPORTS AND REQUESTS

Today is World Mosquito Day

MVCAC Summer Meeting was held by teleconference and topics discussed included potential dues increases for Districts

Visit from Islands employees

The first Labor Management Committee (LMC) meeting was held July 26 and the next meeting is scheduled near the end of August

Manager Goodman informed the Board that two Technicians have given notice of their intent to retire within the next few months

6. ADJOURNMENT

The meeting adjourned at 11:30 am.

* * * * * * * * * * * *

I certify that the above minutes substantially reflect the general business and actions taken by the Board of Trustees at the August 20, 2019 meeting.

____

Gary Goodman, Manager

Approved as written and/or corrected by the Board of Trustees at the September 17, 2019 meeting.

____

Craig Burnett, Board Secretary

August 2019 Check Register
Activity From: 8/1/2019 to 8/31/2019
Sacramento Yolo MVCD (SYC)

Check Number	Check Date	Vendor Number	Name	Check
Bank Code: U US Bank				
053055	8/9/2019	0000006	Adapco Inc	288,101.10
053056	8/9/2019	0000014	Alhambra & Sierra Springs	363.17
053057	8/9/2019	0000018	ANDKO Building Maintenance Inc.	2,777.94
053058	8/9/2019	0000039	Batteries Plus	1,136.55
053059	8/9/2019	0001011	Buckmaster Office Solutions	129.08
053060	8/9/2019	0000101	Cen-Cal Fire Systems Inc	1,383.11
053061	8/9/2019	0001019	Cintas Corporation	3,991.91
053062	8/9/2019	0000117	City of Woodland	637.70
053063	8/9/2019	0000119	Clarke Mosquito Control Products Inc	52,043.25
053064	8/9/2019	0000126	Complete Welders Supply Inc	1,516.08
053065	8/9/2019	0000128	Consolidated Communications	2,566.41
053066	8/9/2019	0000186	Elk Grove Water District	849.98
053067	8/9/2019	0001054	Employment Developement Dept	785.00
053068	8/9/2019	0000200	Fastenal Company	128.01
053069	8/9/2019	0000202	Ferrellgas	22.12
053070	8/9/2019	0000204	Fisher Scientific International Inc	363.96
053071	8/9/2019	0000240	Hunt & Sons Inc	13,337.94
053072	8/9/2019	0000277	Kimball Midwest	381.57
053073	8/9/2019	0000286	Leading Edge Associates Inc	28,800.00
053074	8/9/2019	0000497	Magnegas Welding Supply - West	84.75
053075	8/9/2019	0000306	Maita Chevrolet	356.38
053076	8/9/2019	0000324	Mitchell 1	1,728.00
053077	8/9/2019	0000352	Northern Safety Co	75.38
053078	8/9/2019	0000354	Omni Bags Inc	3,600.00
053079	8/9/2019	0000356	OReilly Automotive Stores Inc	335.20
053080	8/9/2019	0000367	PG & E	137.69
053081	8/9/2019	0000388	Republic Services #922	33.38
053082	8/9/2019	0001012	Riebes Auto Parts	973.29
053083	8/9/2019	0000403	Sac Ice	486.38
053084	8/9/2019	0000406	Sacramento Co Environmental	2,092.00
053085	8/9/2019	0000427	Safety Kleen Corp	311.87
053086	8/9/2019	0000451	SMUD	4,425.25
053087	8/9/2019	0000456	Spex SamplePrep LLC	6,062.89
053088	8/9/2019	0000937	Staples Business Advantage	173.96
053089	8/9/2019	0001234	T-Mobile	978.03
053090	8/9/2019	0000475	Target Specialty Products	74,804.91
053091	8/9/2019	0000486	The Tire Rack	1,902.56
053092	8/9/2019	0000500	United Parcel Service	27.58
053093	8/9/2019	0000501	United Textile Inc	250.41
053094	8/9/2019	0000502	Univar Inc	78,362.93
053095	8/9/2019	0000515	Valley Tire Center	285.80
053096	8/9/2019	0000518	Vector Disease Control International	50,000.00
053097	8/9/2019	0000522	Verizon Wireless	2,549.39
053098	8/9/2019	0000526	VWR International Inc	936.80
053099	8/9/2019	0000529	Waste Management	162.08
053100	8/9/2019	0000530	West Coast Differentials	1,596.76
053101	8/13/2019	0000267	Kaiser Foundation Health Plan	20,270.60
053102	8/13/2019	0000267	Kaiser Foundation Health Plan	1,447.90
053103	8/13/2019	0000267	Kaiser Foundation Health Plan	2,895.80

053104	8/13/2019	0000267	Kaiser Foundation Health Plan	18,636.27
053105	8/13/2019	0000373	Preferred Benefit Ins Administrators	8,404.60
053106	8/13/2019	0000957	Sutter Health Plus	8,031.36
053107	8/13/2019	0000531	Western Health Advantage	4,901.37
053108	8/13/2019	0000531	Western Health Advantage	4,005.47
053109	8/23/2019	0000006	Adapco Inc	183,545.90
053110	8/23/2019	0000038	Bartkiewicz Kronick & Shanahan	6,706.20
053111	8/23/2019	0000976	Blanning & Baker	2,362.50
053112	8/23/2019	0001011	Buckmaster Office Solutions	659.12
053113	8/23/2019	0000119	Clarke Mosquito Control Products Inc	172,322.39
053114	8/23/2019	0000126	Complete Welders Supply Inc	1,740.98
053115	8/23/2019	0000168	Dignity Health Med Fdtn-Sacramento	180.00
053116	8/23/2019	0000199	Farm Air Flying Service	62,266.26
053117	8/23/2019	0000958	GreatAmerica Financial Services	372.82
053118	8/23/2019	0000240	Hunt & Sons Inc	8,503.80
053119	8/23/2019	0000293	Life Technologies Corporation	9,842.82
053120	8/23/2019	0000306	Maita Chevrolet	144.38
053121	8/23/2019	0000332	MVCAC	11,500.00
053122	8/23/2019	0000354	Omni Bags Inc	14,400.00
053123	8/23/2019	0000367	PG & E	984.75
053124	8/23/2019	0001270	Rubicon Global, LLC	192.56
053125	8/23/2019	0000413	Sacramento County Utilities	960.54
053126	8/23/2019	0000459	Star Milling Co	2,736.27
053127	8/23/2019	0000475	Target Specialty Products	52,137.87
053128	8/23/2019	0000490	Timothy Gee C/O Shannon Gee	113.92
053129	8/23/2019	0000492	Top Rank Heating Air Conditioning Inc	129.00
053130	8/23/2019	0000502	Univar Inc	1,501.50
053131	8/23/2019	0000515	Valley Tire Center	1,152.77
053132	8/23/2019	0000516	Valley Truck & Tractor Co	96.94
053133	8/23/2019	0000526	VWR International Inc	312.26
053134	8/23/2019	0000530	West Coast Differentials	251.96
053135	8/23/2019	0000534	Wiley Price & Radulovich	667.00
053136	8/28/2019	0000199	Farm Air Flying Service	75,305.44
053137	8/28/2019	0000504	US Bank	16,781.83
053138	8/30/2019	0000043	Benefit Coordinators Corporation	3,297.78
053139	8/30/2019	0000084	CA State Disbursement Unit	350.00
053140	8/30/2019	0000339	Nationwide Retirement Solutions	1,300.00
053141	8/30/2019	0000339	Nationwide Retirement Solutions	3,975.00
053142	8/30/2019	0001035	Operating Engineers Local Union No. 3	1,260.00
053143	8/30/2019	0000357	P & A Administrative Services Inc	126.00
053144	8/30/2019	0000373	Preferred Benefit Ins Administrators	8,510.60
W00100	8/30/2019	0000086	CalPERS 457 Plan	20,506.17
W00101	8/30/2019	0000087	CalPERS Financial Reporting & Accounting	700.00
W00102	8/30/2019	0000087	CalPERS Financial Reporting & Accounting	77,923.76
W00103	8/30/2019	0000176	EDD	16,828.39
W00104	8/30/2019	0000561	United States Treasury	67,087.36
			Bank U Total:	1,530,378.76
			Report Total:	1,530,378.76

I hereby authorize the use of my signature plate on
the above-listed warrants,053055-053144, and EFTs W00100-W00104

Signature Date
Raymond LaTorre, President of the Board

S.Y.M.V.C.D
FY 2019-2020 Budget Update
August 2019

Account #	Account Description	2 Months Ended August 31, 2019	FY 19-20 Annual Budget	Unused
4000	REVENUE	$ -	$ -	$ -
5000	SALARIES/BENEFITS/WC	$ 2,480,574.45	$ 8,579,233.79	$ 6,098,659.34
5200	OPERATIONAL	$ 1,817,997.13	$ 6,190,059.00	$ 4,372,061.87
5210	LIABILITY INSURANCE	$ 140,854.00	$ 150,854.00	$ 10,000.00
5250	AUDITING/FISCAL	$ -	$ 17,750.00	$ 17,750.00
5270	COMMUNICATIONS	$ 8,615.95	$ 79,500.00	$ 70,884.05
5310	PUBLIC INFORMATION	$ 12,173.80	$ 465,500.00	$ 453,326.20
5340	STRUCTURE & GROUNDS	$ 8,854.07	$ 65,000.00	$ 56,145.93
5370	MEMBER/TRAINING	$ 26,313.69	$ 113,000.00	$ 86,686.31
5390	DISTRICT OFFICE EXPENSES	$ 505.28	$ 15,000.00	$ 14,494.72
5430	PROFESSIONAL SERVICES	$ 18,152.87	$ 198,250.00	$ 180,097.13
5440	MATERIALS & SUPPLIES	$ 970.37	$ 10,000.00	$ 9,029.63
5450	RENTS & LEASES	$ 1,503.84	$ 11,550.00	$ 10,046.16
5470	SAFETY PROGRAM	$ 170.00	$ 5,000.00	$ 4,830.00
5480	UTILITIES	$ 10,747.29	$ 110,000.00	$ 99,252.71
6120	AIRCRAFT SERVICES	$ 260,295.11	$ 945,500.00	$ 685,204.89
6140	ECOLOGICAL MANAGEMENT	$ 646.27	$ 15,200.00	$ 14,553.73
6160	MICROBIAL	$ 479,697.46	$ 1,500,000.00	$ 1,020,302.54
6170	BIORATIONALS	$ 250,967.06	$ 950,000.00	$ 699,032.94
6180	INSECTICIDES	$ 494,849.27	$ 1,000,000.00	$ 505,150.73
6220	FISHERIES	$ 5,061.81	$ 27,000.00	$ 21,938.19
6280	GEOGRAPHIC INFO SYSTEMS	$ 725.00	$ 7,125.00	$ 6,400.00
6320	INFORMATION TECHNOLOGY	$ 8,848.07	$ 48,200.00	$ 39,351.93
6350	CONTROL OPERATIONS	$ 1,971.20	$ 32,430.00	$ 30,458.80
6370	SHOP	$ 14,873.82	$ 88,000.00	$ 73,126.18
6420	LAB SERVICES	$ 45,268.49	$ 163,200.00	$ 117,931.51
6450	GAS & PETROLEUM	$ 25,932.41	$ 172,000.00	$ 146,067.59
7000	CAPITAL ACCOUNTS	$ -	$ 573,049.00	$ 573,049.00
7011/1510	Capital Outlay/Construction In Progress	$ -	$ 136,049.00	$ 136,049.00
7030	Research Fund	$ -	$ 50,000.00	$ 50,000.00
7035	Building Improvement	$ -	$ 387,000.00	$ 387,000.00
	TOTALS			
	Salaries/Benefits	$ 2,480,574.45	$ 8,579,233.79	$ 6,098,659.34
	Operational	$ 1,817,997.13	$ 6,190,059.00	$ 4,372,061.87
	Capital Accounts	$ -	$ 573,049.00	$ 573,049.00
	Total Budget	$ 4,298,571.58	$ 15,342,341.79	$ 11,043,770.21

SACRAMENTO-YOLO MOSQUITO & VECTOR CONTROL DISTRICT

MAILING ADDRESS

SACRAMENTO COUNTY
8631 BOND ROAD
ELK GROVE, CA 95624

1.800.429.1022
FIGHTtheBITE.net

Sacramento-Yolo Mosquito and Vector Control District
Investment Report

The District investment policy authorizes District funds and monies to be invested in only one or a combination of the following institutions and investment types:

A. Yolo County Treasurer Investment Pool
B. State Treasurer's Local Agency Investment Fund (L.A.I.F.)
C. Member and Property Contingency Fund deposits with the Vector Control Joint Powers Agency (VCJPA)
D. Prefunding of Other Post-Employment Benefits (OPEB) through California Public Employer's Retiree Benefit Trust Program (CERBT)

As the District receives revenue from taxes and other resources they are deposited with the Yolo County Treasurer. The following is the interest earnings, fund balances and investments of the District for the quarter ending **June 30, 2019.**

Institution		**Earnings**	**Total as of 06/30/2019**
Yolo County Treasurer Investment Pool	2.458%*	$23,327.42	$1,005,751.00
L.A.I.F.	2.458%	$33,370.07	$9,626,259.32
VCJPA-Member Contingency Fund	2.5%	$20,617.00	$1,412,563.00
VCJPA-Property Contingency Fund	2.5%	$ 1,572.00	$107,808.00
CERBT-Strategy 3		$60,251.70	$1,876,278.34
		District Total:	$14,028,659.66

**Rates are reflected as annualized earning rates*

County of Yolo

www.yolocounty.org

CHAD RINDE, CPA
Chief Financial Officer
TOM HAYNES
Assistant Chief Financial Officer

DEPARTMENT OF FINANCIAL SERVICES
625 Court Street, Room 102
PO BOX 1268
WOODLAND, CA 95776
PHONE: (530) 666-8190
FAX: (530) 666-8215
EMAIL: DFS@yolocounty.org

- *Financial Leadership*
- *Budget & Financial Planning*
- *Treasury & Finance*
- *Tax & Revenue Collection*
- *Financial Systems Oversight*
- *Accounting & Financial Reporting*
- *Internal Audit*
- *Procurement*

August 30, 2019

Mr. Gary Goodman
Sacramento-Yolo Mosquito Abatement District
8631 Bond Road
Elk Grove, CA 95624

Dear Mr. Goodman:

Listed below for your information and that of the Board of Directors, is data pertaining to interest earnings, fund balances and investments of the District for the quarter ended June 30, 2019. The Yolo County Treasurer's Investment Report is available electronically. Should you or the Board wish additional information or have any questions, please let me know.

PERIOD	YOLO COUNTY	LAIF	EARNINGS
Quarter ending June 30, 2019:	2.458%*		$ 23,327.42
Quarter ending June 30, 2019:		2.458%	$ 33,370.07

Placement of Funds as of June 30, 2019:

Yolo County Treasurer's Pool (Fund 6953)	$ 1,005,751.00
Flexible Spending Account	33,839.65
LAIF	9,626,259.32
Total	$10,665,849.97

*Rates are reflected above as annualized earning rates.

Sincerely,

Edward Burnham
Accounting Manager, Treasury & Finance

Vector Control Joint Powers Agency

Member Contingency Fund

For the Quarter Ended
June 30, 2019

Member District	Balance at Beginning of Quarter	Contributions	(Withdrawals)	Interest Earned	Allocated Admin.	Balance at End of Quarter
Alameda County	348,346			5,160	(9)	353,497
Burney Basin	31,114			461	(1)	31,574
Butte County	317,379			4,701	(8)	322,072
Coachella Valley	1,017,028			15,065	(25)	1,032,068
Coalinga-Huron	5,013			74	0	5,087
Colusa	75,029			1,111	(2)	76,138
Compton Creek	62,178			921	(2)	63,097
Consolidated	291,012			4,311	(7)	295,316
Contra Costa	1,128,217			16,711	(28)	1,144,900
Durham	4,098			61	0	4,159
Fresno	213,789			3,167	(5)	216,951
Glenn County	37,704			558	(1)	38,261
Greater Los Angeles	1,189,294			17,616	(30)	1,206,880
Lake County	133,470			1,977	(3)	135,444
Los Angeles County West	587,599			8,704	(15)	596,288
Marin-Sonoma	719,450			10,657	(18)	730,089
Napa County	374,223			5,543	(9)	379,757
No Salinas Valley	539,779			7,995	(14)	547,760
Northwest	852,980		(500,000)	8,932	(15)	361,897
Orange County	344,088			5,097	(9)	349,176
Oroville	11,278			167	0	11,445
Pine Grove	26,230			389	(1)	26,618
Placer	177,452			2,628	(4)	180,076
Sacramento-Yolo	1,391,981			20,617	(35)	1,412,563
San Joaquin County	611,541			9,058	(15)	620,584
San Mateo County	439,609			6,512	(11)	446,110
Santa Barbara County	52,897			784	(1)	53,680
Shasta	229,871			3,405	(6)	233,270
Sutter-Yuba	280,386			4,153	(7)	284,532
Tehama County	234,804			3,478	(6)	238,276
Turlock	222,102			3,290	(6)	225,386
West Valley	269,776			3,996	(7)	273,765
Total	12,219,717	0	(500,000)	177,299	(300)	11,896,716

Note:
Yield to maturity rate on the VCJPA portfolio is 2.5% as of the above date. As required by GASB 31, the allocated interest shown also reflects market value changes to the securities held in the portfolio. Therefore, the actual interest allocated to this fund, and all program year funds, may or may not equal the yield to maturity rate from quarter to quarter. However, the average overall allocated interest, over the life of this fund, should provide a close approximation.

Vector Control Joint Powers Agency

Property Contingency Fund

For the Quarter Ended June 30, 2019

Member District	Balance at Beginning of Quarter	Contributions	(Withdrawals)	Interest Earned	Balance at End of Quarter
Alameda County	$52,025			$771	$52,796
Burney Basin	15,016			222	15,238
Butte County	51,334			760	52,094
Coachella Valley	54,745			811	55,556
Coalinga-Huron	1,532			23	1,555
Colusa	6,702			99	6,801
Compton Creek	3,828			57	3,885
Consolidated	48,182			714	48,896
Contra Costa	69,541			1,030	70,571
Delta	0			0	0
Durham	0			0	0
Fresno	26,701			396	27,097
Glenn County	3,047			45	3,092
Greater Los Angeles	53,168			788	53,956
Kings	0			0	0
Lake County .	0			0	0
Los Angeles County	0			0	0
Marin-Sonoma	60,771			900	61,671
Napa County	861,290			12,758	874,048
No Salinas Valley	27,029			400	27,429
Northwest	17,768			263	18,031
Orange County	75,609			1,120	76,729
Oroville	0			0	0
Pine Grove	2,609			39	2,648
Placer	607			9	616
Sacramento-Yolo	106,236			1,572	107,808
San Gabriel Valley	100,308			1,486	101,794
San Joaquin County	94,906			1,406	96,312
San Mateo County	38,390			569	38,959
Santa Barbara County	1,776			26	1,802
Shasta	31,456			466	31,922
Sutter-Yuba	63,858			946	64,804
Tehama County	23,287			345	23,632
Turlock	0			0	0
West Valley	72,954			1,081	74,035
Total	$1,964,675	$0	$0	$29,102	$1,993,777

Note:
Yield to maturity rate on the VCJPA portfolio is 2.5% as of the above date. As required by GASB 31, the allocated interest shown also reflects market value changes to the securities held in the portfolio. Therefore, the actual interest allocated to this fund, and all program year funds, may or may not equal the yield to maturity rate from quarter to quarter. However, the average overall allocated interest, over the life of this fund, should provide a close approximation.

Sacramento-Yolo Mosquito & Vector Control District
CERBT Strategy 3
Entity #: SKB8-1375523307
Quarter Ended June 30, 2019

CalPERS

Market Value Summary:

	QTD Current Period	Fiscal Year to Date
Beginning Balance	$1,816,415.16	$1,751,040.62
Contribution	0.00	0.00
Disbursement	0.00	0.00
Transfer In	0.00	0.00
Transfer Out	0.00	0.00
Investment Earnings	60,251.70	126,737.35
Administrative Expenses	(224.41)	(866.26)
Investment Expense	(164.11)	(633.37)
Other	0.00	0.00
Ending Balance	$1,876,278.34	$1,876,278.34
FY End Contrib per GASB 74 Para 22	0.00	0.00
FY End Disbursement Accrual	0.00	0.00
Grand Total	$1,876,278.34	$1,876,278.34

Unit Value Summary:

	QTD Current Period	Fiscal Year to Date
Beginning Units	123,845.370	123,845.370
Unit Purchases from Contributions	0.000	0.000
Unit Sales for Withdrawals	0.000	0.000
Unit Transfer In	0.000	0.000
Unit Transfer Out	0.000	0.000
Ending Units	123,845.370	123,845.370
Period Beginning Unit Value	14.666798	14.138926
Period Ending Unit Value	15.150168	15.150168

Please note the Grand Total is your actual fund account balance at the end of the period, including all contributions per GASB 74 paragraph 22 and accrued disbursements. Please review your statement promptly. All information contained in your statement will be considered true and accurate unless you contact us within 30 days of receipt of this statement. If you have questions about the validity of this information, please contact CERBT4U@calpers.ca.gov.

Statement of Transaction Detail for the Quarter Ending 06/30/2019

Sacramento-Yolo Mosquito & Vector Control District

Entity #: SKB8-1375523307

Client Contact:

CERBT4U@CalPERS.ca.gov

January 9, 2019

TO: Agencies Signatory to the Cooperative Agreement with the California Department of Public Health

SUBJECT: COOPERATIVE AGREEMENT WITH THE DEPARTMENT OF PUBLIC HEALTH

Thank you for submitting a 2019 Cooperative Agreement. The California Department of Public Health (CDPH) has reviewed and signed this Cooperative Agreement with your agency. Please note Certified Vector Control Technicians must maintain their certification by paying annual recertification dues and attending required continuing education courses in order for the Cooperative Agreement to remain valid.

The Cooperative Agreement may be canceled for cause by either party by giving 30 days advance notice in writing, setting forth the reasons for the termination.

If you should require additional information or clarification, please contact your VBDS regional office or the Sacramento headquarters at (916) 552-9730.

Michael Niemela, M.S.
Senior Public Health Biologist
Vector-Borne Disease Section

Enclosure

COOPERATIVE AGREEMENT
(PURSUANT TO SECTION 116180, HEALTH AND SAFETY CODE)

Date 9/18/2018

This Agreement between the California Department of Public Health and

Sacramento-Yolo Mosquito and Vector Control District

(name and address of local vector control agency)

is effective on January 1, 2019 or on the subsequent date shown above, and expires December 31, 2019. It is subject to renewal by mutual consent thereafter.

Operator ID and/or license number to be listed on Monthly Summary Pesticide Use Reports (PR-ENF-060) for 2019:

Operator ID # 34-08-3401101 and 57-08-3401101 License # __________

This agreement may be canceled for cause by either party by giving 30 days advance notice in writing, setting forth the reasons for the termination.

Part I. Pesticides

The vector control agency named herein agrees:

1. To calibrate all application equipment using acceptable techniques before using, and to maintain calibration records for review by the County Agricultural Commissioner.

2. To seek the assistance of the County Agricultural Commissioner in the interpretation of pesticide labeling.

3. To maintain for at least two years for review by the County Agricultural Commissioner a record of each pesticide application showing the target vector, the specific location treated, the size of the source, the formulations and amount of pesticide used, the method and equipment used, the type of habitat treated, the date of the application, and the name of the applicator(s).

4. To submit to the County Agricultural Commissioner each month a Pesticide Use Report, on Department of Pesticide Regulation form PR-ENF-060. The report shall include the manufacturer and product name, the EPA registration number from the label, the amount of each pesticide used, the number of applications of each pesticide, and the total number of applications, per county, per month.

5. To report to the County Agricultural Commissioner and the California Department of Public Health, in a manner specified, any conspicuous or suspected adverse effects upon humans, domestic animals and other non-target organisms, or property from pesticide applications.

6. To require appropriate certification of its employees by the California Department of Public Health in order to verify their competence in using pesticides to control pest and vector organisms, and to maintain continuing education unit information for those employees participating in continuing education.

7. To be inspected by the County Agricultural Commissioner on a regular basis to ensure that local agency activities are in compliance with state laws and regulations relating to pesticide use.

Part II. Environmental Modification

The vector control agency named herein agrees:

To comply with requirements, as specified, of any general permit issued to the California Department of Public Health as the lead agency, pertaining to physical environmental modification to achieve pest and vector prevention.

For California Department of Public Health

Vicki Kramer

Vicki Kramer, Ph.D.
Chief, Vector-Borne Disease Section

For Local Agency

Gary Goodman, General Manager

Print Name and Title

Gary Goodman

Signature

Sacramento-Yolo Mosquito and Vector Control District

September 17, 2019 Board Meeting

3. Reports to the Board

a. Manager's Report

b. Reports from District Departments

- **Lab/Surveillance (Marcia Reed)**
- **Ecological Management (Marty Scholl)**
- **Biological Control (Tony Hedley)**
- **Larval and Adult Control (Steve Ramos)**
- **Public Outreach (Luz Maria Robles)**

a. Manager's Report

The District's West Nile season is beginning to slow and our abundance and virus activity are lessening with the continued cooler weather. The District continues to follow the Mosquito Borne Disease Management Plan with enhanced surveillance and control efforts in response to positive dead birds or positive mosquito collections.

The recent invasive species detection in Citrus Heights has shifted some of our resources to help address and understand the scope of the problem.

The District hosted staff from EPA to discuss mosquito control issues as it pertains to labeling and product usage.

Staff is putting together their abstracts for the AMCA and MVCAC meetings as we've been very busy this year with special projects.

The District Audit took place last week and we will schedule their report for later in the year.

b. Reports from District Departments

- **Lab/Surveillance (Marcia Reed)**
- **Ecological Management (Marty Scholl)**
- **Biological Control (Tony Hedley)**
- **Larval and Adult Control (Steve Ramos)**
- **Public Outreach (Luz Maria Robles)**

LABORATORY
Monthly Report for September 2019 Board Meeting

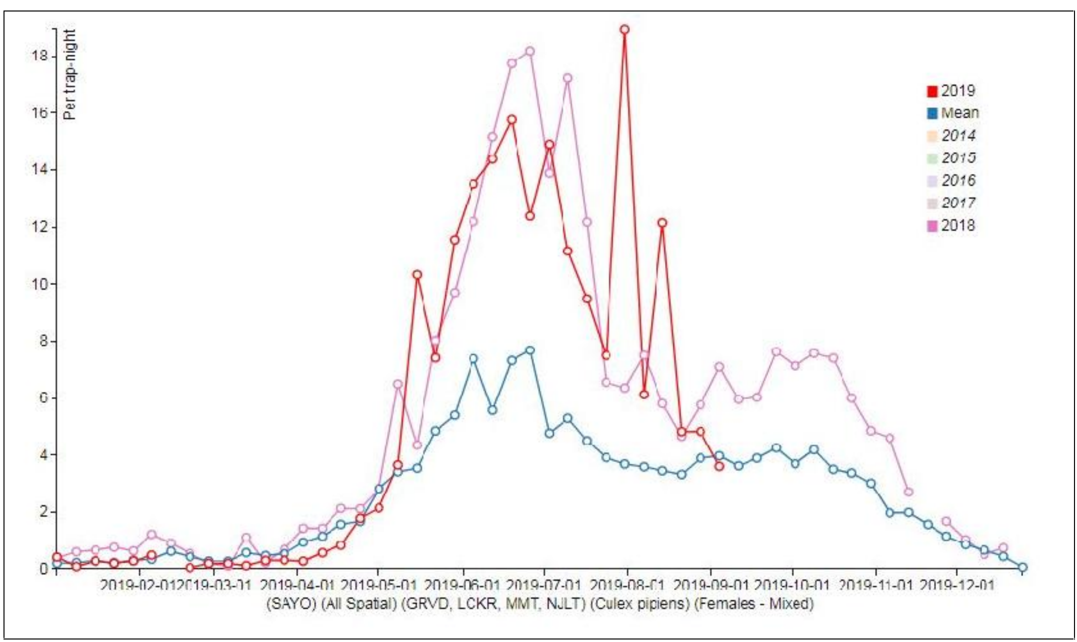
Insectary:

Colonies maintained: *Culex tarsalis* Kern National Wildlife (susceptible)
Culex tarsalis Conaway Ranch **–** wild (resistant)
Culex quinquefasciatus Cq1 (susceptible)
Culex pipiens Woodland (resistant)
Culisita incidens wild **-** Sacramento County
Aedes sierrensis wild **-** Marin - Sonoma County (in egg form)

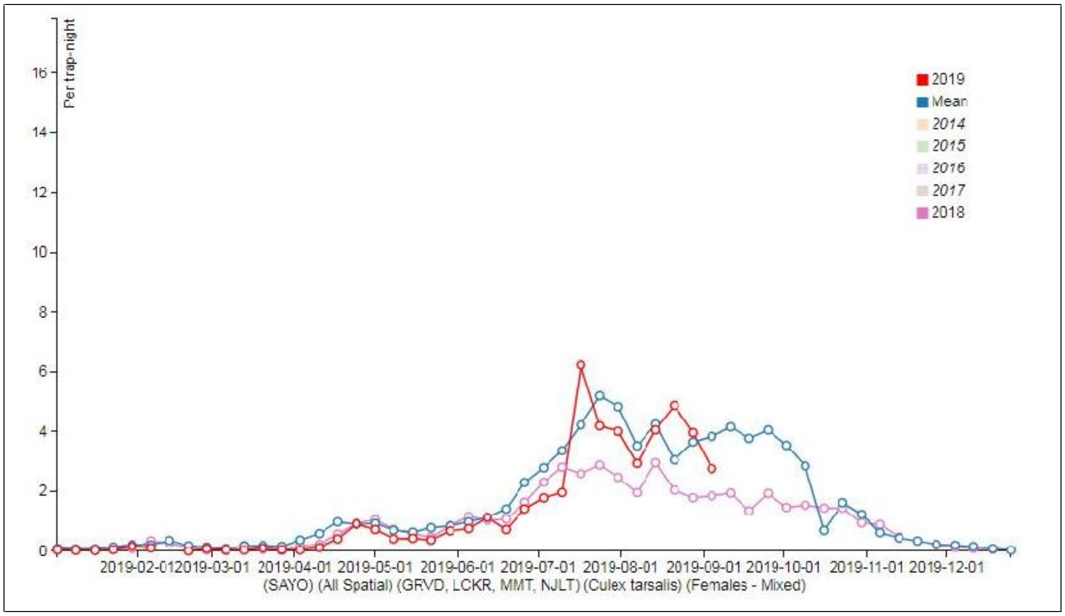
Surveillance:

- **Weekly collections –** New Jersey Light traps (NJLTs), Locker CO_2 Traps (LCKRs) and Gravid traps (GTs) results are presented in the graphs below. We are continuing to work on deploying more of our District locker traps. Populations are showing their usual decline as fall approaches.

Culex pipiens in abundance traps (NJLT, LCKR, GT):

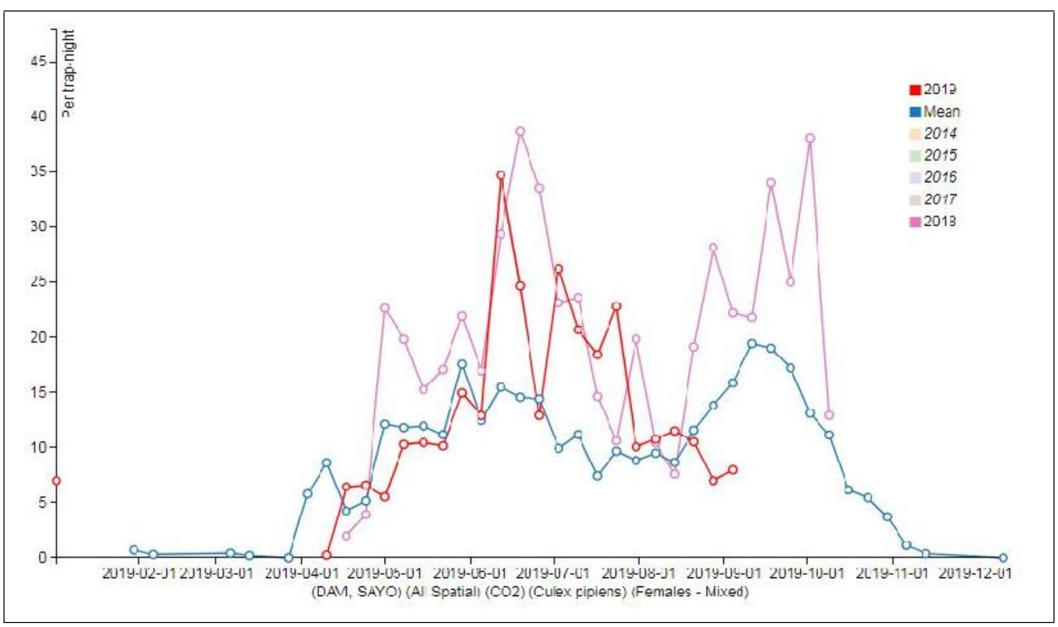


Culex tarsalis in abundance traps (NJLT, LCKR, GT):

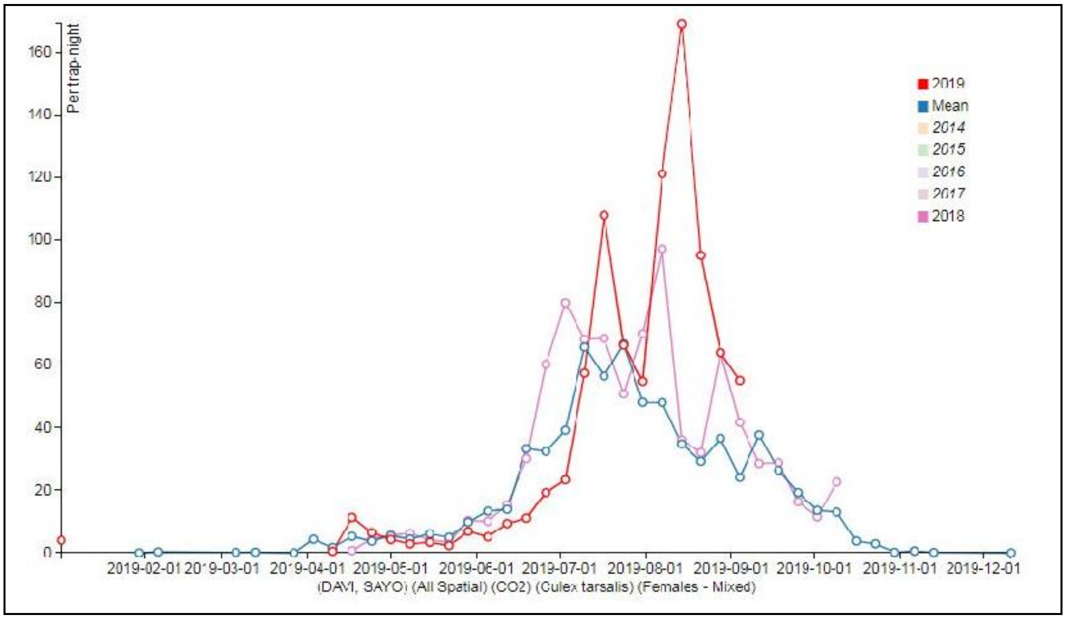


Encephalitis virus surveillance (EVS) – Mosquitoes **–** EVS trapping with CO_2 baited and Gravid traps is continuing. We have currently tested 5491 mosquito pools (samples) and have found 112 to be positive. 65 positive pools are from Sacramento County and 47 are from Yolo County. In addition, trapping being done by a UC Davis student has found 37 additional pools from the city of Davis. Response trapping is being conducted around the positive sites.

Culex pipiens in CO_2 traps:



Culex tarsalis in CO_2 traps:



Encephalitis virus surveillance (EVS) – Sentinel Chickens – We have not reported any seroconversions in our chickens yet this season.

Encephalitis virus surveillance (EVS) – Dead Birds – We have tested 319 dead bird samples and found 36 positives, 2 dead birds were from Yolo County and 34 were from Sacramento County.

Exotic/Invasive Species Surveillance – We are responding to the *Aedes aegypti* mosquitoes found in Citrus Heights with increased surveillance utilizing BG Sentinel traps. We are baiting the traps with the BG-Lure and CO_2 to attract the female mosquitoes. As of Sept 9th we have tested 135 distinct locations in the area with a total trap night surveillance count of 250 trap nights. We have found *Aedes aegypti* mosquitoes in 15 different locations with a 50 acre block.

Tick and Lyme disease surveillance – Tick flagging will begin again in October.

BG Counter Traps – These traps continue to be utilized in the adult surveillance program for our rice habitats. The collaboration with UCD in analyzing weather and flight activity has concluded the data collection phase and has entered the data analysis phase. We look forward to seeing the results.

Mosquito Resistance Testing – We are in the process of performing *Culex tarsalis* bottle bioassays on rice field populations.

Non-WNV Disease Response Surveillance – In the month of August, we were notified of two imported malaria cases as well as five imported dengue cases. We have responded with the appropriate traps. We did collect two *Anopheles freeborni* mosquitoes near one of the malaria cases. The mosquitoes were tested and were found to be negative. We did not find any *Aedes aegypti* near any of the dengue cases.

District Studies –

WDG WALS study – We have completed our WALS study for the season and are working on summarizing our findings of its effectiveness. We are using this technique in Citrus Heights now against the *Aedes aegypti* invasive mosquito.

Product Trials – We are working on writing up the results of our numerous trials this season and look forward to sharing the results when the analysis is completed.

Vectobac 12AS via rotary atomizers – This trial is still being planned for the future.

Collaborations –

Catch Basin Residue and Resistance study – We have performed three sampling events and sent catch basin water and sediment samples to Dr. Gan at UC Riverside for analysis. The basins sampled were in the Woodland and Elk Grove areas.

Biogents BGI Project – We are looking forward to again working on this new trap design this season if a prototype becomes available.

Biogents Pro trap – We have begun a trap comparison study pairing the BG Pro CO_2 traps with our standard EVS CO_2 can trap. We are setting the traps weekly and comparing trap counts.

Sugar Bait Project – We are continuing to deploy sugar wicks to the field in the areas where West Nile virus has been detected. We have deployed and tested 497 wicks up to this point and have detected virus in 6 sugar wicks samples.

PipPop Project - We have concluded our collection of specimens of potential populations of *Culex pipiens* f. *molestus*. We will be submitting samples to a researcher at Princeton University for genetic analysis.

California Arbovirus Surveillance Bulletin #23 Week 36: Friday, Sept 6, 2019

2018 & 2019 YTD West Nile Virus Comparisons		
	2018	2019
Total # Dead Bird Reports	6,278	4,161
# Positive Counties	37	29
# Human Cases	56	62
# Positive Dead Birds / # Tested	422 / 1,664	103 / 1,269
# Positive Mosquito Pools / # Tested	1,606 / 31,972	2,815 / 33,377
# Seroconversions / # Tested	104 / 7,217	81 / 6,363

YTD WNV Activity by Element and County, 2019					
County	Humans	Horses	Dead Birds	Mosquito Pools	Sentinel Chickens
Butte	3			41	25
Colusa					4
Contral Costa			1		1
Fresno	27	1	10	451	
Glenn				1	1
Imperial	3			1	
Kern	3	2	2	122	
Kings				58	
Lake				6	
Los Angeles	5		11	39	9
Madera		1		63	
Merced			2	35	14
Orange	1		13	85	
Placer			2	50	6
Riverside	2			506	
Sacramento			30	53	
San Bernardino	2	1	3	46	
San Diego	3		1		
San Joaquin	2		5	238	
Shasta				3	
Solano	1			1	
Stanislaus	3	2	1	163	
Sutter				15	7
Tehama					2
Tulare	7		16	771	10
Tuolumne			1		
Ventura				1	
Yolo			2	44	
Yuba			3	22	2
Totals	**62**	**7**	**103**	**2,815**	**81**

ECOLOGICAL MANAGEMENT DEPARTMENT
Monthly Report for the September 2019 Board Meeting

Storm Water / Drainages Program

Hansen Ranch: The California Department of Water Resources (DWR) maintenance division was able to remove one large beaver dam within the Natomas East Main Drainage Canal (NEMDC) in an effort to lower the water levels within Hansen Ranch.

Staff has started receiving ditch cleaning projects for this fall and winter, after irrigations have been completed for the season.

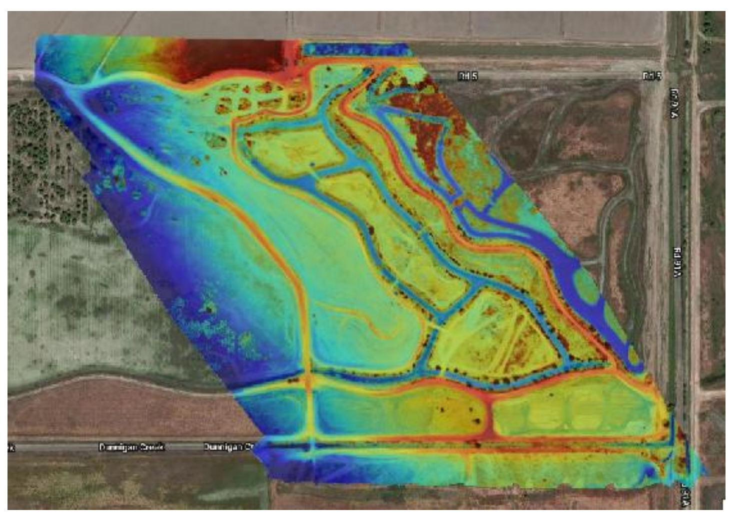
UAS Program

CA Department of Pesticide Regulation (CDPR): As reported at the last Board meeting, Marty passed the new Unmanned Aircraft Vector Control Technician exam allowing for UAS pesticide applications. Staff has calibrated the District's UAS spray unit and will treat small areas where a liquid application as needed.

Leading Edge Aerial Technologies Inc.: Leading Edge has completed over two thousand acres of UAS treatments this season. It is anticipated that many of the fall flooding treatments within the Yolo Bypass Wildlife Area will be completed utilizing Leading Edge this season.

InterDrone: Marty participated in the Agricultural Technology Panel discussion at this year's Interdrone UAS Expo and conference held earlier this month. There were many questions and subsequent discussions regarding spray technologies, workflows, and logistics about the District's UAS program.

Staff conducted a flight on a newly graded wetland located in Northern Yolo County to analyze accuracy of the District's survey grade UAS unit as well as to provide topographic measurements to the landowner to correct any ponding of water prior to flooding the field. The blue areas indicate low elevations while the red areas indicate high areas such as roads and levees. Based on this flight the landowner was able to implement BMPs that will curb breeding on the property.

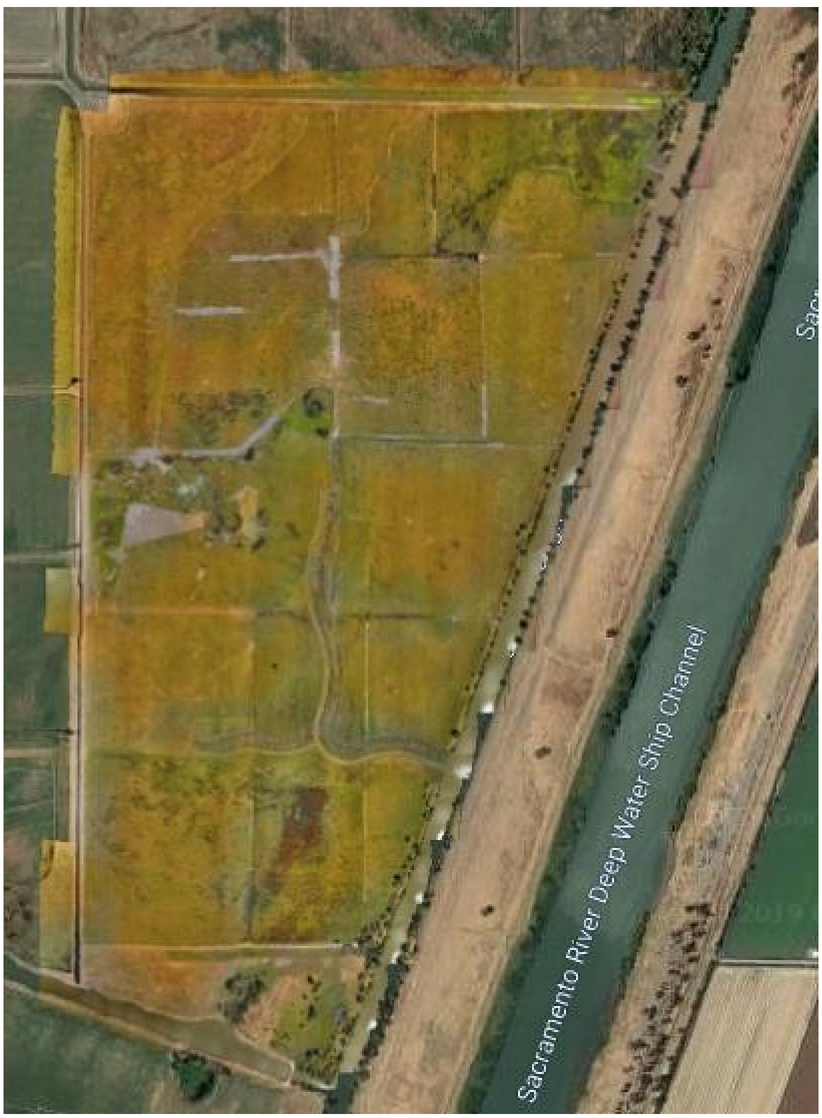


Staff applied for and served six individual backyard pool warrants. All warrants were posted and served with the assistance of the appropriate local law enforcement present. The Department has received and served twenty nine backyard pool warrants year to date.

Wetland Program

Fall Flooding: Staff met with the Conaway Ranch to discuss fall flooding plans and estimated costs based upon the cost share program dates. Staff has received flood up dates for most managed wetland areas, and has mailed Fall Flooding program guidelines to the remaining property owners.

DWR's Yolo Flyway Farms: Staff mapped the tidal wetland and upland areas after a high tide utilizing one of the District's mapping drones. This flight helped identify where standing water was trapped in this large area providing guidance to the field technician on where treatments need to be focused. This information will also be used to facilitate planning discussions with DWR in an effort to regrade or ditch areas within the property to help reduce standing water.



BIOLOGICAL CONTROL
Monthly Report for September 2019 Board Meeting

The District stocked 739.64 lbs. of fish in the month of August. This number is up from August of 2018's number of 83.81 lbs. The majority of the fish usage was in the District's rice fields with over 715 lbs. used by the fisheries department as the rice stocking was finished up for the season. In the month of August 269 sites were stocked with mosquitofish, of that 28 were rice fields.

As the rice stocking time frame ended, fisheries now shifts focus to pond rehab and preparing for wetlands. Wetland prep consists of contacting land management owners and working closely with field personal for sensitive habitats and flood up schedules. Pond rehab consists of draining down designated ponds (see pictures), harvesting every fish possible, moving rock, patching holes and then removing loose debris.

The department also continued to gather weekly data for all of our ongoing projects including evaluating pond dye versus traditional fertilization, crayfish control and the use of solar aerators on dissolved oxygen levels. Daily activities such as medical treatments and tank cleaning were also performed to maintain the high quality of our fish population.

Log of Treatment Applied

Material	AMT	Area Treated	Rate	Treatments
Mosquitofish	739.64 lbs.	2,378.57 Acres	.22lb/acre	269
Guppies	.025 lbs.	.005 Acres	.028lb/Sqft	1

Fish Plants by Crew

Fisheries-715 lbs., North Sac-16.585 lbs., South Sac-3.075lbs, Yolo-4.975 lbs.

Fisheries Budget

Total	Spent	Remaining	% Spent
27,000.00	5,006.61	21993.39	19%

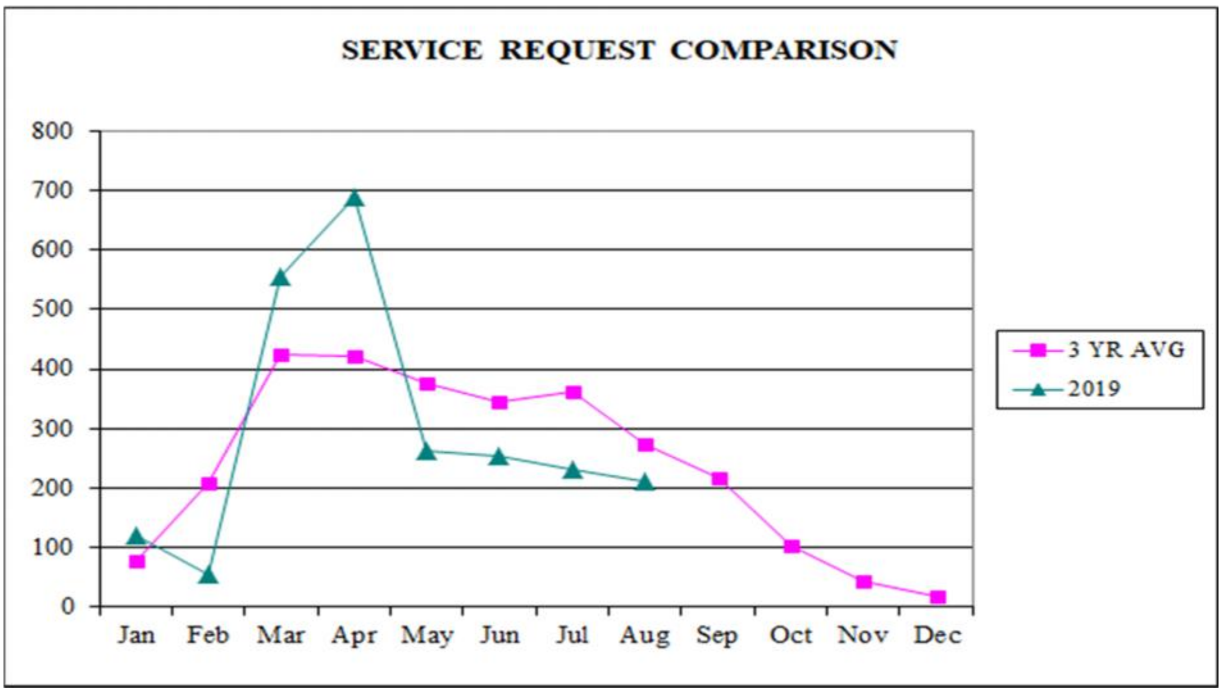
The picture on the left is the process of water being drained, on the right is a picture of the debris being cleaned out of the ponds bottom.

CONTROL OPERATIONS
Monthly Report for September 2019 Board Meeting

August saw an increase in West Nile virus (WNv) activity and the District has been responding with source radius work surrounding positive traps as well as ground and aerial ULV in affected areas. The aerial larvaciding program is still actively treating rice growing habitats in both Counties with a higher frequency of treatments in fields located close to residential areas.

In the City of Citrus Heights crews have been responding to the District's first detection of *Aedes aegypti*. Crews have been performing catch basin and manhole inspections and treatments, door to door inspections with backyard treatments if necessary and bringing back larva for the lab to identify. Wide Area Larvaciding Spray (WALS) has been performed in the area in combination with ground adulticiding in the neighborhood with *Aedes aegypti* positive traps. Continued monitoring and response in the Citrus Heights area are planned moving forward.

Field evaluations of the MGK product Sumilarv 0.5G in dairy lagoons is ongoing. The District will also be working with Clarke in September to evaluate a new spinosad based product in a WALS style application.



* based on MapVision and Tableau data

Control Operations update pg 2

Larvicide Applications thru August 31st				
	2019		2018	
Locations/Roles	Treatments	Acres	Treatments	Acres
Sacramento County	5,153	9,793	6,135	5,844
Sac County Aerial	22 Orders, 452 Sources-	19,111	19 orders, 287sources	25,510
Yolo County	1,852	6,092	1,999	12,655
Yolo County Aerial	44 Orders, 739 Sources	71,323	55 orders, 996 sources	102,165
CB Treated	141,359	--	156,921	--
CB Inspected -not treated	128,079	--	97,073	--

Aerial Adulticide Summary thru August 31st				
	2019		2018	
County	# Applications	Acres	# Applications	Acres
Sacramento Ag	11	76,442	17	76,928
Sacramento Urban	0	0	6	83,286
Yolo Ag	54	376,115	61	412,924
Yolo Urban	0	0	0	0
Totals		452,557		573,138

VDCI Summary through August 31st, 2019 compared to: 2018

Contract Acres (our portion) =	530,000	530,000
Acres used =	452,557	573,138
Acres remaining =	77,443	(43,138)
% Acres used =	85%	108%
% Acres remaining =	15%	0%

San Joaquin MVCD has used 121,524 acres of their 190,000 acre commitment.
Placer MVCD has used 60,268 acres of their 100,000 acre commitment.
Turlock MAD has used 118,447 acres of their 180,000 acre commitment.

PUBLIC INFORMATION AND EDUCATION
Monthly Report for September 2019 Board Meeting

Advertising and Media:

As a result of detection of invasive *Aedes aegypti* mosquitoes within our District, we received a significant amount of media coverage. The day the mosquitoes were found a press release was issued generating two television interviews. The next day, as media interest grew, we coordinated a media event in the heart of the neighborhood where the mosquitoes were detected. Our staff was able to do a live demonstration of an adult mosquito control treatment in progress as news crews were able to get the live action footage they had requested. As part of the visuals reporters could use, we also showed the watering can where immature mosquitoes had been found and we also had mosquito samples for them to look at. That day we had coverage from 3 major news stations as well as a radio interview on KFBK. The main messages shared included the new detection of invasive mosquitoes, the importance of reporting day biting mosquitoes and the potential public health risk these mosquitoes can pose.

Our 2019 advertising campaign is nearly coming to an end. The last big radio campaign was on the radio during the Labor Day holiday and the main message being disseminated was the use of repellent while spending time doing any outdoor activities.

Outreach and social media

After the initial detection of invasive mosquitoes in Citrus Heights staff began door to door outreach in affected neighborhoods and we developed a new door hanger specific to invasive mosquitoes. Staff will continue to utilize it as an education tool as they carry on with their visits and inspections in the area. Social media messages specific to invasive Aedes mosquitoes was developed as well as Facebook ads targeting the precise zip code where the mosquitoes were initially found. We are coordinating with neighboring Placer County MVCD on our messages and future outreach activities.

Events:

The month of September is an extremely busy month with community outreach events. By the time the month comes to an end we will have attended a total of 9 events. As part of the new detection of invasive mosquitoes we quickly found 2 new events in Citrus Heights to speak directly to residents. We attended a farmers market at the Sunrise Marketplace and will also attend a Fall Festival at the same location later in the month. Moving forward we will continue to explore and find new events to attend within the areas where invasive mosquitoes have been found. Other events this month include Farm to Fork which is one of the biggest and most successful events that we participate in throughout the season. This very popular event takes place in downtown Sacramento and draws thousands of attendees. It is a great event because we’re able to reach out to a wide and very ethnically diverse audience. Another great event is the Office of Emergency Services Preparedness day. This event is held in Old Sacramento and many emergency response agencies come together. Other events where we will have a presence include Independence Day at the capitol which attracts more than 5,000 attendees. This popular event takes place in the evening, so the repellent packets are very much appreciated and useful.

Other events where we will have our booth include Sunday Funday in Citrus Heights, an Employee Health and Wellness fair for the California Lottery and the DMV Health and Safety Fair.

District Tour:

Our District hosted a tour for the Environmental Protection Agency on September 10th. Various EPA staff members were part of the tour that began with an overview presentation on the importance of mosquito control. Afterwards, each department had the opportunity to talk about their program and provide attendees with a comprehensive understanding of how mosquito control is conducted. Staff did an amazing job explaining and highlighting the work they perform in order to protect all the residents we serve.

Repellent and Materials Distribution:

We continue to receive requests for materials and repellent from neighborhood associations and city elected officials that are holding outdoor evening events.

Sacramento-Yolo Mosquito and Vector Control District

<u>September 17, 2019 Board Meeting</u>

4. <u>Board Review and Consideration of CalPERS Valuation Report</u>

<u>Staff Report:</u>
Each year CalPERS performs an Annual Valuation for each participating agency that is used to set the employer and employee contributions rates for each contracted benefit formula for the fiscal year. This report, dated as of June 30, 2018 is used to set the rates for the 2020-2021 fiscal year. In addition, the valuation report is used to update the unfunded liability that is invoiced as an annual amount rather than a percentage of the monthly payroll reported to CalPERS. This change was implemented in the 2015-2016 fiscal year.

<u>Percentage of Payroll</u>
<u>The Tier 1 (2.5% at 55)</u> employer normal cost rate for 20/21 will be 12.900%, an increase of .964% over 19/20 (11.936%). The District currently pays the employee contribution on behalf of employees and that remains at 8% of gross payroll.

<u>The Tier 2 (2% at 62)</u> employer normal cost rate for 20/21 will be 7.526%, an increase of .032% over 19/20 (7.494%). The employee contribution is paid by the employees and the contribution rate, which has a maximum of 8%, is increasing for the first time since inception in 2013, from 6.75% to 7.50%. The employees will see this increased deduction in their July 2020 payroll check.

<u>Unfunded Liability</u>
<u>The Tier 1 (2.5% at 55)</u> unfunded liability will be invoiced monthly at $54,663.58 for an annual total of $655,963. Employers have the option to reduce this amount by paying the unfunded liability as an annual lump sum. The annual lump sum is $634,143 a savings of $21,820 and isn't payable until July 2020.

<u>The Tier 2 (2% at 62)</u> unfunded liability will be invoiced monthly at $497.96 for an annual total of $5,975. Employers have the option to reduce this amount by paying the unfunded liability as an annual lump sum. The annual lump sum is $5,777 a savings of $198. At the time of implementation in 2013 this tier started with just two active members growing over the last five years to include a total of 15 active members as of June 30, 2018.

These invoices represent a combined total of $639,920, a decrease of $247,877 over FY 19/20 ($887,797). Our overall unfunded liability increased by $1,816,950 and our funded ratio percentage decreased from 71.1% to 69.2% for the Tier 1 and from 94.0% to 91.5% for Tier 2. The increase in the overall unfunded liability can be partially attributed to the change in the discount rate from 7.5% to 7.0% with the largest decrease of ¼% reflected in the calculations for the 2020-2021 fiscal year.

The District's $4 Million Additional Discretionary Payment (ADP) made in March 2019 is partially reflected in the annual amortized payment schedule of this valuation. The amortization schedule end date has moved up by two years, changing from 6/30/2046 to 6/30/2044, with the total interest to be paid decreasing from $13,010,699 to $9,891,609, a savings of $3,119,090. The fiscal year 2020-2021 payment of the schedule decreased from $1,012,795 to $782,166. The District funded ratio percentage discussed above decreased overall; however, it is expected to increase in the next valuation due to the ADP and other changes to be implemented with the June 30, 2019 valuation (payroll percentage decrease from 3% to 2.75%, and all new gains/losses will be amortized at 20 years instead of 30 years).

The valuation cover sheets with the rates, the payment schedule and a brief discussion of any changes since the last valuation are included in the packet.

Recommendation:

Information Only

California Public Employees' Retirement System
Actuarial Office
400 Q Street, Sacramento, CA 95811 |Phone: (916) 795-3000 | Fax: (916) 795-2744
888 CalPERS (or **888**-225-7377) | TTY: (877) 249-7442 | **www.calpers.ca.gov**

July 2019

Miscellaneous Plan of the Sacramento-Yolo Mosquito and Vector Control District
(CalPERS ID: 1375523307)
Annual Valuation Report as of June 30, 2018

Dear Employer,

Attached to this letter, you will find the June 30, 2018 actuarial valuation report of your CalPERS pension plan. **Provided in this report is the determination of the minimum required employer contributions for Fiscal Year 2020-21**. In addition, the report contains important information regarding the current financial status of the plan as well as projections and risk measures to aid in planning for the future.

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

- Section 1 contains specific information for the plan including the development of the current and projected employer contributions, and
- Section 2 contains the Risk Pool Actuarial Valuation appropriate to the plan as of June 30, 2018.

Section 2 can be found on the CalPERS website (www.calpers.ca.gov). From the home page, go to "*Forms & Publications*" and select "*View All*". In the search box, enter "*Risk Pool*" and from the results list download the Miscellaneous or Safety Risk Pool Actuarial Valuation Report as appropriate.

Your June 30, 2018 actuarial valuation report contains important actuarial information about your pension plan at CalPERS. Your assigned CalPERS staff actuary, whose signature appears in the Actuarial Certification section on page 1, is available to discuss the report with you after August 1, 2019.

Actuarial valuations are based on assumptions regarding future plan experience including investment return and payroll growth, eligibility for the types of benefits provided, and longevity among retirees. The CalPERS Board of Administration adopts these assumptions after considering the advice of CalPERS actuarial and investment teams and other professionals. Each actuarial valuation reflects all prior differences between actual and assumed experience and adjusts the contribution rates as needed. This valuation is based on an investment return assumption of 7.0% which was adopted by the board in December 2016. Other assumptions used in this report are those recommended in the CalPERS Experience Study and Review of Actuarial Assumptions report from December 2017.

Required Contribution

The exhibit below displays the minimum employer contributions, before any cost sharing, for Fiscal Year 2020-21 along with estimates of the required contributions for Fiscal Year 2021-22. Member contributions other than cost sharing (whether paid by the employer or the employee) are in addition to the results shown below. **The employer contributions in this report do not reflect any cost sharing arrangements you may have with your employees**.

Fiscal Year	Employer Normal Cost Rate	Employer Amortization of Unfunded Accrued Liability
2020-21	12.900%	$655,963
Projected Results		
2021-22	*12.9%*	*$782,000*

The actual investment return for Fiscal Year 2018-19 was not known at the time this report was prepared. The projections above assume the investment return for that year would be 7.00 percent. ***If the actual investment return for Fiscal Year 2018-19 differs from 7.00 percent, the actual contribution requirements for the projected years will differ from those shown above.*** For additional details regarding the assumptions and methods used for these projections please refer to the "Projected Employer Contributions" in the "Highlights and Executive Summary" section. This section also contains projected required contributions through fiscal year 2025-26.

Changes from Previous Year's Valuation

CalPERS continues to strive to provide comprehensive risk assessments regarding plan funding and sustainability consistent with the Board of Administration's pension and investment beliefs. Your report this year includes new metrics on plan maturity in recognition of the fact that most pension plans at CalPERS are maturing as anticipated. As plans mature, they become more sensitive to risks than plans that are less mature. The "Risk Analysis" section of your report will help you understand how your plan is affected by investment return volatility and other economic assumptions. We have included plan sensitivity analysis with respect to longevity and inflation to further that discussion and encourage you to review our most recent Annual Review of Funding Levels and Risks report on our website that takes a holistic view of the system.

Upcoming Change for June 30, 2019 Valuations

The CalPERS Board of Administration has adopted a new amortization policy effective with the June 30, 2019 actuarial valuation. The new policy shortens the period over which actuarial gains and losses are amortized from 30 years to 20 years with the payments computed using a level dollar amount. In addition, the new policy removes the 5-year ramp-up and ramp-down on Unfunded Accrued Liability (UAL) bases attributable to assumption changes and non-investment gains/losses. The new policy removes the 5-year ramp-down on investment gains/losses. These changes will apply only to new UAL bases established on or after June 30, 2019.

Besides the above noted changes, there may also be changes specific to the plan such as contract amendments and funding changes.

Further descriptions of general changes are included in the "Highlights and Executive Summary" section and in Appendix A, "Statement of Actuarial Data, Methods and Assumptions" of the Section 2 report.

We understand that you might have a number of questions about these results. While we are very interested in discussing these results with your agency, in the interest of allowing us to give every public agency their results, we ask that you wait until after August 1 2019 to contact us with actuarial questions.

If you have other questions, please call our customer contact center at (888) CalPERS or (**888-225-7377**).

Sincerely,

SCOTT TERANDO
Chief Actuary

Actuarial Valuation
as of June 30, 2018

for the
Miscellaneous Plan
of the
Sacramento-Yolo Mosquito and Vector Control District
(CalPERS ID: 1375523307)

Required Contributions
for Fiscal Year
July 1, 2020 - June 30, 2021

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Section 1

CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

Plan Specific Information for the Miscellaneous Plan of the Sacramento-Yolo Mosquito and Vector Control District

(CalPERS ID: 1375523307)
(Valuation Rate Plan ID: 262)

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Actuarial Certification

Section 1 of this report is based on the member and financial data contained in our records as of June 30, 2018 which was provided by your agency and the benefit provisions under your contract with CalPERS. Section 2 of this report is based on the member and financial data as of June 30, 2018 provided by employers participating in the Miscellaneous Risk Pool to which the plan belongs and benefit provisions under the CalPERS contracts for those agencies.

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

Having relied upon the information set forth in Section 2 of this report and based on the census and benefit provision information for the plan, it is my opinion as the plan actuary that Unfunded Accrued Liability amortization bases as of June 30, 2018 and employer contribution as of July 1, 2020, have been properly and accurately determined in accordance with the principles and standards stated above.

The undersigned is an actuary for CalPERS, a member of both the American Academy of Actuaries and Society of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

MAY SHUANG YU, ASA, MAAA
Senior Pension Actuary, CalPERS
Plan Actuary

Highlights and Executive Summary

- **Introduction**
- **Purpose of Section 1**
- **Required Employer Contributions**
- **Plan’s Funded Status**
- **Projected Employer Contributions**
- **Changes Since the Prior Year’s Valuation**
- **Subsequent Events**

Introduction

This report presents the results of the June 30, 2018 actuarial valuation of the Miscellaneous Plan of the Sacramento-Yolo Mosquito and Vector Control District of the California Public Employees' Retirement System (CalPERS). This actuarial valuation sets the required employer contributions for Fiscal Year 2020-21.

Purpose of Section 1

This Section 1 report for the Miscellaneous Plan of the Sacramento-Yolo Mosquito and Vector Control District of the California Public Employees' Retirement System (CalPERS) was prepared by the plan actuary in order to:

- Set forth the assets and accrued liabilities of this plan as of June 30, 2018;
- Determine the minimum required employer contribution for this plan for the fiscal year July 1, 2020 through June 30, 2021; and
- Provide actuarial information as of June 30, 2018 to the CalPERS Board of Administration and other interested parties.

The pension funding information presented in this report should not be used in financial reports subject to GASB Statement No. 68 for a Cost Sharing Employer Defined Benefit Pension Plan. A separate accounting valuation report for such purposes is available from CalPERS and details for ordering are available on our website.

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

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

California Actuarial Advisory Panel Recommendations

This report includes all the basic disclosure elements as described in the *Model Disclosure Elements for Actuarial Valuation Reports* recommended in 2011 by the California Actuarial Advisory Panel (CAAP), with the exception of including the original base amounts of the various components of the unfunded liability in the Schedule of Amortization Bases shown on page 10.

Additionally, this report includes the following "Enhanced Risk Disclosures" also recommended by the CAAP in the Model Disclosure Elements document and consistent with the recommendations of Actuarial Standard of Practice No. 51:

- A "Scenario Test," projecting future results under different investment income scenarios.
- A "Sensitivity Analysis," showing the impact on current valuation results using alternative discount rates of 6.0 percent and 8.0 percent.
- A "Sensitivity Analysis," showing the impact on current valuation results using a 1.0 percent plus or minus change in the inflation rate.
- A "Sensitivity Analysis," showing the impact on current valuation results assuming post-retirement rates of mortality are 10 percent lower or 10 percent higher than our current mortality assumptions adopted in 2017. This type of analysis highlights the impact on the plan of improving or worsening mortality over the long-term.
- Plan maturity measures which indicate how sensitive a plan may be to the risks noted above.

Required Employer Contributions

Required Employer Contributions		**Fiscal Year 2020-21**
Employer Normal Cost Rate		**12.900%**
Plus, Either		
1) Monthly Employer Dollar UAL Payment	**$**	**54,663.58**
Or		
2) Annual UAL Prepayment Option*	**$**	**634,143**

*The total minimum required employer contribution is the **sum** of the Plan's Employer Normal Cost Rate (expressed as a percentage of payroll) **plus** the Employer Unfunded Accrued Liability (UAL) Contribution Amount (billed monthly in dollars).*

** Only the UAL portion of the employer contribution can be prepaid **(which must be received in full no later than July 31)**. Any prepayment totaling over $5 million requires a 72-hour notice email to FCSD_public_agency_wires@calpers.ca.gov. Plan Normal Cost contributions will be made as part of the payroll reporting process. If there is contractual cost sharing or other change, this amount will change.*

In accordance with Sections 20537 and 20572 of the Public Employees' Retirement Law, if a contracting agency fails to remit the required contributions when due, interest and penalties may apply.

		Fiscal Year 2019-20		Fiscal Year 2020-21
Development of Normal Cost as a Percentage of Payroll[1]				
Base Total Normal Cost for Formula		18.774%		19.695%
Surcharge for Class 1 Benefits[2]				
a) FAC 1		0.609%		0.619%
b) 75% IDR		0.504%		0.539%
Phase out of Normal Cost Difference[3]		0.000%		0.000%
Plan's Total Normal Cost		19.887%		20.853%
Formula's Expected Employee Contribution Rate		7.951%		7.953%
Employer Normal Cost Rate		11.936%		12.900%
Projected Payroll for the Contribution Fiscal Year	$	4,068,962	$	4,111,692
Estimated Employer Contributions Based on Projected Payroll				
Plan's Estimated Employer Normal Cost	$	485,671	$	530,408
Plan's Payment on Amortization Bases[4]		918,232		655,963
% of Projected Payroll (illustrative only)		22.567%		15.954%
Estimated Total Employer Contribution	$	1,403,903	$	1,186,371
% of Projected Payroll (illustrative only)		34.503%		28.854%

1 The results shown for Fiscal Year 2019-20 reflect the prior year valuation and may not take into account any lump sum payment, side fund payoff, or rate adjustment made after April 30, 2018.

2 Section 2 of this report contains a list of Class 1 benefits and corresponding surcharges for each benefit.

3 The normal cost difference is phased out over a five-year period. The phase out of normal cost difference is 100 percent for the first year of pooling, and is incrementally reduced by 20 percent of the original normal cost difference for each subsequent year. This is non-zero only for plans that joined a pool within the past 5 years. Most plans joined a pool June 30, 2003, when risk pooling was implemented.

4 See page 10 for a breakdown of the Amortization Bases.

Plan's Funded Status

	June 30, 2017	June 30, 2018
1. Present Value of Projected Benefits (PVB)	$ 50,787,985	$ 54,055,616
2. Entry Age Normal Accrued Liability (AL)	45,050,159	48,169,015
3. Plan's Market Value of Assets (MVA)	32,027,515	33,353,036
4. Unfunded Accrued Liability (UAL) [(2) - (3)]	13,022,644	14,815,979
5. Funded Ratio [(3) / (2)]	71.1%	69.2%

This measure of funded status is an assessment of the need for future employer contributions based on the selected actuarial cost method used to fund the plan. The UAL is the present value of future employer contributions for service that has already been earned and is in addition to future normal cost contributions for active members. For a measure of funded status that is appropriate for assessing the sufficiency of plan assets to cover estimated termination liabilities, please see "Hypothetical Termination Liability" in the "Risk Analysis" section.

Projected Employer Contributions

The table below shows projected employer contributions (before cost sharing) for the next six fiscal years. Projected results reflect the adopted changes to the discount rate described in Appendix A, "Statement of Actuarial Data, Methods and Assumptions" of the Section 2 report. The projections also assume that all actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur during the projection period.

	Required Contribution	Projected Future Employer Contributions (Assumes 7.00% Return for Fiscal Year 2018-19)				
Fiscal Year	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**
Normal Cost %	12.900%	12.9%	12.9%	12.9%	12.9%	12.9%
UAL Payment	$655,963	$782,000	$886,000	$945,000	$1,008,000	$1,036,000

Changes in the UAL due to actuarial gains or losses as well as changes in actuarial assumptions or methods are amortized using a 5-year ramp up. For more information, please see "Amortization of the Unfunded Actuarial Accrued Liability" under "Actuarial Methods" in Appendix A of Section 2. This method phases in the impact of unanticipated changes in UAL over a 5-year period and attempts to minimize employer cost volatility from year to year. As a result of this methodology, dramatic changes in the required employer contributions in any one year are less likely. However, required contributions can change gradually and significantly over the next five years. In years where there is a large increase in UAL the relatively small amortization payments during the ramp up period could result in a funded ratio that is projected to decrease initially while the contribution impact of the increase in the UAL is phased in.

For projected contributions under alternate investment return scenarios, please see the "Future Investment Return Scenarios" in the "Risk Analysis" section.

Changes Since the Prior Year's Valuation

Benefits

None. This valuation generally reflects plan changes by amendments effective before the date of the report. Please refer to the "Plan's Major Benefit Options" and Appendix B of Section 2 for a summary of the plan provisions used in this valuation.

Actuarial Methods and Assumptions

In December of 2016 the CalPERS Board of Administration lowered the discount rate from 7.50 percent to 7.00 percent using a three-year phase-in beginning with the June 30, 2016 actuarial valuation. The minimum employer contributions for Fiscal Year 2020-21 determined in this valuation were calculated using a discount rate of 7.00 percent, payroll growth of 2.75 percent and an inflation rate of 2.50 percent. The projected employer contributions on Page 5 are calculated under the assumption that the discount rate remains at 7.00 percent going forward and that furthermore the realized rate of return on assets for Fiscal Year 2018-19 is 7.00 percent.

The decision to reduce the discount rate was primarily based on reduced capital market assumptions provided by external investment consultants and CalPERS investment staff. The specific decision adopted by the Board reflected recommendations from CalPERS staff and additional input from employer and employee stakeholder groups. Based on the investment allocation adopted by the Board and capital market assumptions, the reduced discount rate assumption provides a more realistic assumption for the long-term investment return of the fund.

CalPERS has implemented a new actuarial valuation software system for the June 30, 2018 valuation. With this new system we have refined and improved some of our calculation methodology. Any difference in liability between the old software and new software calculations is captured as a method change line item.

Subsequent Events

The CalPERS Board of Administration has adopted a new amortization policy effective with the June 30, 2019 actuarial valuation. The new policy shortens the period over which actuarial gains and losses are amortized from 30 years to 20 years with the payments computed using a level dollar amount. In addition, the new policy removes the 5-year ramp-up and ramp-down on UAL bases attributable to assumption changes and non-investment gains/losses. The new policy removes the 5-year ramp-down on investment gains/losses. These changes will apply only to new UAL bases established on or after June 30, 2019.

For inactive employers the new amortization policy imposes a maximum amortization period of 15 years for all unfunded accrued liabilities effective June 30, 2018. Furthermore, the plan actuary has the ability to shorten the amortization period on any valuation date based on the life expectancy of plan members and projected cash flow needs to the plan. The impact of this has been reflected in the current valuation results.

The contribution requirements determined in this actuarial valuation report are based on demographic and financial information as of June 30, 2018, and may reflect additional discretionary payments made by the employer through April 30, 2019. Changes in the value of assets subsequent to that date are not reflected. Investment returns below the assumed rate of return will increase the required contribution, while investment returns above the assumed rate of return will decrease the required contribution.

This actuarial valuation report reflects statutory changes, regulatory changes and CalPERS Board actions through January 2019. Any subsequent changes or actions are not reflected.

Assets and Liabilities

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

Breakdown of Entry Age Normal Accrued Liability

Active Members	$	17,365,385
Transferred Members		893,422
Terminated Members		705,533
Members and Beneficiaries Receiving Payments		29,204,675
Total	$	48,169,015

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

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

1.	Plan's Accrued Liability	$	48,169,015
2.	Projected UAL balance at 6/30/18		13,367,202
3.	Pool's Accrued Liability[1]		17,424,237,070
4.	Sum of Pool's Individual Plan UAL Balances at 6/30/18[1]		3,777,499,883
5.	Pool's 2017/18 Investment & Asset (Gain)/Loss[1]		(135,628,188)
6.	Pool's 2017/18 Other (Gain)/Loss[1]		66,272,613
7.	Plan's Share of Pool's Asset (Gain)/Loss: [(1) - (2)] ÷ [(3) - (4)] × (5)		(345,878)
8.	Plan's Share of Pool's Other (Gain)/Loss: (1) ÷ (3) × (6)		183,210
9.	Plan's New (Gain)/Loss as of 6/30/2018: (7) + (8)		(162,669)
10.	Increase in Pool's Accrued Liability due to Change in Assumptions[1]		453,914,155
11.	Plan's Share of Pool's Change in Assumptions: (1) ÷ (3) × (10)		1,254,838
12.	Increase in Pool's Accrued Liability due to Change in Method[1]		128,995,852
13.	Plan's Share of Pool's Change in Method: (1) ÷ (3) × (12)		356,607

[1] Does not include plans that transferred to Pool on the valuation date.

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

14.	Plan's UAL: (2) + (9) + (11) + (13)	$	14,815,979
15.	Plan's Share of Pool's MVA: (1) - (14)	$	**33,353,036**

Schedule of Plan's Amortization Bases

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

- The assets, liabilities, and funded status of the plan are measured as of the valuation date: June 30, 2018.
- The required employer contributions determined by the valuation are for the fiscal year beginning two years after the valuation date: Fiscal Year 2020-21.

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

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

Schedule of Plan's Amortization Bases

										Amounts for Fiscal 2020-21	
Reason for Base	**Date Established**	**Ramp Up/Down 2020-21**	**Escalation Rate**	**Amortization Period**	**Balance 6/30/18**	**Payment 2018-19**	**Balance 6/30/19**	**Payment 2019-20**	**Balance 6/30/20**	**Scheduled Payment for 2020-21**	
SHARE OF PRE-2013 POOL UAL	06/30/13	No Ramp	2.750%	16	$5,305,149	$4,365,471	$1,160,831	$437,053	$789,998	$68,024	
NON-ASSET (GAIN)/LOSS	06/30/13	100% →	2.750%	25	$(45,226)	$(2,398)	$(45,911)	$(3,080)	$(45,939)	$(3,116)	
ASSET (GAIN)/LOSS	06/30/13	100% →	2.750%	25	$4,903,421	$259,997	$4,977,717	$333,890	$4,980,779	$337,881	
NON-ASSET (GAIN)/LOSS	06/30/14	100% →	2.750%	26	$4,028	$161	$4,143	$220	$4,205	$278	
ASSET (GAIN)/LOSS	06/30/14	100% →	2.750%	26	$(3,524,491)	$(140,499)	$(3,625,872)	$(192,469)	$(3,680,592)	$(243,386)	
ASSUMPTION CHANGE	06/30/14	100% →	2.750%	16	$2,280,908	$125,483	$2,310,771	$171,862	$2,294,750	$218,206	
NON-ASSET (GAIN)/LOSS	06/30/15	80% ↗	2.750%	27	$(179,846)	$(4,853)	$(187,415)	$(7,479)	$(192,798)	$(10,084)	
ASSET (GAIN)/LOSS	06/30/15	80% ↗	2.750%	27	$2,103,778	$56,768	$2,192,321	$87,492	$2,255,281	$117,960	
NON-ASSET (GAIN)/LOSS	06/30/16	60% ↗	2.750%	28	$(321,554)	$(4,462)	$(339,447)	$(9,170)	$(353,723)	$(13,901)	
ASSET (GAIN)/LOSS	06/30/16	60% ↗	2.750%	28	$2,471,237	$34,293	$2,608,751	$70,475	$2,718,464	$106,832	
ASSUMPTION CHANGE	06/30/16	60% ↗	2.750%	18	$794,608	$14,995	$834,720	$30,810	$861,280	$46,892	
NON-ASSET (GAIN)/LOSS	06/30/17	40% ↗	2.750%	29	$(64,683)	$0	$(69,211)	$(962)	$(73,061)	$(1,942)	
ASSET (GAIN)/LOSS	06/30/17	40% ↗	2.750%	29	$(1,180,047)	$0	$(1,262,650)	$(17,542)	$(1,332,890)	$(35,430)	
ASSUMPTION CHANGE	06/30/17	40% ↗	2.750%	19	$819,920	$(28,655)	$906,955	$17,131	$952,721	$34,741	
NON-ASSET (GAIN)/LOSS	06/30/18	20% ↗	2.750%	30	$183,210	$0	$196,034	$0	$209,757	$2,865	
ASSET (GAIN)/LOSS	06/30/18	20% ↗	2.750%	30	$(345,878)	$0	$(370,090)	$0	$(395,996)	$(5,408)	
METHOD CHANGE	06/30/18	20% ↗	2.750%	20	$356,607	$(1,770)	$383,400	$(1,818)	$412,119	$7,684	
ASSUMPTION CHANGE	06/30/18	20% ↗	2.750%	20	$1,254,838	$(26,748)	$1,370,345	$(27,483)	$1,494,698	$27,868	
TOTAL					**$14,815,979**	**$4,647,783**	**$11,045,392**	**$888,930**	**$10,899,053**	**$655,963**	

The (gain)/loss bases are the plan's allocated share of the risk pool's (gain)/loss for the fiscal year as disclosed in "Allocation of Plan's Share of Pool's Experience/Assumption Change" earlier in this section. These (gain)/loss bases will be amortized according to Board policy over 30 years with a 5-year ramp-up.

If the total Unfunded Liability is negative (i.e., plan has a surplus), the scheduled payment is $0, because the minimum required contribution under PEPRA must be at least equal to the normal cost.

Amortization Schedule and Alternatives

The amortization schedule on the previous page shows the minimum contributions required according to CalPERS amortization policy. There has been considerable interest from many agencies in paying off these unfunded accrued liabilities sooner and the possible savings in doing so. As a result, we have provided alternate amortization schedules to help analyze the current amortization schedule and illustrate the advantages of accelerating unfunded liability payments.

Shown on the following page are future year amortization payments based on: 1) the current amortization schedule reflecting the individual bases and remaining periods shown on the previous page, and 2) alternate "fresh start" amortization schedules using two sample periods that would both result in interest savings relative to the current amortization schedule. Note that the payments under each alternate scenario increase by 2.75 percent for each year into the future, except for inactive plans.

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

- A positive total unfunded liability with a negative total payment,
- A negative total unfunded liability with a positive total payment, or
- Total payments that completely amortize the unfunded liability over a very short period of time

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

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

Amortization Schedule and Alternatives

			Alternate Schedules			
	Current Amortization Schedule		15 Year Amortization		10 Year Amortization	
Date	**Balance**	**Payment**	**Balance**	**Payment**	**Balance**	**Payment**
6/30/2020	10,899,053	655,963	10,899,053	983,026	10,899,053	1,343,850
6/30/2021	10,983,453	782,166	10,645,137	1,010,059	10,271,898	1,380,805
6/30/2022	10,943,216	886,342	10,345,483	1,037,836	9,562,615	1,418,778
6/30/2023	10,792,402	945,097	9,996,121	1,066,376	8,764,403	1,457,794
6/30/2024	10,570,254	1,007,878	9,592,781	1,095,702	7,869,957	1,497,883
6/30/2025	10,267,614	1,035,595	9,130,873	1,125,834	6,871,431	1,539,075
6/30/2026	9,915,120	1,064,074	8,605,463	1,156,794	5,760,400	1,581,400
6/30/2027	9,508,491	1,093,336	8,011,248	1,188,606	4,527,815	1,624,888
6/30/2028	9,043,130	1,123,403	7,342,532	1,221,293	3,163,965	1,669,573
6/30/2029	8,514,093	1,154,296	6,593,194	1,254,878	1,658,423	1,715,486
6/30/2030	7,916,066	1,186,039	5,756,662	1,289,387		
6/30/2031	7,243,342	1,218,655	4,825,876	1,324,845		
6/30/2032	6,489,789	1,191,735	3,793,256	1,361,279		
6/30/2033	5,711,334	1,162,412	2,650,667	1,398,714		
6/30/2034	4,908,719	1,107,723	1,389,373	1,437,178		
6/30/2035	4,106,491	1,023,053				
6/30/2036	3,335,691	773,019				
6/30/2037	2,769,573	685,554				
6/30/2038	2,254,300	592,695				
6/30/2039	1,799,013	520,381				
6/30/2040	1,386,657	473,527				
6/30/2041	993,903	368,194				
6/30/2042	682,614	345,023				
6/30/2043	373,502	269,967				
6/30/2044	120,392	124,534				
6/30/2045						
6/30/2046						
6/30/2047						
6/30/2048						
6/30/2049						
Totals		**20,790,662**		**17,951,807**		**15,229,532**
Interest Paid		**9,891,609**		**7,052,755**		**4,330,479**
Estimated Savings				**2,838,856**		**5,561,131**

Employer Contribution History

The table below provides a recent history of the required employer contributions for the plan, as determined by the annual actuarial valuation. It does not account for prepayments or benefit changes made during a fiscal year.

Fiscal Year	Employer Normal Cost	Unfunded Liability Payment ($)
2016 - 17	10.657%	$524,072
2017 - 18	10.698%	$623,794
2018 - 19	11.206%	$764,980
2019 - 20	11.936%	$918,232
2020 - 21	12.900%	$655,963

Funding History

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

Valuation Date	Accrued Liability (AL)	Share of Pool's Market Value of Assets (MVA)	Plan's Share of Pool's Unfunded Liability	Funded Ratio	Annual Covered Payroll
06/30/2011	$ 35,167,407	$ 26,897,786	$ 8,269,621	76.5%	$ 4,310,871
06/30/2012	36,109,275	25,984,610	10,124,665	72.0%	4,159,769
06/30/2013	36,986,189	28,180,725	8,805,464	76.2%	4,069,939
06/30/2014	40,398,541	32,139,699	8,258,842	79.6%	3,857,061
06/30/2015	41,722,970	31,549,332	10,173,638	75.6%	3,653,363
06/30/2016	43,292,385	30,280,412	13,011,973	69.9%	3,695,877
06/30/2017	45,050,159	32,027,515	13,022,644	71.1%	3,737,267
06/30/2018	48,169,015	33,353,036	14,815,979	69.2%	3,790,313

Risk Analysis

- **Future Investment Return Scenarios**
- **Discount Rate Sensitivity**
- **Mortality Rate Sensitivity**
- **Inflation Rate Sensitivity**
- **Maturity Measures**
- **Hypothetical Termination Liability**

Future Investment Return Scenarios

Analysis was performed to determine the effects of various future investment returns on required employer contributions. The projections below provide a range of results based on five investment return scenarios assumed to occur during the next four fiscal years (2018-19, 2019-20, 2020-21 and 2021-22). The projections also assume that all other actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur.

For fiscal years 2018-19, 2019-20, 2020-21, and 2021-22, each scenario assumes an alternate fixed annual return. The fixed return assumptions for the five scenarios are 1.0 percent, 4.0 percent, 7.0 percent, 9.0 percent and 12.0 percent.

These alternate investment returns were chosen based on stochastic analysis of possible future investment returns over the four-year period ending June 30, 2022. Using the expected returns and volatility of the asset classes in which the funds are invested, we produced five thousand stochastic outcomes for this period based on the most recently completed Asset Liability Management process. We then selected annual returns that approximate the 5th, 25th, 50th, 75th, and 95th percentiles for these outcomes. For example, of all the 4-year outcomes generated in the stochastic analysis, approximately 25 percent of them had an average annual return of 4.0 percent or less.

Required contributions outside of this range are also possible. In particular, whereas it is unlikely that investment returns will average less than 1.0 percent or greater than 12.0 percent over this four-year period, the possibility of a single investment return less than 1.0 percent or greater than 12.0 percent in any given year is much greater.

Assumed Annual Return From 2018-19 through 2021-22	**Projected Employer Contributions**			
	2021-22	**2022-23**	**2023-24**	**2024-25**
1.0%				
Normal Cost	12.9%	12.9%	12.9%	12.9%
UAL Contribution	$832,000	$1,037,000	$1,247,000	$1,512,000
4.0%				
Normal Cost	12.9%	12.9%	12.9%	12.9%
UAL Contribution	$807,000	$962,000	$1,099,000	$1,267,000
7.0%				
Normal Cost	12.9%	12.9%	12.9%	12.9%
UAL Contribution	$782,000	$886,000	$945,000	$1,008,000
9.0%				
Normal Cost	13.2%	13.4%	13.7%	13.9%
UAL Contribution	$770,000	$850,000	$873,000	$885,000
12.0%				
Normal Cost	13.2%	13.4%	13.7%	13.9%
UAL Contribution	$745,000	$773,000	$711,000	$604,000

In addition, the projections above reflect the recent changes to the new amortization policy effective with the June 30, 2019 valuation. The projections above incorporate the impact of the CalPERS risk mitigation policy which reduces the discount rate when investment returns are above specified trigger points.

Discount Rate Sensitivity

Shown below are various valuation results as of June 30, 2018 assuming alternate discount rates. Results are shown using the current discount rate of 7.0 percent as well as alternate discount rates of 6.0 percent and 8.0 percent. The rates of 6.0 percent and 8.0 percent were selected since they illustrate the impact of a 1 percent increase or decrease to the 7.0 percent assumption. This analysis shows the potential plan impacts if the PERF were to realize investment returns of 6.0 percent or 8.0 percent over the long-term.

This type of analysis gives the reader a sense of the long-term risk to required contributions. For a measure of funded status that is appropriate for assessing the sufficiency of plan assets to cover estimated termination liabilities, please see "Hypothetical Termination Liability" at the end of this section.

Sensitivity Analysis				
As of June 30, 2018	**Plan's Total Normal Cost**	**Accrued Liability**	**Unfunded Accrued Liability**	**Funded Status**
7.0% (current discount rate)	20.853%	$48,169,015	$14,815,979	69.2%
6.0%	26.066%	$54,473,377	$21,120,341	61.2%
8.0%	16.869%	$42,944,082	$9,591,046	77.7%

Mortality Rate Sensitivity

The following table looks at the change in the June 30, 2018 plan costs and funded ratio under two different longevity scenarios, namely assuming post-retirement rates of mortality are 10 percent lower or 10 percent higher than our current mortality assumptions adopted in 2017. This type of analysis highlights the impact on the plan of improving or worsening mortality over the long-term.

As of June 30, 2018	Current Mortality	10% Lower Mortality Rates	10% Higher Mortality Rates
a) Accrued Liability	$48,169,015	$49,220,949	$47,203,185
b) Market Value of Assets	$33,353,036	$33,353,036	$33,353,036
c) Unfunded Liability (Surplus) [(a)-(b)]	$14,815,979	$15,867,913	$13,850,149
d) Funded Status	69.2%	67.8%	70.7%

A 10 percent increase (decrease) in assumed mortality rates over the long-term would result in approximately a 1.5 percent increase (decrease) to the funded ratio.

Inflation Rate Sensitivity

The following analysis looks at the change in the June 30, 2018 plan costs and funded ratio under two different inflation rate scenarios, namely assuming the liability inflation rate is 1 percent lower or 1 percent higher than the current valuation inflation rate assumption of 2.50%, while holding the discount rate fixed at 7.0%. This type of analysis highlights the impact on the plan of increased or decreased inflation of active salaries and retiree COLAs over the long-term.

As of June 30, 2018	Current Inflation Rate	-1% Inflation Rate	+1% Inflation Rate
a) Accrued Liability	$48,169,015	$44,961,795	$50,537,595
b) Market Value of Assets	$33,353,036	$33,353,036	$33,353,036
c) Unfunded Liability (Surplus) [(a)-(b)]	$14,815,979	$11,608,759	$17,184,559
d) Funded Status	69.2%	74.2%	66.0%

A decrease of 1 percent in the liability inflation rate (2.50 percent to 1.50 percent) reduces the Accrued Liability by 6.7 percent. However, a 1 percent increase in the liability inflation rate (2.50 percent to 3.50 percent) increases the Accrued Liability by 4.9 percent.

Maturity Measures

As pension plans mature they become much more sensitive to risks than plans that are less mature. Understanding plan maturity and how it affects the ability of a pension plan to tolerate risk is important in understanding how the plan is impacted by investment return volatility, other economic variables and changes in longevity or other demographic assumptions. One way to look at the maturity level of CalPERS and its plans is to look at the ratio of a plan's retiree liability to its total liability. A pension plan in its infancy will have a very low ratio of retiree liability to total liability. As the plan matures, the ratio starts increasing. A mature plan will often have a ratio above 0.60 to 0.65. For both CalPERS and other retirement systems in the United States, these ratios have been steadily increasing in recent years.

Ratio of Retiree Accrued Liability to Total Accrued Liability	June 30, 2017	June 30, 2018
1. Retired Accrued Liability	28,485,776	29,204,675
2. Total Accrued Liability	45,050,159	48,169,015
3. Ratio of Retiree AL to Total AL [(1) / (2)]	0.63	0.61

Another way to look at the maturity level of CalPERS and its plans is to look at the ratio of actives to retirees. A pension plan in its infancy will have a very high ratio of active to retired members. As the plan matures, and members retire, the ratio starts declining. A mature plan will often have a ratio near or below one. The average support ratio for CalPERS public agency plans is 1.25.

Support Ratio	June 30, 2017	June 30, 2018
1. Number of Actives	52	51
2. Number of Retirees	79	79
3. Support Ratio [(1) / (2)]	0.66	0.65

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

Asset Volatility Ratio (AVR)

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

Liability Volatility Ratio (LVR)

Plans that have higher liability-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to investment return and changes in liability. For example, a plan with a liability-to-payroll ratio of 8 is expected to have twice the contribution volatility of a plan with a liability-to-payroll ratio of 4. The liability volatility ratio is also shown in the table below. It should be noted that this ratio indicates a longer-term potential for contribution volatility. The asset volatility ratio, described above, will tend to move closer to the liability volatility ratio as the plan matures.

Contribution Volatility		**June 30, 2017**		**June 30, 2018**
1. Market Value of Assets	$	32,027,515	$	33,353,036
2. Payroll		3,737,267		3,790,313
3. Asset Volatility Ratio (AVR) [(1) / (2)]		8.6		8.8
4. Accrued Liability	$	45,050,159	$	48,169,015
5. Liability Volatility Ratio (LVR) [(4) / (2)]		12.1		12.7
6. Accrued Liability (7.00% discount rate)		46,257,497		48,169,015
7. Projected Liability Volatility Ratio [(6) / (2)]		12.4		12.7

Hypothetical Termination Liability

The hypothetical termination liability is an estimate of the financial position of the plan had the contract with CalPERS been terminated as of June 30, 2018. The plan liability on a termination basis is calculated differently compared to the plan's ongoing funding liability. For the hypothetical termination liability calculation, both compensation and service are frozen as of the valuation date and no future pay increases or service accruals are assumed. This measure of funded status is not appropriate for assessing the need for future employer contributions in the case of an ongoing plan, that is, for an employer that continues to provide CalPERS retirement benefits to active employees.

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

The effective termination discount rate will depend on actual market rates of return for risk-free securities on the date of termination. As market discount rates are variable, the table below shows a range for the hypothetical termination liability based on the lowest and highest interest rates observed during an approximate 2-year period centered around the valuation date.

Market Value of Assets (MVA)	Hypothetical Termination Liability[1,2] @ 2.50%	Funded Status	Unfunded Termination Liability @ 2.50%	Hypothetical Termination Liability[1,2] @ 3.25%	Funded Status	Unfunded Termination Liability @ 3.25%
$33,353,036	$80,820,246	41.3%	$47,467,210	$73,840,779	45.2%	$40,487,742

[1] The hypothetical liabilities calculated above include a 5 percent mortality contingency load in accordance with Board policy. Other actuarial assumptions can be found in Appendix A of the Section 2 report.

[2] The current discount rate assumption used for termination valuations is a weighted average of the 10-year and 30-year U.S. Treasury yields where the weights are based on matching asset and liability durations as of the termination date. The discount rates used in the table are based on 20-year Treasury bonds, rounded to the nearest quarter percentage point, which is a good proxy for most plans. The 20-year Treasury yield was 2.91 percent on June 30, 2018, and was 2.83 percent on January 31, 2019.

In order to terminate the plan, you must first contact our Retirement Services Contract Unit to initiate a Resolution of Intent to Terminate. The completed Resolution will allow the plan actuary to give you a preliminary termination valuation with a more up-to-date estimate of the plan liabilities. CalPERS advises you to consult with the plan actuary before beginning this process.

Participant Data

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

	June 30, 2017	June 30, 2018
Reported Payroll	$ 3,737,267	$ 3,790,313
Projected Payroll for Contribution Purposes	$ 4,068,962	$ 4,111,692
Number of Members		
Active	52	51
Transferred	13	14
Separated	22	21
Retired	79	79

List of Class 1 Benefit Provisions

This plan has the additional Class 1 Benefit Provisions:

- One Year Final Compensation (FAC 1)
- Increased IDR Allowance to 75% of Compensation (75% IDR)

Plan's Major Benefit Options

Shown below is a summary of the major optional benefits for which your agency has contracted. A description of principal standard and optional plan provisions is in the following section of this Appendix.

	Benefit Group			
Member Category	Misc	Misc	Misc	
Demographics				
Actives	No	Yes	No	
Transfers/Separated	Yes	Yes	No	
Receiving	Yes	Yes	Yes	
Benefit Provision				
Benefit Formula	2% @ 55	2.5% @ 55	2% @ 60	
Social Security Coverage	No	No	No	
Full/Modified	Full	Full	Full	
Employee Contribution Rate		8.00%		
Final Average Compensation Period	One Year	One Year	One Year	
Sick Leave Credit	Yes	Yes	Yes	
Non-Industrial Disability	Improved	Improved	Standard	
Industrial Disability	Increased	Increased	No	
Pre-Retirement Death Benefits				
Optional Settlement 2	Yes	Yes	No	
1959 Survivor Benefit Level	Level 3	Level 3	Level 3	
Special	Yes	Yes	No	
Alternate (firefighters)	No	No	No	
Post-Retirement Death Benefits				
Lump Sum	$5000	$5000	$5000	
Survivor Allowance (PRSA)	No	No	No	
COLA	2%	2%	2%	

Section 2

CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

Section 2 may be found on the CalPERS website (www.calpers.ca.gov) in the Forms and Publications section

California Public Employees' Retirement System
Actuarial Office
400 Q Street, Sacramento, CA 95811 |Phone: (916) 795-3000 | Fax: (916) 795-2744
888 CalPERS (or **888**-225-7377) | TTY: (877) 249-7442 | **www.calpers.ca.gov**

July 2019

PEPRA Miscellaneous Plan of the Sacramento-Yolo Mosquito and Vector Control District
(CalPERS ID: 1375523307)
Annual Valuation Report as of June 30, 2018

Dear Employer,

Attached to this letter, you will find the June 30, 2018 actuarial valuation report of your CalPERS pension plan. **Provided in this report is the determination of the minimum required employer contributions for Fiscal Year 2020-21**. In addition, the report contains important information regarding the current financial status of the plan as well as projections and risk measures to aid in planning for the future.

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

- Section 1 contains specific information for the plan including the development of the current and projected employer contributions, and
- Section 2 contains the Risk Pool Actuarial Valuation appropriate to the plan as of June 30, 2018.

Section 2 can be found on the CalPERS website (www.calpers.ca.gov). From the home page, go to "*Forms & Publications*" and select "*View All*". In the search box, enter "*Risk Pool*" and from the results list download the Miscellaneous or Safety Risk Pool Actuarial Valuation Report as appropriate.

Your June 30, 2018 actuarial valuation report contains important actuarial information about your pension plan at CalPERS. Your assigned CalPERS staff actuary, whose signature appears in the Actuarial Certification section on page 1, is available to discuss the report with you after August 1, 2019.

Actuarial valuations are based on assumptions regarding future plan experience including investment return and payroll growth, eligibility for the types of benefits provided, and longevity among retirees. The CalPERS Board of Administration adopts these assumptions after considering the advice of CalPERS actuarial and investment teams and other professionals. Each actuarial valuation reflects all prior differences between actual and assumed experience and adjusts the contribution rates as needed. This valuation is based on an investment return assumption of 7.0% which was adopted by the board in December 2016. Other assumptions used in this report are those recommended in the CalPERS Experience Study and Review of Actuarial Assumptions report from December 2017.

Required Contribution

The exhibit below displays the minimum employer contributions, before any cost sharing, for Fiscal Year 2020-21 along with estimates of the required contributions for Fiscal Year 2021-22. Member contributions other than cost sharing (whether paid by the employer or the employee) are in addition to the results shown below. **The employer contributions in this report do not reflect any cost sharing arrangements you may have with your employees**.

Fiscal Year	Employer Normal Cost Rate	Employer Amortization of Unfunded Accrued Liability	PEPRA Employee Rate
2020-21	7.526%	$5,975	7.500%
Projected Results			
2021-22	*7.5%*	*$6,100*	*TBD*

The actual investment return for Fiscal Year 2018-19 was not known at the time this report was prepared. The projections above assume the investment return for that year would be 7.00 percent. ***If the actual investment return for Fiscal Year 2018-19 differs from 7.00 percent, the actual contribution requirements for the projected years will differ from those shown above.*** For additional details regarding the assumptions and methods used for these projections please refer to the "Projected Employer Contributions" in the "Highlights and Executive Summary" section. This section also contains projected required contributions through fiscal year 2025-26.

Changes from Previous Year's Valuation

CalPERS continues to strive to provide comprehensive risk assessments regarding plan funding and sustainability consistent with the Board of Administration's pension and investment beliefs. Your report this year includes new metrics on plan maturity in recognition of the fact that most pension plans at CalPERS are maturing as anticipated. As plans mature, they become more sensitive to risks than plans that are less mature. The "Risk Analysis" section of your report will help you understand how your plan is affected by investment return volatility and other economic assumptions. We have included plan sensitivity analysis with respect to longevity and inflation to further that discussion and encourage you to review our most recent Annual Review of Funding Levels and Risks report on our website that takes a holistic view of the system.

Upcoming Change for June 30, 2019 Valuations

The CalPERS Board of Administration has adopted a new amortization policy effective with the June 30, 2019 actuarial valuation. The new policy shortens the period over which actuarial gains and losses are amortized from 30 years to 20 years with the payments computed using a level dollar amount. In addition, the new policy removes the 5-year ramp-up and ramp-down on Unfunded Accrued Liability (UAL) bases attributable to assumption changes and non-investment gains/losses. The new policy removes the 5-year ramp-down on investment gains/losses. These changes will apply only to new UAL bases established on or after June 30, 2019.

Besides the above noted changes, there may also be changes specific to the plan such as contract amendments and funding changes.

Further descriptions of general changes are included in the "Highlights and Executive Summary" section and in Appendix A, "Statement of Actuarial Data, Methods and Assumptions" of the Section 2 report.

We understand that you might have a number of questions about these results. While we are very interested in discussing these results with your agency, in the interest of allowing us to give every public agency their results, we ask that you wait until after August 1 2019 to contact us with actuarial questions.

If you have other questions, please call our customer contact center at (888) CalPERS or (**888-225-7377**).

Sincerely,

SCOTT TERANDO
Chief Actuary

Actuarial Valuation as of June 30, 2018

for the PEPRA Miscellaneous Plan of the Sacramento-Yolo Mosquito and Vector Control District

(CalPERS ID: 1375523307)

Required Contributions for Fiscal Year July 1, 2020 - June 30, 2021

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Section 1

CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

Plan Specific Information for the PEPRA Miscellaneous Plan of the Sacramento-Yolo Mosquito and Vector Control District

(CalPERS ID: 1375523307)
(Valuation Rate Plan ID: 26232)

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Actuarial Certification

Section 1 of this report is based on the member and financial data contained in our records as of June 30, 2018 which was provided by your agency and the benefit provisions under your contract with CalPERS. Section 2 of this report is based on the member and financial data as of June 30, 2018 provided by employers participating in the Miscellaneous Risk Pool to which the plan belongs and benefit provisions under the CalPERS contracts for those agencies.

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

Having relied upon the information set forth in Section 2 of this report and based on the census and benefit provision information for the plan, it is my opinion as the plan actuary that Unfunded Accrued Liability amortization bases as of June 30, 2018 and employer contribution as of July 1, 2020, have been properly and accurately determined in accordance with the principles and standards stated above.

The undersigned is an actuary for CalPERS, a member of both the American Academy of Actuaries and Society of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

MAY SHUANG YU, ASA, MAAA
Senior Pension Actuary, CalPERS
Plan Actuary

Highlights and Executive Summary

- **Introduction**
- **Purpose of Section 1**
- **Required Employer Contributions**
- **Plan’s Funded Status**
- **Projected Employer Contributions**
- **Changes Since the Prior Year’s Valuation**
- **Subsequent Events**

Introduction

This report presents the results of the June 30, 2018 actuarial valuation of the PEPRA Miscellaneous Plan of the Sacramento-Yolo Mosquito and Vector Control District of the California Public Employees' Retirement System (CalPERS). This actuarial valuation sets the required employer contributions for Fiscal Year 2020-21.

Purpose of Section 1

This Section 1 report for the PEPRA Miscellaneous Plan of the Sacramento-Yolo Mosquito and Vector Control District of the California Public Employees' Retirement System (CalPERS) was prepared by the plan actuary in order to:

- Set forth the assets and accrued liabilities of this plan as of June 30, 2018;
- Determine the minimum required employer contribution for this plan for the fiscal year July 1, 2020 through June 30, 2021; and
- Provide actuarial information as of June 30, 2018 to the CalPERS Board of Administration and other interested parties.

The pension funding information presented in this report should not be used in financial reports subject to GASB Statement No. 68 for a Cost Sharing Employer Defined Benefit Pension Plan. A separate accounting valuation report for such purposes is available from CalPERS and details for ordering are available on our website.

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

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

California Actuarial Advisory Panel Recommendations

This report includes all the basic disclosure elements as described in the *Model Disclosure Elements for Actuarial Valuation Reports* recommended in 2011 by the California Actuarial Advisory Panel (CAAP), with the exception of including the original base amounts of the various components of the unfunded liability in the Schedule of Amortization Bases shown on page 10.

Additionally, this report includes the following "Enhanced Risk Disclosures" also recommended by the CAAP in the Model Disclosure Elements document and consistent with the recommendations of Actuarial Standard of Practice No. 51:

- A "Scenario Test," projecting future results under different investment income scenarios.
- A "Sensitivity Analysis," showing the impact on current valuation results using alternative discount rates of 6.0 percent and 8.0 percent.
- A "Sensitivity Analysis," showing the impact on current valuation results using a 1.0 percent plus or minus change in the inflation rate.
- A "Sensitivity Analysis," showing the impact on current valuation results assuming post-retirement rates of mortality are 10 percent lower or 10 percent higher than our current mortality assumptions adopted in 2017. This type of analysis highlights the impact on the plan of improving or worsening mortality over the long-term.
- Plan maturity measures which indicate how sensitive a plan may be to the risks noted above.

Required Employer Contributions

Required Employer Contributions		**Fiscal Year 2020-21**
Employer Normal Cost Rate		**7.526%**
Plus, Either		
1) Monthly Employer Dollar UAL Payment	**$**	**497.96**
Or		
2) Annual UAL Prepayment Option*	**$**	**5,777**

*The total minimum required employer contribution is the **sum** of the Plan's Employer Normal Cost Rate (expressed as a percentage of payroll) **plus** the Employer Unfunded Accrued Liability (UAL) Contribution Amount (billed monthly in dollars).*

** Only the UAL portion of the employer contribution can be prepaid **(which must be received in full no later than July 31)**. Any prepayment totaling over $5 million requires a 72-hour notice email to FCSD_public_agency_wires@calpers.ca.gov. Plan Normal Cost contributions will be made as part of the payroll reporting process. If there is contractual cost sharing or other change, this amount will change.*

In accordance with Sections 20537 and 20572 of the Public Employees' Retirement Law, if a contracting agency fails to remit the required contributions when due, interest and penalties may apply.

		Fiscal Year 2019-20		**Fiscal Year 2020-21**
Development of Normal Cost as a Percentage of Payroll[1]				
Base Total Normal Cost for Formula		13.735%		14.482%
Surcharge for Class 1 Benefits[2]				
a) 75% IDR		0.509%		0.544%
Phase out of Normal Cost Difference[3]		0.000%		0.000%
Plan's Total Normal Cost		14.244%		15.026%
Plan's Employee Contribution Rate[4]		6.750%		7.500%
Employer Normal Cost Rate		7.494%		7.526%
Projected Payroll for the Contribution Fiscal Year	$	801,411	$	947,374
Estimated Employer Contributions Based on Projected Payroll				
Plan's Estimated Employer Normal Cost	$	60,058	$	71,299
Plan's Payment on Amortization Bases[5]		1,185		5,975
% of Projected Payroll (illustrative only)		0.148%		0.631%
Estimated Total Employer Contribution	$	61,243	$	77,274
% of Projected Payroll (illustrative only)		7.642%		8.157%

[1] The results shown for Fiscal Year 2019-20 reflect the prior year valuation and may not take into account any lump sum payment, side fund payoff, or rate adjustment made after April 30, 2018.

[2] Section 2 of this report contains a list of Class 1 benefits and corresponding surcharges for each benefit.

[3] The normal cost difference is phased out over a five-year period. The phase out of normal cost difference is 100 percent for the first year of pooling, and is incrementally reduced by 20 percent of the original normal cost difference for each subsequent year. This is non-zero only for plans that joined a pool within the past 5 years. Most plans joined a pool June 30, 2003, when risk pooling was implemented.

[4] For detail regarding the determination of the required PEPRA employee contribution rate see Section on PEPRA Member Contribution Rates.

[5] See page 10 for a breakdown of the Amortization Bases.

Plan's Funded Status

		June 30, 2017		June 30, 2018
1. Present Value of Projected Benefits (PVB)	$	1,298,411	$	1,737,945
2. Entry Age Normal Accrued Liability (AL)		300,619		489,042
3. Plan's Market Value of Assets (MVA)		282,648		447,456
4. Unfunded Accrued Liability (UAL) [(2) - (3)]		17,971		41,586
5. Funded Ratio [(3) / (2)]		94.0%		91.5%

This measure of funded status is an assessment of the need for future employer contributions based on the selected actuarial cost method used to fund the plan. The UAL is the present value of future employer contributions for service that has already been earned and is in addition to future normal cost contributions for active members. For a measure of funded status that is appropriate for assessing the sufficiency of plan assets to cover estimated termination liabilities, please see "Hypothetical Termination Liability" in the "Risk Analysis" section.

Projected Employer Contributions

The table below shows projected employer contributions (before cost sharing) for the next six fiscal years. Projected results reflect the adopted changes to the discount rate described in Appendix A, "Statement of Actuarial Data, Methods and Assumptions" of the Section 2 report. The projections also assume that all actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur during the projection period.

	Required Contribution	Projected Future Employer Contributions (Assumes 7.00% Return for Fiscal Year 2018-19)				
Fiscal Year	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**
Normal Cost %	7.526%	7.5%	7.5%	7.5%	7.5%	7.5%
UAL Payment	$5,975	$6,100	$6,300	$6,500	$6,700	$6,800

Changes in the UAL due to actuarial gains or losses as well as changes in actuarial assumptions or methods are amortized using a 5-year ramp up. For more information, please see "Amortization of the Unfunded Actuarial Accrued Liability" under "Actuarial Methods" in Appendix A of Section 2. This method phases in the impact of unanticipated changes in UAL over a 5-year period and attempts to minimize employer cost volatility from year to year. As a result of this methodology, dramatic changes in the required employer contributions in any one year are less likely. However, required contributions can change gradually and significantly over the next five years. In years where there is a large increase in UAL the relatively small amortization payments during the ramp up period could result in a funded ratio that is projected to decrease initially while the contribution impact of the increase in the UAL is phased in.

For projected contributions under alternate investment return scenarios, please see the "Future Investment Return Scenarios" in the "Risk Analysis" section.

Changes Since the Prior Year's Valuation

Benefits

None. This valuation generally reflects plan changes by amendments effective before the date of the report. Please refer to the "Plan's Major Benefit Options" and Appendix B of Section 2 for a summary of the plan provisions used in this valuation.

Actuarial Methods and Assumptions

In December of 2016 the CalPERS Board of Administration lowered the discount rate from 7.50 percent to 7.00 percent using a three-year phase-in beginning with the June 30, 2016 actuarial valuation. The minimum employer contributions for Fiscal Year 2020-21 determined in this valuation were calculated using a discount rate of 7.00 percent, payroll growth of 2.75 percent and an inflation rate of 2.50 percent. The projected employer contributions on Page 5 are calculated under the assumption that the discount rate remains at 7.00 percent going forward and that furthermore the realized rate of return on assets for Fiscal Year 2018-19 is 7.00 percent.

The decision to reduce the discount rate was primarily based on reduced capital market assumptions provided by external investment consultants and CalPERS investment staff. The specific decision adopted by the Board reflected recommendations from CalPERS staff and additional input from employer and employee stakeholder groups. Based on the investment allocation adopted by the Board and capital market assumptions, the reduced discount rate assumption provides a more realistic assumption for the long-term investment return of the fund.

CalPERS has implemented a new actuarial valuation software system for the June 30, 2018 valuation. With this new system we have refined and improved some of our calculation methodology. Any difference in liability between the old software and new software calculations is captured as a method change line item.

Subsequent Events

The CalPERS Board of Administration has adopted a new amortization policy effective with the June 30, 2019 actuarial valuation. The new policy shortens the period over which actuarial gains and losses are amortized from 30 years to 20 years with the payments computed using a level dollar amount. In addition, the new policy removes the 5-year ramp-up and ramp-down on UAL bases attributable to assumption changes and non-investment gains/losses. The new policy removes the 5-year ramp-down on investment gains/losses. These changes will apply only to new UAL bases established on or after June 30, 2019.

For inactive employers the new amortization policy imposes a maximum amortization period of 15 years for all unfunded accrued liabilities effective June 30, 2018. Furthermore, the plan actuary has the ability to shorten the amortization period on any valuation date based on the life expectancy of plan members and projected cash flow needs to the plan. The impact of this has been reflected in the current valuation results.

The contribution requirements determined in this actuarial valuation report are based on demographic and financial information as of June 30, 2018, and may reflect additional discretionary payments made by the employer through April 30, 2019. Changes in the value of assets subsequent to that date are not reflected. Investment returns below the assumed rate of return will increase the required contribution, while investment returns above the assumed rate of return will decrease the required contribution.

This actuarial valuation report reflects statutory changes, regulatory changes and CalPERS Board actions through January 2019. Any subsequent changes or actions are not reflected.

Assets and Liabilities

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

Breakdown of Entry Age Normal Accrued Liability

Active Members	$	437,081
Transferred Members		48,615
Terminated Members		3,346
Members and Beneficiaries Receiving Payments		0
Total	$	489,042

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

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

1.	Plan's Accrued Liability	$	489,042
2.	Projected UAL balance at 6/30/18		27,948
3.	Pool's Accrued Liability[1]		17,424,237,070
4.	Sum of Pool's Individual Plan UAL Balances at 6/30/18[1]		3,777,499,883
5.	Pool's 2017/18 Investment & Asset (Gain)/Loss[1]		(135,628,188)
6.	Pool's 2017/18 Other (Gain)/Loss[1]		66,272,613
7.	Plan's Share of Pool's Asset (Gain)/Loss: [(1) - (2)] ÷ [(3) - (4)] × (5)		(4,583)
8.	Plan's Share of Pool's Other (Gain)/Loss: (1) ÷ (3) × (6)		1,860
9.	Plan's New (Gain)/Loss as of 6/30/2018: (7) + (8)		(2,723)
10.	Increase in Pool's Accrued Liability due to Change in Assumptions[1]		453,914,155
11.	Plan's Share of Pool's Change in Assumptions: (1) ÷ (3) × (10)		12,740
12.	Increase in Pool's Accrued Liability due to Change in Method[1]		128,995,852
13.	Plan's Share of Pool's Change in Method: (1) ÷ (3) × (12)		3,620

[1] Does not include plans that transferred to Pool on the valuation date.

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

14.	Plan's UAL: (2) + (9) + (11) + (13)	$	41,586
15.	Plan's Share of Pool's MVA: (1) - (14)	$	**447,456**

Schedule of Plan's Amortization Bases

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

- The assets, liabilities, and funded status of the plan are measured as of the valuation date: June 30, 2018.
- The required employer contributions determined by the valuation are for the fiscal year beginning two years after the valuation date: Fiscal Year 2020-21.

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

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

Schedule of Plan's Amortization Bases

Reason for Base	Date Established	Ramp Up/Down 2020-21	Escalation Rate	Amortization Period	Balance 6/30/18	Payment 2018-19	Balance 6/30/19	Payment 2019-20	Amounts for Fiscal 2020-21 Balance 6/30/20	Amounts for Fiscal 2020-21 Scheduled Payment for 2020-21
FRESH START	06/30/18	No Ramp	2.750%	15	$41,586	$(11,640)	$56,537	$(5,565)	$66,252	$5,975
TOTAL					**$41,586**	**$(11,640)**	**$56,537**	**$(5,565)**	**$66,252**	**$5,975**

The (gain)/loss bases are the plan's allocated share of the risk pool's (gain)/loss for the fiscal year as disclosed in "Allocation of Plan's Share of Pool's Experience/Assumption Change" earlier in this section. These (gain)/loss bases will be amortized according to Board policy over 30 years with a 5-year ramp-up.

If the total Unfunded Liability is negative (i.e., plan has a surplus), the scheduled payment is $0, because the minimum required contribution under PEPRA must be at least equal to the normal cost.

Amortization Schedule and Alternatives

The amortization schedule on the previous page shows the minimum contributions required according to CalPERS amortization policy. There has been considerable interest from many agencies in paying off these unfunded accrued liabilities sooner and the possible savings in doing so. As a result, we have provided alternate amortization schedules to help analyze the current amortization schedule and illustrate the advantages of accelerating unfunded liability payments.

Shown on the following page are future year amortization payments based on: 1) the current amortization schedule reflecting the individual bases and remaining periods shown on the previous page, and 2) alternate "fresh start" amortization schedules using two sample periods that would both result in interest savings relative to the current amortization schedule. Note that the payments under each alternate scenario increase by 2.75 percent for each year into the future, except for inactive plans.

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

- A positive total unfunded liability with a negative total payment,
- A negative total unfunded liability with a positive total payment, or
- Total payments that completely amortize the unfunded liability over a very short period of time

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

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

Amortization Schedule and Alternatives

	Current Amortization Schedule		Alternate Schedules: 10 Year Amortization		Alternate Schedules: 5 Year Amortization	
Date	**Balance**	**Payment**	**Balance**	**Payment**	**Balance**	**Payment**
6/30/2020	66,251	5,975	66,251	8,169	66,251	14,839
6/30/2021	64,708	6,140	62,439	8,393	55,539	15,247
6/30/2022	62,886	6,309	58,127	8,624	43,655	15,666
6/30/2023	60,763	6,482	53,275	8,861	30,505	16,097
6/30/2024	58,311	6,660	47,838	9,105	15,990	16,540
6/30/2025	55,503	6,844	41,769	9,355		
6/30/2026	52,309	7,032	35,015	9,613		
6/30/2027	48,697	7,225	27,523	9,877		
6/30/2028	44,632	7,424	19,233	10,149		
6/30/2029	40,077	7,628	10,081	10,428		
6/30/2030	34,992	7,838				
6/30/2031	29,335	8,053				
6/30/2032	23,058	8,275				
6/30/2033	16,112	8,502				
6/30/2034	8,445	8,736				
6/30/2035						
6/30/2036						
6/30/2037						
6/30/2038						
6/30/2039						
6/30/2040						
6/30/2041						
6/30/2042						
6/30/2043						
6/30/2044						
6/30/2045						
6/30/2046						
6/30/2047						
6/30/2048						
6/30/2049						
Totals		**109,122**		**92,574**		**78,390**
Interest Paid		**42,871**		**26,323**		**12,139**
Estimated Savings				**16,548**		**30,733**

Employer Contribution History

The table below provides a recent history of the required employer contributions for the plan, as determined by the annual actuarial valuation. It does not account for prepayments or benefit changes made during a fiscal year.

Fiscal Year	Employer Normal Cost	Unfunded Liability Payment ($)
2016 - 17	6.649%	$85
2017 - 18	6.628%	$163
2018 - 19	6.946%	$576
2019 - 20	7.494%	$1,185
2020 - 21	7.526%	$5,975

Funding History

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

Valuation Date	Accrued Liability (AL)	Share of Pool's Market Value of Assets (MVA)	Plan's Share of Pool's Unfunded Liability	Funded Ratio	Annual Covered Payroll
06/30/2013	$ 3,013	$ 4,042	$ (1,029)	134.2%	$ 110,340
06/30/2014	33,541	36,237	(2,696)	108.0%	421,622
06/30/2015	95,048	91,149	3,899	95.9%	516,123
06/30/2016	172,012	153,265	18,747	89.1%	664,592
06/30/2017	300,619	282,648	17,971	94.0%	736,081
06/30/2018	489,042	447,456	41,586	91.5%	873,325

Risk Analysis

- **Future Investment Return Scenarios**
- **Discount Rate Sensitivity**
- **Mortality Rate Sensitivity**
- **Inflation Rate Sensitivity**
- **Maturity Measures**
- **Hypothetical Termination Liability**

Future Investment Return Scenarios

Analysis was performed to determine the effects of various future investment returns on required employer contributions. The projections below provide a range of results based on five investment return scenarios assumed to occur during the next four fiscal years (2018-19, 2019-20, 2020-21 and 2021-22). The projections also assume that all other actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur.

For fiscal years 2018-19, 2019-20, 2020-21, and 2021-22, each scenario assumes an alternate fixed annual return. The fixed return assumptions for the five scenarios are 1.0 percent, 4.0 percent, 7.0 percent, 9.0 percent and 12.0 percent.

These alternate investment returns were chosen based on stochastic analysis of possible future investment returns over the four-year period ending June 30, 2022. Using the expected returns and volatility of the asset classes in which the funds are invested, we produced five thousand stochastic outcomes for this period based on the most recently completed Asset Liability Management process. We then selected annual returns that approximate the 5th, 25th, 50th, 75th, and 95th percentiles for these outcomes. For example, of all the 4-year outcomes generated in the stochastic analysis, approximately 25 percent of them had an average annual return of 4.0 percent or less.

Required contributions outside of this range are also possible. In particular, whereas it is unlikely that investment returns will average less than 1.0 percent or greater than 12.0 percent over this four-year period, the possibility of a single investment return less than 1.0 percent or greater than 12.0 percent in any given year is much greater.

Assumed Annual Return From 2018-19 through 2021-22	**Projected Employer Contributions**			
	2021-22	**2022-23**	**2023-24**	**2024-25**
1.0%				
Normal Cost	7.5%	7.5%	7.5%	7.5%
UAL Contribution	$6,800	$8,300	$11,000	$13,000
4.0%				
Normal Cost	7.5%	7.5%	7.5%	7.5%
UAL Contribution	$6,500	$7,300	$8,500	$10,000
7.0%				
Normal Cost	7.5%	7.5%	7.5%	7.5%
UAL Contribution	$6,100	$6,300	$6,500	$6,700
9.0%				
Normal Cost	7.7%	7.9%	8.1%	8.2%
UAL Contribution	$6,000	$5,900	$5,600	$5,100
12.0%				
Normal Cost	7.7%	7.9%	8.1%	8.2%
UAL Contribution	$5,700	$4,800	$0	$0

In addition, the projections above reflect the recent changes to the new amortization policy effective with the June 30, 2019 valuation. The projections above incorporate the impact of the CalPERS risk mitigation policy which reduces the discount rate when investment returns are above specified trigger points.

Discount Rate Sensitivity

Shown below are various valuation results as of June 30, 2018 assuming alternate discount rates. Results are shown using the current discount rate of 7.0 percent as well as alternate discount rates of 6.0 percent and 8.0 percent. The rates of 6.0 percent and 8.0 percent were selected since they illustrate the impact of a 1 percent increase or decrease to the 7.0 percent assumption. This analysis shows the potential plan impacts if the PERF were to realize investment returns of 6.0 percent or 8.0 percent over the long-term.

This type of analysis gives the reader a sense of the long-term risk to required contributions. For a measure of funded status that is appropriate for assessing the sufficiency of plan assets to cover estimated termination liabilities, please see "Hypothetical Termination Liability" at the end of this section.

Sensitivity Analysis				
As of June 30, 2018	**Plan's Total Normal Cost**	**Accrued Liability**	**Unfunded Accrued Liability**	**Funded Status**
7.0% (current discount rate)	15.026%	$489,042	$41,586	91.5%
6.0%	18.602%	$614,015	$166,559	72.9%
8.0%	12.283%	$393,498	$(53,958)	113.7%

Mortality Rate Sensitivity

The following table looks at the change in the June 30, 2018 plan costs and funded ratio under two different longevity scenarios, namely assuming post-retirement rates of mortality are 10 percent lower or 10 percent higher than our current mortality assumptions adopted in 2017. This type of analysis highlights the impact on the plan of improving or worsening mortality over the long-term.

As of June 30, 2018	Current Mortality	10% Lower Mortality Rates	10% Higher Mortality Rates
a) Accrued Liability	$489,042	$499,361	$479,540
b) Market Value of Assets	$447,456	$447,456	$447,456
c) Unfunded Liability (Surplus) [(a)-(b)]	$41,586	$51,905	$32,084
d) Funded Status	91.5%	89.6%	93.3%

A 10 percent increase (decrease) in assumed mortality rates over the long-term would result in approximately a 1.8 percent increase (decrease) to the funded ratio.

Inflation Rate Sensitivity

The following analysis looks at the change in the June 30, 2018 plan costs and funded ratio under two different inflation rate scenarios, namely assuming the liability inflation rate is 1 percent lower or 1 percent higher than the current valuation inflation rate assumption of 2.50%, while holding the discount rate fixed at 7.0%. This type of analysis highlights the impact on the plan of increased or decreased inflation of active salaries and retiree COLAs over the long-term.

As of June 30, 2018	Current Inflation Rate	-1% Inflation Rate	+1% Inflation Rate
a) Accrued Liability	$489,042	$420,275	$558,015
b) Market Value of Assets	$447,456	$447,456	$447,456
c) Unfunded Liability (Surplus) [(a)-(b)]	$41,586	$(27,181)	$110,559
d) Funded Status	91.5%	106.5%	80.2%

A decrease of 1 percent in the liability inflation rate (2.50 percent to 1.50 percent) reduces the Accrued Liability by 14.1 percent. However, a 1 percent increase in the liability inflation rate (2.50 percent to 3.50 percent) increases the Accrued Liability by 14.1 percent.

Maturity Measures

As pension plans mature they become much more sensitive to risks than plans that are less mature. Understanding plan maturity and how it affects the ability of a pension plan to tolerate risk is important in understanding how the plan is impacted by investment return volatility, other economic variables and changes in longevity or other demographic assumptions. One way to look at the maturity level of CalPERS and its plans is to look at the ratio of a plan's retiree liability to its total liability. A pension plan in its infancy will have a very low ratio of retiree liability to total liability. As the plan matures, the ratio starts increasing. A mature plan will often have a ratio above 0.60 to 0.65. For both CalPERS and other retirement systems in the United States, these ratios have been steadily increasing in recent years.

Ratio of Retiree Accrued Liability to Total Accrued Liability	June 30, 2017	June 30, 2018
1. Retired Accrued Liability	0	0
2. Total Accrued Liability	300,619	489,042
3. Ratio of Retiree AL to Total AL [(1) / (2)]	0.00	0.00

Another way to look at the maturity level of CalPERS and its plans is to look at the ratio of actives to retirees. A pension plan in its infancy will have a very high ratio of active to retired members. As the plan matures, and members retire, the ratio starts declining. A mature plan will often have a ratio near or below one. The average support ratio for CalPERS public agency plans is 1.25.

Support Ratio	June 30, 2017	June 30, 2018
1. Number of Actives	14	15
2. Number of Retirees	0	0
3. Support Ratio [(1) / (2)]	N/A	N/A

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

Asset Volatility Ratio (AVR)

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

Liability Volatility Ratio (LVR)

Plans that have higher liability-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to investment return and changes in liability. For example, a plan with a liability-to-payroll ratio of 8 is expected to have twice the contribution volatility of a plan with a liability-to-payroll ratio of 4. The liability volatility ratio is also shown in the table below. It should be noted that this ratio indicates a longer-term potential for contribution volatility. The asset volatility ratio, described above, will tend to move closer to the liability volatility ratio as the plan matures.

Contribution Volatility		**June 30, 2017**		**June 30, 2018**
1. Market Value of Assets	$	282,648	$	447,456
2. Payroll		736,081		873,325
3. Asset Volatility Ratio (AVR) [(1) / (2)]		0.4		0.5
4. Accrued Liability	$	300,619	$	489,042
5. Liability Volatility Ratio (LVR) [(4) / (2)]		0.4		0.6
6. Accrued Liability (7.00% discount rate)		312,818		489,042
7. Projected Liability Volatility Ratio [(6) / (2)]		0.4		0.6

Hypothetical Termination Liability

The hypothetical termination liability is an estimate of the financial position of the plan had the contract with CalPERS been terminated as of June 30, 2018. The plan liability on a termination basis is calculated differently compared to the plan's ongoing funding liability. For the hypothetical termination liability calculation, both compensation and service are frozen as of the valuation date and no future pay increases or service accruals are assumed. This measure of funded status is not appropriate for assessing the need for future employer contributions in the case of an ongoing plan, that is, for an employer that continues to provide CalPERS retirement benefits to active employees.

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

The effective termination discount rate will depend on actual market rates of return for risk-free securities on the date of termination. As market discount rates are variable, the table below shows a range for the hypothetical termination liability based on the lowest and highest interest rates observed during an approximate 2-year period centered around the valuation date.

Market Value of Assets (MVA)	Hypothetical Termination Liability[1,2] @ 2.50%	Funded Status	Unfunded Termination Liability @ 2.50%	Hypothetical Termination Liability[1,2] @ 3.25%	Funded Status	Unfunded Termination Liability @ 3.25%
$447,456	$827,111	54.1%	$379,655	$698,603	64.1%	$251,147

1 The hypothetical liabilities calculated above include a 5 percent mortality contingency load in accordance with Board policy. Other actuarial assumptions can be found in Appendix A of the Section 2 report.

2 The current discount rate assumption used for termination valuations is a weighted average of the 10-year and 30-year U.S. Treasury yields where the weights are based on matching asset and liability durations as of the termination date. The discount rates used in the table are based on 20-year Treasury bonds, rounded to the nearest quarter percentage point, which is a good proxy for most plans. The 20-year Treasury yield was 2.91 percent on June 30, 2018, and was 2.83 percent on January 31, 2019.

In order to terminate the plan, you must first contact our Retirement Services Contract Unit to initiate a Resolution of Intent to Terminate. The completed Resolution will allow the plan actuary to give you a preliminary termination valuation with a more up-to-date estimate of the plan liabilities. CalPERS advises you to consult with the plan actuary before beginning this process.

Participant Data

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

	June 30, 2017	June 30, 2018
Reported Payroll	$ 736,081	$ 873,325
Projected Payroll for Contribution Purposes	$ 801,411	$ 947,374
Number of Members		
Active	14	15
Transferred	2	2
Separated	1	1
Retired	0	0

List of Class 1 Benefit Provisions

This plan has the additional Class 1 Benefit Provisions:

- Increased IDR Allowance to 75% of Compensation (75% IDR)

Plan's Major Benefit Options

Shown below is a summary of the major optional benefits for which your agency has contracted. A description of principal standard and optional plan provisions is in the following section of this Appendix.

	Benefit Group	
Member Category	Misc	
Demographics		
Actives	Yes	
Transfers/Separated	Yes	
Receiving	No	
Benefit Provision		
Benefit Formula	2% @ 62	
Social Security Coverage	No	
Full/Modified	Full	
Employee Contribution Rate	6.75%	
Final Average Compensation Period	Three Year	
Sick Leave Credit	Yes	
Non-Industrial Disability	Improved	
Industrial Disability	Increased	
Pre-Retirement Death Benefits		
Optional Settlement 2	Yes	
1959 Survivor Benefit Level	Level 3	
Special	Yes	
Alternate (firefighters)	No	
Post-Retirement Death Benefits		
Lump Sum	$5000	
Survivor Allowance (PRSA)	No	
COLA	2%	

PEPRA Member Contribution Rates

The table below shows the determination of the PEPRA Member contribution rates based on 50 percent of the Total Normal Cost for each respective plan on June 30, 2018. Assembly Bill (AB) 340 created PEPRA that implemented new benefit formulas and a final compensation period as well as new contribution requirements for new employees. In accordance with Section Code 7522.30(b), "new members … shall have an initial contribution rate of at least 50 percent of the normal cost rate." The normal cost for the plan is dependent on the benefit levels, actuarial assumptions and demographics of the plan particularly the entry age into the plan. Should the total normal cost of the plan change by one percent or more from the base total normal cost established for the plan, the new member rate shall be 50 percent of the new normal cost rounded to the nearest quarter percent.

		Basis for Current Rate		Rates Effective July 1, 2020			
Rate Plan Identifier	**Benefit Group Name**	**Total Normal Cost**	**Member Rate**	**Total Normal Cost**	**Change**	**Change Needed**	**Member Rate**
26232	Miscellaneous PEPRA Level	13.300%	6.750%	15.026%	1.726%	Yes	7.500%

Section 2

CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

Section 2 may be found on the CalPERS website (www.calpers.ca.gov) in the Forms and Publications section

Sacramento-Yolo Mosquito and Vector Control District

September 17, 2019 Board Meeting

5. Status of Invasive Species Detection and District Response

Staff Report:
The District received notice of a detection of *Aedes aegypti* (the yellow fever mosquito) from Placer County on August 28th. The location was only 700 feet from our northern border in Citrus Heights. Staff responded quickly by mobilizing resources to the area. We deployed numerous traps to determine the spread of the infestation and control operations responded by conducting door to door inspections to try and find either flying adults or breeding sites. The District also has incorporated the Wide Area Larviciding Spray (WALS) in the area along with adult control measures where feasible. We have utilized our social media platforms along with press releases and other measures to inform and educate the public.

Aedes aegypti are aggressive biters that prefer to feed on humans but will also bite other mammals. They can be black or brown with white stripes on their back and legs and they have a harp shaped design on their thorax. They are most active for approximately two hours after sunrise and several hours before sunset, but can bite at night in well-lit areas. They are a difficult mosquito to detect as they are hard to trap and their larvae prefer to hide at the bottom of dark organic water. Female mosquitoes lay their eggs in small artificial or natural containers that hold water. Containers can include dishes under potted plants, bird baths, ornamental fountains, tin cans, or discarded tires. Even a teaspoon of standing water can produce mosquitoes. About three days after feeding on blood, the female lays her eggs inside a container just above the water line. Eggs are laid over a period of several days, are resistant to drying, and can survive for periods of six or more months. When the container is refilled with water, the eggs hatch into larvae. The entire life cycle (i.e., from egg to adult) can occur in as little as 7-8 days. The life span for adult mosquitoes is around three weeks.

Aedes aegypti have the potential to transmit several viruses, including dengue, chikungunya, Zika, and yellow fever. None of these viruses are currently known to be transmitted within California, but thousands of people are infected with these viruses in other parts of the world, including in Mexico, Central and South America, the Caribbean, and Asia.

Recommendation:
Information Only

Sacramento-Yolo Mosquito and Vector Control District

<u>September 17, 2019 Board Meeting</u>

6. <u>Board Review and Consideration of a Sterile Insect Technique Program</u>

<u>Staff Report:</u>
The District has reached out to MosquitoMate and the Debug team at Verily regarding the use of the "Sterile Insect Technique" (SIT) to reduce the number of *Aedes aegypti* mosquitoes. Verily, an Alphabet Company, combines technology, science, and engineering to develop automated methods for use in SIT. These new technologies make it possible to rear and release sterile male *Aedes aegypti* mosquitoes in numbers that make population suppression a possibility. MosquitoMate has pioneered the use of the naturally occurring *Wolbachia* bacterium as an innovative SIT strategy, and is conducting studies in other communities, including St. Augustine, Florida, to demonstrate the effectiveness of *Wolbachia*-based SIT.

As *Aedes aegypti* are difficult to control with traditional methods, the District wanted to explore the possibility of implementing new innovative techniques. These companies are still in the process of finalizing their preliminary results however the situation in Sacramento presents an interesting opportunity to demonstrate whether eradication is possible by early intervention of SIT.

The SIT has been used successfully around the world to eradicate or control agricultural pests including the New World screw-worm fly and the Mediterranean fruit fly. The goal of the SIT program is to understand how this technique can be used to target the *Aedes aegypti* mosquito with the same success. One method for mosquito SIT is the use of *Wolbachia*, a naturally-occurring bacterium that is found inside the cells of many insects such as bees, butterflies, dragonflies, and multiple mosquito species. Local female *Aedes aegypti* mosquitoes do not have *Wolbachia* and cannot produce offspring when they mate with male mosquitoes that do carry *Wolbachia*. Neither the mosquito nor *Wolbachia* are genetically modified in a *Wolbachia*-based SIT method. For all mosquito species, only female mosquitoes bite; male mosquitoes cannot bite and therefore do not transmit disease.

The scientists and engineers at Verily have reared and released *Wolbachia*-infected sterile male *Aedes aegypti* mosquitoes into areas where there are known infestations of *Aedes aegypti*. When a *Wolbachia*-infected male mosquito finds and mates with a local female mosquito, the eggs that result from the mating will not hatch. The goal is to study whether this technique can effectively reduce the number of biting female *Aedes aegypti* mosquitoes over large geographic areas.

The Sterile Insect Technique is a self-delivering method of insect control that does not involve the use of chemical pesticides and can precisely target a specific species of insect. The method involves several steps:

- Sterile male insects are released into an area where insect control is needed.
- The released, sterile male insects find and mate with local females. This mating results in eggs that do not hatch.
- Over time, fewer hatched eggs result in fewer insects. This process can continue until the number of insects is low enough to reduce their threat.

Wolbachia-based SIT for control of *Aedes aegypti* mosquitoes is currently being evaluated in the US under Federal and State Experimental Use Permits, as well as other locations all over the world. The program is currently being administered in the Fresno area. Debug Fresno, is in its third year after success during the 2017 and 2018 mosquito seasons. In 2018, they achieved a 95% reduction in biting *Aedes aegypti* females within three communities over six months.

There are a number of steps that would need to occur for an adoption of the program.

- EPA would need to approve our District as a part of the existing Experimental Use Permit or facilitate another mechanism for use of SIT.
- Verily and MosquitoMate would need to have the capacity and ability to include our District in their program.
- Timing of these events would need to coincide with the biology and ecology requirements of our current population.
- Placer County MVCD would need to collaborate on the efforts.

<u>Recommendation:</u>

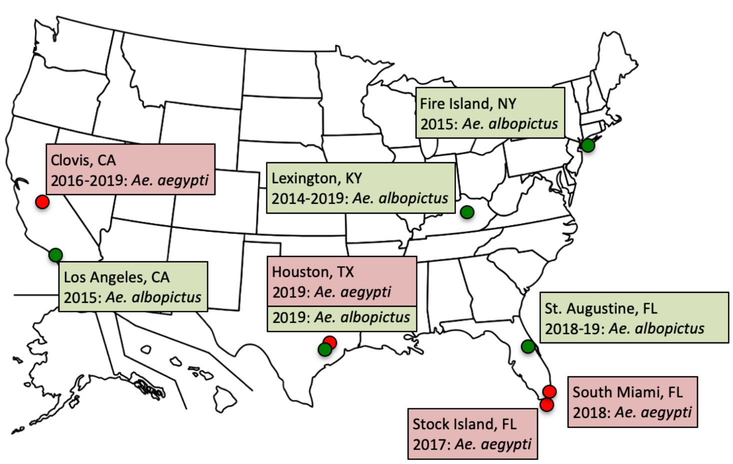
Authorize staff to work with Verily and MosquitoMate on a SIT program for the District.

Sterile Insect Technique: Wolbachia infected WB1 *Ae. aegypti*

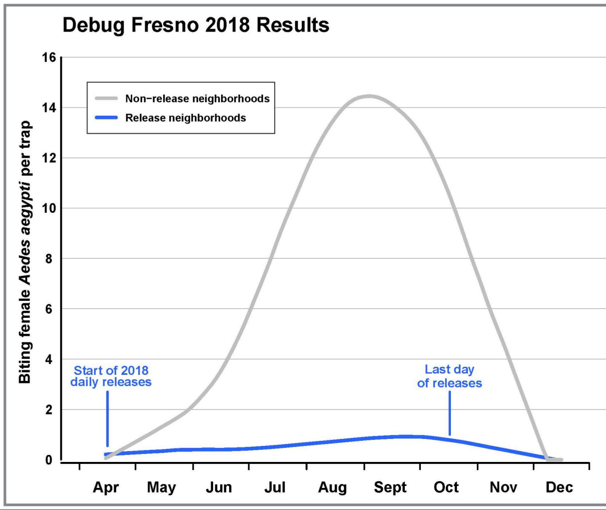
An *Aedes aegypti* infestation has been discovered recently in Sacramento/Placer counties. This is the first such discovery in this location and is consistent with the rapid expansion of this public health pest north along the CA-99 corridor in California. Local Abatement Districts are currently acting with all appropriate and available methods (*e.g*., adulticiding, larviciding, source reduction, community education, etc.) to slow or stop the infestation from taking hold and spreading further. However, based on previous *Ae. aegypti* invasions into other areas within California, existing tools are inadequate to contain its spread. This is due in part to the cryptic biology of *Aedes* mosquitoes. Specifically, an inability to find and treat the numerous and small breeding sites complicates the control of *Ae. aegypti*.

To address this problem, MosquitoMate has developed, obtained US regulatory approvals (Federal EPA approval and State approvals, including Cal DPR approvals) and conducted field trials of novel autocidal approaches that 'deploy the mosquito against itself.' The patented technologies are based on repeated, inundative introductions of 'self-delivering' male *Ae. aegypti* mosquitoes. Importantly, male mosquitoes do not bite, blood feed or transmit human pathogens. In an approach analogous to classical, sterile insect technique, releases are of male *Ae. aegypti* that are infected with non-GMO, naturally-occurring *Wolbachia* bacteria, which can effectively sterilize female *Ae. aegypti*. And as an increasing proportion of the *Ae. aegypti* population is sterilized, the population declines. The *Wolbachia* male treatments are fully compatible with many traditional mosquito control activities, *e.g*., source reduction, larviciding. In the proposed work, we will work with the Districts to rapidly develop and deploy WB1 male *Ae. aegypti*, and then monitor, evaluate and report the results. The proposed work will be done as part of a collaboration with Verily Life Sciences who have spent several years developing and validating technologies to produce and distribute mosquitoes at a scale required for effective area-wide intervention programs.

MosquitoMate and Verily have had substantial community support at prior field trial locations in CA, FL, NY and KY, and if requested, MosquitoMate will work closely with Abatement District personnel with the goals of educating stakeholders about the technology and communicating the implementation plans. These efforts will be aided by protocols and communication materials that have been developed during prior field trials in FL, CA, KY and NY. As an example of community engagement is available at: www.debugfresno.com



Summary of *Wolbachia* pesticide applications to date. Red is *Ae. aegypti*. Green is *Ae. albopictus.*



For Miami, FL results, see:
JW Mains, *et al*., Localized Control of *Aedes aegypti* (Diptera: Culicidae) in Miami, FL, via Inundative Releases of *Wolbachia*-Infected Male Mosquitoes, *J. Medical Entomology*, https://doi.org/10.1093/jme/tjz051

Sacramento-Yolo Mosquito and Vector Control District

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7. **Closed Session- Conference with Legal Counsel – Threatened or Anticipated Litigation (Gov. Code s. 54956.9 (d)(1), (d) (2)) – One (1) Matter – Unfair Labor Practice Charge Filed with Public Employment Relations Board by Operating Engineers Local No. 3.**