SACRAMENTO-YOLO MOSQUITO & VECTOR CONTROL DISTRICT

SEPTEMBER 15, 2020

BOARD OF TRUSTEES REGULAR MEETING

BOARD PACKET

10:00 A.M.

8631 Bond Road
Elk Grove, CA 95624

This page intentionally left blank

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

8631 Bond Road
Elk Grove, CA 95624

AGENDA

September 15, 2020
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 18, 2020 Board of Trustees Meeting
b. Expenditures for August 2020
c. District Investment Report for Period Ending June 30, 2020
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. **Board/Staff Reports and Requests**

6. **Adjournment**

Sacramento-Yolo Mosquito and Vector Control District

September 15, 2020 Board Meeting

1. Items for Approval by General Consent:

a. Minutes of the August 18, 2020 Board of Trustees Meeting;
b. Expenditures for August 2020;
c. District Investment Report for Period Ending June 30, 2020;
d. Annual Cooperative Agreement Between the California Department of Public Health and Sacramento-Yolo Mosquito and Vector Control District.

Recommendation:

Approve the Items by General Consent

MINUTES OF THE AUGUST 18, 2020
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:

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

TRUSTEES ABSENT: None

LEGAL COUNSEL:

Jennifer Buckman

STAFF PRESENT:

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

CALL TO ORDER

The meeting was called to order at 10:09 a.m. by President Jayna Karpinski-Costa.

Roll Call

This meeting was held and attended by Video Teleconference. All Trustees were in attendance, with Isleton vacant; therefore, a quorum was present. Trustee Eldridge joined the teleconference at approximately 10:17am.

Pledge of Allegiance

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

1. ITEMS FOR APPROVAL BY GENERAL CONSENT

On a motion by Trustee Denny seconded by Trustee McGarvey, the Board voted to approve General Consent Items a. through c. The vote was taken by roll call and the motion passed by the following vote: Ayes: 11, Noes: 0, Absent: 1(Eldridge).

a. Minutes of the June 16, 2020 Board of Trustees Meeting;
b. Expenditures for June 2020;
c. Actuarial Valuation of Other Post-Employment Benefit Programs as of June 30, 2019.

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.

5. REPORTS TO THE BOARD

a. Manager's Report:

The District's West Nile season is picking up but still one of the slowest seasons we've experienced. 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 AMCA has submitted a grant proposal to the CDC for enhanced best management practices regarding Culex species and to provide direction in emergency and natural disaster response. We hope to hear back from them in October. The MVCAC supported the Special Districts Provide Essential Services Act (Senate Bill 4308 and House Bill 7073). These pieces of legislation would create the ability for Special Districts to be eligible for Federal assistance.

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.

Lab/Surveillance: Laboratory Director, Marcia Reed discussed department activities including mosquito abundance and virus surveillance, dead bird program and collaborations. With the heat abundance has increased and the District recorded over 20 positive mosquito samples so far this week. Numbers for both counties are relatively the same with activity picking up in Yolo County. Additional trapping was performed in areas of concern in North Sacramento, Davis and Woodland. Control technicians have performed ground treatments in these areas and the vector index has been reduced as a result. Most of the dead birds that have tested positive for West Nile have been collected from the Arden Arcade area. No *Aedes aegypti* have been found to date with August 28th being the one year anniversary since the first detection in the Citrus Heights area of the District. Trials and collaborations are ongoing including the Sumilarv WDG trial using the A-1 Mist blower.

Ecological Management: Ecological Management Supervisor, Marty Scholl discussed department activities including Storm Water and Drainages, Wetlands and Rice, Planning, and UAS programs. Staff participated in the annual Lower Bypass Flood Up Meeting earlier this month. The department has received numerous planning projects for review with staff responding with comments on Best Management Practices as appropriate. The City of Elk Grove North Gate Project includes the installation of vaults with stormwater filters, which would be the first time this type of system will be installed in our District. Staff assisted Ducks Unlimited in early August with a request for aerial imaging for a project in the Yolo Bypass within the Vic Fazio Wildlife Area. This project is expected to make improvements to rice drainage and faster fall flooding. The majority of the Fall Flooding is expected to take place next month.

Biological Control: Fisheries Supervisor, Tony Hedley discussed department activities including fish plants, regular maintenance and special projects. The department has stocked over 2,770 lbs. of fish in about 3,600 sites throughout the District. As wetlands begin to flood up the department expects to plant at least 1,000 lbs. of fish at those sites. The six week busy period for fish planting has ended with 198 fields being stocked with mosquitofish. The department is performing pond maintenance and collecting invasive crayfish. Fisheries staff is rotating in to assist other crews with field work as needed.

Larval and Adult Control: Program Coordinator, Steve Ramos discussed department activities including rice program and acreage, equipment and trials. July saw in increase in treated sources as is expected this time of year. The warmer weather and recent heat wave speed up the time it takes mosquitoes to develop from the eggs to adults. As West Nile virus activity is found crews are responding with treatments as needed. The Sumilarv pool study is moving into phase two. Phase one looked at surface application while phase two will look at cubic feet or volume applications. All trials are expected to be wrapped up in the month of September. Fall Flooding is gearing up and staff with be evaluating Methoprene for use in flooded fields.

Public Outreach: Public Information Officer, Luz Robles reported on department activities including, Media Coverage, Social Media, Repellent Distribution, Advertising and Presentations. Two press releases have been issued as a result of the seasonal increase in mosquito abundance and West Nile virus positive mosquito sample pools and dead birds. Coverage included print articles in the Sacramento Bee, Davis Enterprise, and Daily Democrat. Facebook followers are up to 11,634 with content focused on spray notifications, West Nile virus activity, dead birds, and promotion of District services. Repellent has been distributed to the City of Davis for outdoor dining and Harm Reduction Services for homeless living along the river. The advertising campaign is ongoing with radio and television messaging, billboards and bus ads. Staff is keeping local officials apprised of any activity in their areas and a presentation will be given to the Walnut Grove Rotary Club via Zoom on August 24th.

4. STATUS OF WEST NILE VIRUS ACTIVITY AND DISTRICT RESPONSE.

Assistant Manager, Samer Elkashef presented the item and responded to questions. Samer reviewed the current year numbers for the state overall including dead bird reports and positives, counties with positives, human cases, positive mosquito sample pools and sentinel chicken seroconversions. Hot spots include Stanislaus, Fresno and Los Angeles. Samer then reviewed the maps provided with the written report which designates where positive dead bird and mosquito pool samples have been detected. The second of the two maps illustrated where the rice fields are located within the District and the associated treatment areas. Buffer areas between fields and populated areas have been treated to prevent mosquitoes from flying into those areas from the fields. Novel Sugar Bait surveillance is showing positive hits before dead bird or mosquito samples which promises to be a good tool for expanding future surveillance techniques and programs.

5. CLOSED SESSION- Provide Instruction to Designated Labor Representatives (Gov. Code s. 54957.6-Labor Negotiations) Agency Designated Representatives: [Gary Goodman, Janna McLeod, Samer Elkashef, Chris Voight] Employee Organization: [Operating Engineers Local Union #3]

At 11:15 am President Karpinski-Costa adjourned the Open Meeting and the Board went into the Closed Session. The Board returned to Open Session at 11:29 am. The Board reported that it received a report and recommendation from staff in the closed session.

6. BOARD REVIEW AND APPROVAL OF SIDE LETTER TO THE MOU BETWEEN DISTRICT AND OPERATING ENGINEERS LOCAL UNION #3.

Manager Goodman presented the item and was available to respond to questions. On a motion by Trustee DeAnda seconded by Trustee Burnett, the Board voted to approve the Side Letter to the MOU between the District and Operating Engineers Local Union #3. The vote was taken by roll call and the motion passed by the following vote: Ayes: 12, Noes: 0, Absent: 0.

7. BOARD/STAFF REPORTS AND REQUESTS

Aedes mosquitoes have been detected in Shasta County.

The District received information about CARES Act relief that is applicable to Deferred Compensation 457 Plans allowing COVID related withdrawals and increased loans. There are no costs for the District as this is a voluntary benefit program for employees. The District will elect the addition of these provisions to the plan and will bring it to the Board for ratification in September.

Former Isleton Trustee Rosemarie Moore's husband Ralph Moore recently passed away. Ralph often attended District meetings. He was well respected and he will be sorely missed.

8. ADJOURNMENT

The meeting adjourned at 11:35 a.m.

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

I certify that the above minutes substantially reflect the general business and actions taken by the Board of Trustees at the August 18, 2020 meeting.

____

Gary Goodman, Manager

Approved as written and/or corrected by the Board of Trustees at the September 15, 2020 meeting.

____

Gar House, Board Secretary

August 2020 Check Register
Activity From: 8/1/2020 to 8/31/2020
Sacramento Yolo MVCD (SYC)

Bank Code: U US Bank

Check Number	Check Date	Vendor Number	Name	Check
054064	8/6/2020	0000006	Adapco Inc	371,269.53
054065	8/6/2020	0000014	Alhambra & Sierra Springs	29.78
054066	8/6/2020	0000018	ANDKO Building Maintenance Inc.	4,804.94
054067	8/6/2020	0000037	Backflow Technologies Inc	90.00
054068	8/6/2020	0001274	Barber & Gonzales LLC	3,900.00
054069	8/6/2020	0001011	Buckmaster Office Solutions	114.08
054070	8/6/2020	0001019	Cintas Corporation	2,425.61
054071	8/6/2020	0000126	Complete Welders Supply Inc	4,060.12
054072	8/6/2020	0000168	Dignity Health Med Fdtn-Sacramento	130.00
054073	8/6/2020	0001037	Elite Supply Source	904.24
054074	8/6/2020	0001054	Employment Developement Dept	1,971.00
054075	8/6/2020	0001233	Grow West	76.96
054076	8/6/2020	0000467	Home Depot Pro Institutional	738.24
054077	8/6/2020	0000240	Hunt & Sons Inc	9,661.08
054078	8/6/2020	0000277	Kimball Midwest	385.34
054079	8/6/2020	0000293	Life Technologies Corporation	8,181.57
054080	8/6/2020	0000497	Magnegas Welding Supply - West	296.44
054081	8/6/2020	0000306	Maita Chevrolet	1,293.74
054082	8/6/2020	0000356	OReilly Automotive Stores Inc	270.76
054083	8/6/2020	0000367	PG & E	142.71
054084	8/6/2020	0001497	Pure Water Partners	1,438.47
054085	8/6/2020	0000388	Republic Services #922	88.60
054086	8/6/2020	0001012	Riebes Auto Parts	684.90
054087	8/6/2020	0000406	Sacramento Co Environmental	2,092.00
054088	8/6/2020	0000451	SMUD	4,839.78
054089	8/6/2020	0000461	Stericycle Inc	82.25
054090	8/6/2020	0000462	Sterling May Co	204.06
054091	8/6/2020	0001234	T-Mobile	836.95
054092	8/6/2020	0000475	Target Specialty Products	102,595.24
054093	8/6/2020	0000501	United Textile Inc	95.36
054094	8/6/2020	0000502	Univar Inc	79,310.90
054095	8/6/2020	0000505	US Bank Equipment Finance	102.36
054096	8/6/2020	0000516	Valley Truck & Tractor Co	637.13
054097	8/6/2020	0000517	Vector Control Joint Powers Agency	359,666.05
054098	8/6/2020	0000522	Verizon Wireless	2,826.95
054099	8/6/2020	0000526	VWR International Inc	1,206.99
054100	8/6/2020	0001471	Walker's Office Supply	485.32
054101	8/12/2020	0000267	Kaiser Foundation Health Plan	24,606.48
054102	8/12/2020	0000267	Kaiser Foundation Health Plan	3,844.75
054103	8/12/2020	0000267	Kaiser Foundation Health Plan	19,298.86
054104	8/12/2020	0000357	P & A Administrative Services Inc	130.50
054105	8/12/2020	0000373	Preferred Benefit Ins Administrators	8,452.30
054106	8/12/2020	0000957	Sutter Health Plus	6,818.37
054107	8/12/2020	0000531	Western Health Advantage	5,184.47
054108	8/12/2020	0000531	Western Health Advantage	3,053.82
054109	8/20/2020	0000006	Adapco Inc	278,936.35
054110	8/20/2020	0000026	ArcSource	123.09
054111	8/20/2020	0001274	Barber & Gonzales LLC	5,920.00

054112	8/20/2020	0000038	Bartkiewicz Kronick & Shanahan	2,160.00
054113	8/20/2020	0000976	Blanning & Baker	6,212.50
054114	8/20/2020	0001011	Buckmaster Office Solutions	367.96
054115	8/20/2020	0000119	Clarke Mosquito Control Products Inc	120,250.14
054116	8/20/2020	0000126	Complete Welders Supply Inc	2,115.55
054117	8/20/2020	0000128	Consolidated Communications	1,277.28
054118	8/20/2020	0000186	Elk Grove Water District	704.99
054119	8/20/2020	0000199	Farm Air Flying Service	145,075.62
054120	8/20/2020	0000204	Fisher Scientific International Inc	546.12
054121	8/20/2020	0000144	Five Star Towing & Transport, Inc.	200.00
054122	8/20/2020	0000958	GreatAmerica Financial Services	372.82
054123	8/20/2020	0001233	Grow West	185.43
054124	8/20/2020	0000240	Hunt & Sons Inc	7,058.66
054125	8/20/2020	0000938	Jim Hesseltine's Tire Service, Inc.	93.62
054126	8/20/2020	0000277	Kimball Midwest	332.90
054127	8/20/2020	0000286	Leading Edge Associates Inc.	390.00
054128	8/20/2020	0001041	MacLeod Watts, Inc.	7,700.00
054129	8/20/2020	0000320	Mettler Toledo Rainin LLC	945.00
054130	8/20/2020	0000367	PG & E	1,027.91
054131	8/20/2020	0001270	Rubicon Global, LLC	392.82
054132	8/20/2020	0000413	Sacramento County Utilities	670.04
054133	8/20/2020	0000462	Sterling May Co	679.30
054134	8/20/2020	0000475	Target Specialty Products	71,923.75
054135	8/20/2020	0000492	Top Rank Heating Air Conditioning Inc	1,450.53
054136	8/20/2020	0000929	UC Davis	1,500.00
054137	8/20/2020	0000501	United Textile Inc	158.93
054138	8/20/2020	0000502	Univar Inc	57,501.27
054139	8/20/2020	0000518	Vector Disease Control International	50,000.00
054140	8/20/2020	0000526	VWR International Inc	156.85
054141	8/31/2020	0000043	Benefit Coordinators Corporation	3,262.04
054142	8/31/2020	0000084	CA State Disbursement Unit	350.00
054143	8/31/2020	0000339	Nationwide Retirement Solutions	1,550.00
054144	8/31/2020	0000339	Nationwide Retirement Solutions	4,100.00
054145	8/31/2020	0001035	Operating Engineers Local Union No. 3	1,300.00
W00152	8/17/2020	0000087	CalPERS Financial Reporting & Accounting	41,586.00
W00153	8/17/2020	0000087	CalPERS Financial Reporting & Accounting	343,106.00
W00154	8/31/2020	0000087	CalPERS Financial Reporting & Accounting	700.00
W00155	8/31/2020	0000087	CalPERS Financial Reporting & Accounting	81,931.80
W00156	8/31/2020	0000176	EDD	16,276.93
W00157	8/31/2020	0000561	United States Treasury	67,837.63
W00158	8/28/2020	0000086	CalPERS 457 Plan	21,263.49
			Bank U Total:	2,389,022.32
			Report Total:	2,389,022.32

I hereby authorize the use of my signature plate on
the above-listed warrants,054064-054145, and EFTs W00152-W00158

Signature Date
Jayna Karpinski-Costa, President of the Board

S.Y.M.V.C.D
FY 2020-2021 Budget Update
August 2020

Account #	Account Description	2 Months Ended August 31, 2020	FY 20-21 Annual Budget	Unused
4000	**REVENUE**	$ -	$ -	$ -
5000	**SALARIES/BENEFITS/WC**	$ 2,497,920.51	$ 8,793,710.68	$ 6,295,790.17
5200	**OPERATIONAL**	$ 2,381,573.95	$ 6,478,412.05	$ 4,096,838.10
5210	**LIABILITY INSURANCE**	$ 161,762.05	$ 171,762.05	$ 10,000.00
5250	**AUDITING/FISCAL**	$ -	$ 17,750.00	$ 17,750.00
5270	**COMMUNICATIONS**	$ 5,716.91	$ 79,500.00	$ 73,783.09
5310	**PUBLIC INFORMATION**	$ 49,401.36	$ 502,500.00	$ 453,098.64
5340	**STRUCTURE & GROUNDS**	$ 9,372.39	$ 65,000.00	$ 55,627.61
5370	**MEMBER/TRAINING**	$ 26,524.00	$ 113,000.00	$ 86,476.00
5390	**DISTRICT OFFICE EXPENSES**	$ 920.25	$ 17,500.00	$ 16,579.75
5430	**PROFESSIONAL SERVICES**	$ 40,469.98	$ 203,250.00	$ 162,780.02
5440	**MATERIALS & SUPPLIES**	$ 2,625.04	$ 13,000.00	$ 10,374.96
5450	**RENTS & LEASES**	$ 1,417.40	$ 11,550.00	$ 10,132.60
5470	**SAFETY PROGRAM**	$ 370.00	$ 5,000.00	$ 4,630.00
5480	**UTILITIES**	$ 10,845.98	$ 110,000.00	$ 99,154.02
6120	**AIRCRAFT SERVICES**	$ 233,101.01	$ 955,000.00	$ 721,898.99
6140	**ECOLOGICAL MANAGEMENT**	$ 63.44	$ 18,600.00	$ 18,536.56
6160	**MICROBIAL**	$ 774,370.86	$ 1,550,000.00	$ 775,629.14
6170	**BIORATIONALS**	$ 543,435.98	$ 1,000,000.00	$ 456,564.02
6180	**INSECTICIDES**	$ 419,034.54	$ 1,100,000.00	$ 680,965.46
6220	**FISHERIES**	$ 3,647.52	$ 27,000.00	$ 23,352.48
6280	**GEOGRAPHIC INFO SYSTEMS**	$ -	$ 9,100.00	$ 9,100.00
6320	**INFORMATION TECHNOLOGY**	$ 10,387.90	$ 68,500.00	$ 58,112.10
6350	**CONTROL OPERATIONS**	$ 8,499.46	$ 40,200.00	$ 31,700.54
6370	**SHOP**	$ 23,255.01	$ 98,000.00	$ 74,744.99
6420	**LAB SERVICES**	$ 32,493.12	$ 148,200.00	$ 115,706.88
6450	**GAS & PETROLEUM**	$ 23,859.75	$ 154,000.00	$ 130,140.25
7000	**CAPITAL ACCOUNTS**	$ -	$ 615,651.27	$ 615,651.27
7011/1510	Capital Outlay/Construction In Progress	$ -	$ 233,000.00	$ 233,000.00
7030	Contingency	$ -	$ 72,651.27	$ 72,651.27
7030	Research Fund	$ -	$ 25,000.00	$ 25,000.00
7035	Building Improvement	$ -	$ 285,000.00	$ 285,000.00
	TOTALS			
	Salaries/Benefits	**$ 2,497,920.51**	**$ 8,793,710.68**	**$ 6,295,790.17**
	Operational	**$ 2,381,573.95**	**$ 6,478,412.05**	**$ 4,096,838.10**
	Capital Accounts	**$ -**	**$ 615,651.27**	**$ 615,651.27**
	Total Budget	**$ 4,879,494.46**	**$ 15,887,774.00**	**$ 11,008,279.54**

Sacramento-Yolo Mosquito and Vector Control
STATEMENT OF FINANCIAL CONDITION

Please Note: Due to Month-End and Fiscal Year-End closing activities we have not yet received our final month end General Ledger for July 2020 or August 2020 from Yolo County. The check register reflects the transactions of the District that were authorized.

Please contact Administrative Manager, Janna McLeod prior to the meeting if you have any questions or concerns on the financial reports.

SACRAMENTO-YOLO MOSQUITO & VECTOR CONTROL DISTRICT

MAILING ADDRESS

8631 BOND ROAD
ELK GROVE, CA 95624

1.800.429.1022
FIGHTtheBITE.net

Gary Goodman, MANAGER

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, 2020.**

Institution		**Earnings**	**Total as of 06/30/2020**
Yolo County Treasurer Investment Pool	1.628%*	$10,573.33	$959,561.99
L.A.I.F.	1.36%	$30,438.83	$11,766,750.27
VCJPA-Member Contingency Fund	2.13%	$23,343.00	$1,607,140.00
CERBT-Strategy 3		$154,461.19	$1,994,136.54
		District Total:	$16,327,588.80

**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 1995
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 4, 2020

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, 2020. 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, 2020:	1.628%*		$ 10,573.33
Quarter ending June 30, 2020:		1.36%	$ 30,438.83

Placement of Funds as of June 30, 2020:

Yolo County Treasurer's Pool (Fund 6953)	$ 959,561.99**
Flexible Spending Account	36,721.00
LAIF	11,766,750.27
Total	$ 12,763,033.23

*Rates are reflected above as annualized earning rates and

**does not include year-end fair market adjustment.

Sincerely,

Edward Burnham
Accounting Manager, Treasury & Finance

Vector Control Joint Powers Agency

Member Contingency Fund

For the Quarter Ended

June 30, 2020

Member District	Balance at Beginning of Quarter	Contribution	(Withdrawals)	Interest Earned	Allocated Admin.	Balance at End of Quarter
Alameda County	369,337			5,443	(8)	374,772
Burney Basin	50,326			742	(1)	51,067
Butte County	290,995			4,288	(6)	295,277
Coachella Valley	619,175			9,125	(13)	628,287
Coalinga-Huron	7,286			107	0	7,393
Colusa	90,396			1,332	(2)	91,726
Compton Creek	69,801			1,029	(2)	70,828
Consolidated	393,203			5,795	(9)	398,989
Contra Costa	1,265,206			18,645	(27)	1,283,824
Durham	4,341			64	0	4,405
Fresno	220,996			3,257	(5)	224,248
Glenn County	43,074			635	(1)	43,708
Greater Los Angeles	1,375,470			20,270	(30)	1,395,710
Lake County	141,362			2,083	(3)	143,442
Los Angeles County West	670,445			9,880	(15)	680,310
Marin-Sonoma	824,657			12,153	(18)	836,792
Napa County	1,310,934			19,319	(28)	1,330,225
No Salinas Valley	611,064			9,005	(13)	620,056
Northwest	344,587			5,078	(7)	349,658
Orange County	442,401			6,520	(10)	448,911
Oroville	11,946			176	0	12,122
Pine Grove	30,470			449	(1)	30,918
Placer	188,571			2,779	(4)	191,346
Sacramento-Yolo	1,583,833			23,343	(35)	1,607,140
San Gabriel Valley	103,443			1,524	(2)	104,965
San Joaquin County	710,745			10,474	(15)	721,204
San Mateo County	505,189			7,445	(11)	512,623
Santa Barbara County	65,613			967	(1)	66,579
Shasta	259,756			3,828	(6)	263,578
Sutter-Yuba	362,813			5,347	(8)	368,152
Tehama County	279,428			4,118	(6)	283,540
Turlock	254,313			3,748	(6)	258,055
West Valley	319,803			4,713	(7)	324,509
Total	13,820,979	0	0	203,681	(300)	14,024,359

Notes:
Yield to maturity rate on the VCJPA portfolio is 2.13% 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, 2020

CalPERS

Market Value Summary:

	QTD Current Period	Fiscal Year to Date
Beginning Balance	$1,840,083.28	$1,876,278.34
Contribution	0.00	0.00
Disbursement	0.00	0.00
Transfer In	0.00	0.00
Transfer Out	0.00	0.00
Investment Earnings	154,461.19	119,497.72
Administrative Expenses	(235.68)	(947.09)
Investment Expense	(172.25)	(692.43)
Other	0.00	0.00
Ending Balance	$1,994,136.54	$1,994,136.54
FY End Contrib per GASB 74 Para 22	0.00	0.00
FY End Disbursement Accrual	0.00	0.00
Grand Total	$1,994,136.54	$1,994,136.54

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	14.857907	15.150168
Period Ending Unit Value	16.101823	16.101823

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 06/30/2020

Sacramento-Yolo Mosquito & Vector Control District

Entity #: SKB8-1375523307

Date	Description	Amount	Unit Value	Units	Check/Wire	Notes

Client Contact:
CERBT4U@CalPERS.ca.gov

State of California—Health and Human Services Agency
California Department of Public Health

SONIA Y. ANGELL, MD, MPH
State Public Health Officer & Director

GAVIN NEWSOM
Governor

November 25, 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 2020 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 11/15/2019

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, 2020 or on the subsequent date shown above, and expires December 31, 2020. 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 2020:

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

[signature]

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

For Local Agency

GARY GOODMAN GENERAL MANAGER
Print Name and Title

[signature]
Signature

Sacramento-Yolo Mosquito and Vector Control District

September 15, 2020 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 District has not detected invasive mosquitoes so far this year and neither has neighboring Placer County. However, they have been detected north of us in both Shasta and Sutter counties. The Districts that had initially detected them last year (San Joaquin, Stanislaus, and Merced) have found them again this year. We will continue to monitor the situation and react accordingly if detected.

The MVCAC (Monterey in January) and the AMCA (Salt Lake in March) annual meetings are moving forward with a hybrid style format. The final details will need to adjust as we get closer and the situation surrounding the pandemic is better understood.

The District Audit is scheduled for September 16-18.

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 2020 Board Meeting

Insectary:

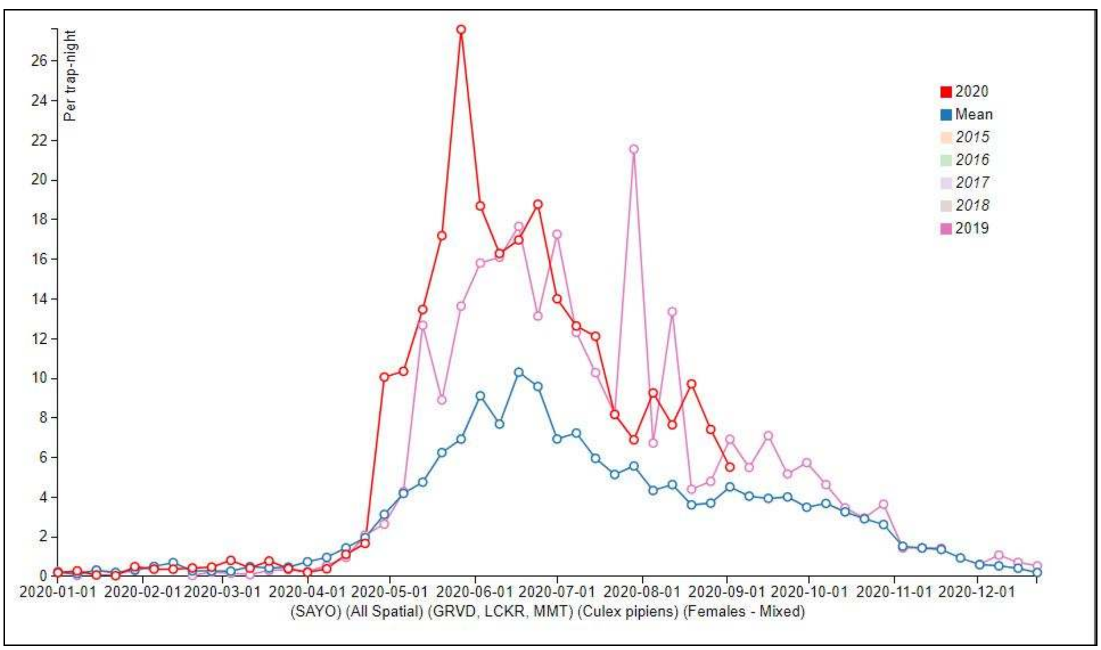
Colonies maintained: *Culex tarsalis* Kern National Wildlife (susceptible)
Culex quinquefasciatus Cq1 (susceptible)
Culex pipiens Woodland (resistant)
Culex pipiens f. molestus - wild - Sacramento County
Aedes sierrensis wild - Marin - Sonoma County (in egg form)

We are in the process of restarting a wild *Culex tarsalis* colony from Yolo County.

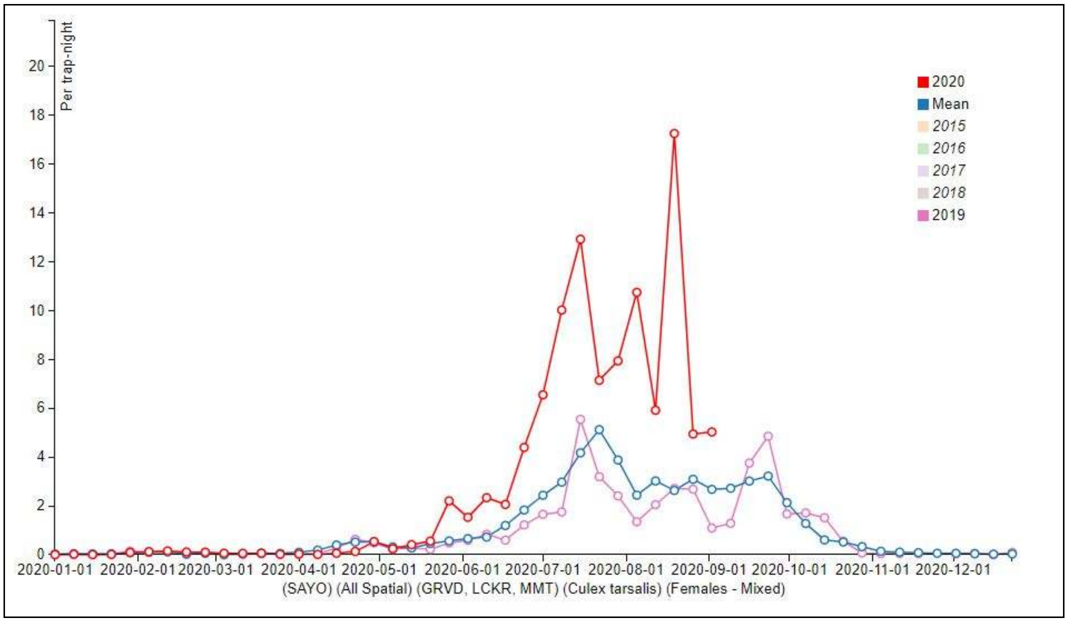
Surveillance:

Weekly collections – The Locker CO_2 Traps (LCKRs) and Gravid traps (GTs) graphs are showing a decline in abundance of both our *Culex pipiens* and *Culex tarsalis* populations. The *Cx. tarsalis* abundance for this year appears high due in comparison to previous years due to switching from Mosquito Magnet traps to our District locker traps as we have previously mentioned.

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

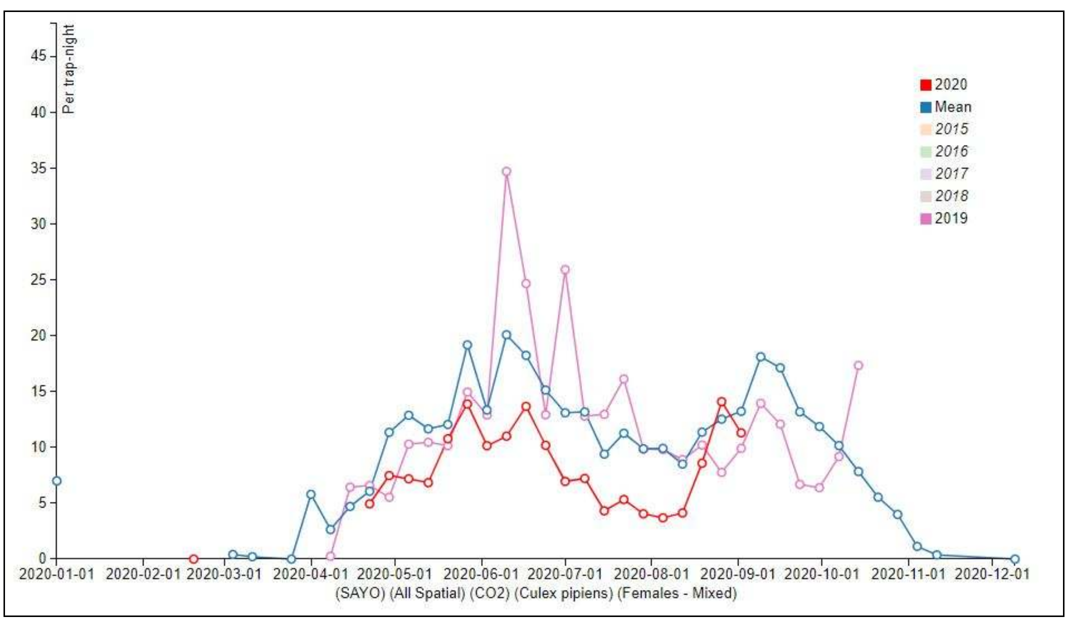


Culex tarsalis in weekly abundance traps (LCKR, GT):

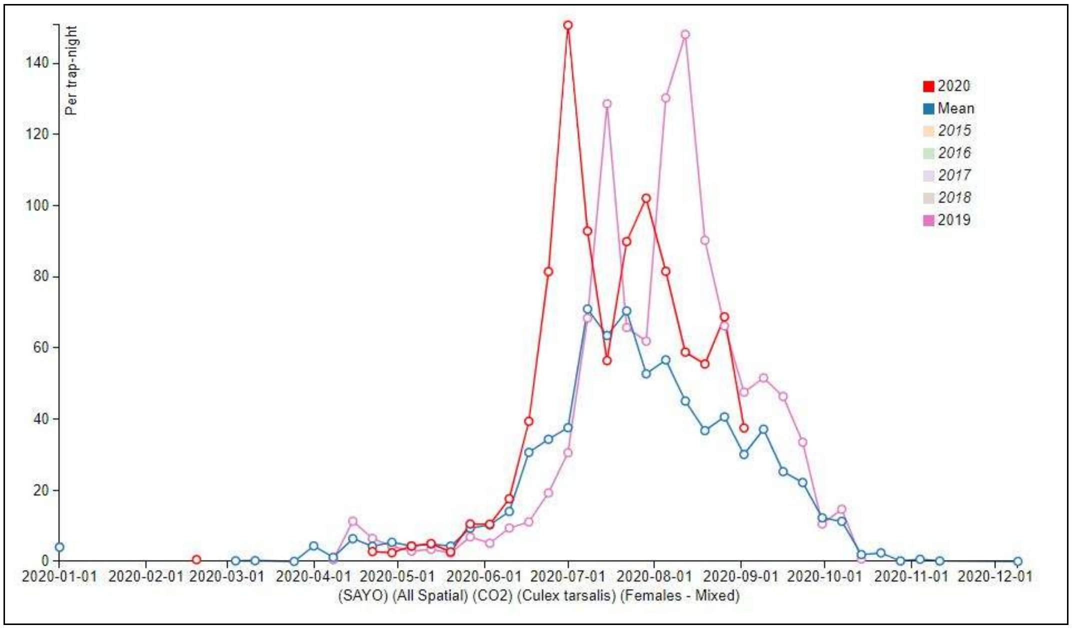


Encephalitis virus surveillance (EVS) – Mosquitoes – We have currently tested 5,509 mosquito pools (samples). Of these, 151 have been positive for West Nile Virus. 64 of these positive pools are from Yolo County and the remaining 87 positive pools are from Sacramento County.

Culex pipiens in CO_2 EVS traps:



Culex tarsalis in CO_2 EVS traps:



Encephalitis virus surveillance (EVS) – Sentinel Chickens –We have been sampling chickens every other week and have detected no positive chickens at this time. The flock locations are Dunnigan, Knights Landing, Isleton, Rancho Murieta, and Gibson Ranch.

Encephalitis virus surveillance (EVS) – Dead Birds – We have picked up and tested 328 dead birds of which 88 have tested positive for West Nile Virus. 72 of the dead birds were from Sacramento County and 16 were from Yolo County. We respond to the finding of positive dead birds by setting EVS traps near their reported locations.

Invasive *Aedes spp.* Surveillance – We have still not yet detected any *Aedes aegypti* activity in Citrus Heights this year in our permanent sites. We have begun setting BG Sentinel traps in other areas of the District, but have not detected any invasive *Aedes* mosquitoes in these traps.

Tick and Lyme disease surveillance – We have completed the spring portion of our tick surveillance and testing program. We will resume tick collecting in October 2020.

BG Counter Traps – We have deployed the rice habitat BG Counter traps in Natomas and the Yolo County agricultural rice growing areas. These traps are used by control operations to determine whether adulticide treatments are warranted. In addition, we have deployed several counter traps in Yolo County and Sacramento urban/suburban areas. We have 15 traps currently deployed.

Mosquito Resistance Testing – We are continuing our larvicide benchtop cup bioassays and have completed two adult bottle bioassays with two *Cx. tarsalis* populations.

Disease Response Surveillance – In the month of August, we were not notified of any imported mosquito-borne disease cases.

District Studies –

LVL (Low Volume Larvicide) studies – We have begun conducting evaluations of this application method utilizing both Vectobac WDG and Altosid Liquid Larvicide.

Adulticide Product Trials – We have begun these trials for this season and have completed four; two aerial Merus 3.0, one aerial Dibrom and one ground Deltagard evaluations.

Sugar Bait Project – We have continued to deploy sugar baits in areas where we are seeing West Nile virus activity and have now had positive detections in 31 sugar bait samples. We have tested 1255 sugar bait samples so far this season.

Sumilarv Evaluation – We are assisting control operations in the evaluation of this product in swimming pools. This study is in progress.

***Aedes aegypti* traps –** Currently, we utilize BG Sentinel traps for monitoring our Citrus Heights invasive *Aedes* populations, we have not yet had any detections of *Aedes aegypti* adult mosquitoes in our traps.

Collaborations –

Catch Basin Residue and Resistance study – We have taken and shipped the first and second of three sample collection kits to Dr. Jay Gan's lab at UC Riverside and are planning on taking our third and last samples from catch basins in the District this month. The areas sampled were Davis, Citrus Heights, the Pocket and downtown Sacramento.

Natular (spinosad) applied via LVL – Under an experimental use permit we conducted a trial with Clarke Mosquito Control utilizing the LVL application method to apply a spinosad larvicide product. The study results are being summarized by Clarke scientists.

Additional Projects – We will be working with two recipients of Pac-Vec Center of Excellence training grants. The first is Dr. Tara Thiemann from the University of the Pacific in Stockton. She is working on resistance in *Culex tarsalis* mosquitoes. Dr. Thiemann has sent standard material and protocols for us to begin running bottle bioassays for this study. We have completed two bottle bioassays and the mosquitoes from these tests will be sent to Dr. Thiemann. The second is Dr. Monika Guila-Nuss from the University of Nevada at Reno. This collaboration is regarding *Ixodes pacificus* ticks and will begin this fall/winter when our tick surveillance program resumes.

2019 & 2020 YTD West Nile Virus Comparisons		
	2019	2020
Total # Dead Bird Reports	4,161	4,024
# Positive Counties	29	30
# Human Cases	62	45
# Positive Dead Birds / # Tested	103 / 1,269	171 / 1,093
# Positive Mosquito Pools / # Tested	2,815 / 33,377	1,717 / 28,880
# Seroconversions / # Tested	81 / 6,363	56 / 4,550

YTD WNV Activity by Element and County, 2020					
County	Humans*	Horses	Dead Birds	Mosquito Pools	Sentinel Chickens
Alameda			1		
Amador		1			
Butte	4		2	24	14
Contra Costa	2		7	8	
Fresno			5	228	
Glenn		1		2	1
Imperial				3	
Kern				60	
Kings				63	
Lake				11	
Los Angeles	9		33	198	3
Madera	2			55	
Merced	3	1	2	41	14
Napa			1		
Orange	2		20	148	
Placer	1		1	54	
Riverside	2	2	1	51	
Sacramento			71	80	
San Bernardino				10	
San Diego	1			2	
San Joaquin		1	2	150	
Santa Clara			5	8	
Shasta				19	
Solano			1	5	
Stanislaus	18	2	4	299	
Sutter	1			20	18
Tehama					1
Tulare			1	115	5
Yolo			14	61	
Yuba				2	
Totals	**45**	**8**	**171**	**1,717**	**56**

ECOLOGICAL MANAGEMENT DEPARTMENT
Monthly Report for September 2020 Board Meeting

Storm Water / Drainages Program

Rancho Murieta Community Services District (RMCSD): The Manager of the RMCSD reached out to the District to try and gain an understanding on why and how best to control the midge flies that emerge from the main lake within the community. Staff met with the Manager as well as with the Director of Field Operations and discussed the situation and provided some options to consider for long term control. In an effort to help the RMCSD understand the scope of the problem, and to help determine treatment benchmarks, the District will be loaning the RMCSD two unused light traps for the remainder of the season.

City of Galt Deadman's Gulch: Staff responded to a complaint from a resident about stream flow blockages from a large beaver dam within Deadman's Gulch next to the eastern portion of Walnut Ave. West Nile virus has been detected nearby prompting staff to investigate the entire channel as well as street drainages that may be backing up due to high stream levels. Stream flows receive sporadic irrigation drain water as well as urban runoff from the adjacent subdivision, thus adding to the complexity of the problem. Dense vegetation in addition to beaver dams are limiting stream flows. Staff will work with the City of Galt to address the stream blockages.

City of Sacramento Port Authority's Deep Water Ship Channel: While staff was collecting aerial imagery of a nearby shorebird habitat in the Lower Yolo Bypass, standing water was seen on top of the wide levee along the western side of the Deep Water Ship Channel. It was determined to be dredging spoils and water placed in wetland cells to dry out. The Manager of the Port Authority provided the District with the contact number of the dredging contractor who could provide immediate access. Upon inspection, the majority of the levee dredge spoil areas were in various stages of drying along the channel length. The District will continue to monitor and treat as necessary.

Wetland Program / Rice Program
Staff has continued to be in contact with property managers that intend to or have historically flooded prior to October first. Some early harvested rice fields may potentially be flooded earlier than normal this year as well, adding to historical acreages. Staff is working with these landowners to develop flooding and BMP plans.

Staff participated in the annual Lower Yolo Bypass Flood Up Meeting in early August. With less rice drain water available in the drainage systems this year, water availability may become an issue, thus forcing some of the duck clubs to start flooding earlier. Staff has provided potential mosquito treatment costs to these property owners, and will continue to work with each of them as seasonal flooding begins this month.

<u>Bid4Brids Shorebird Program:</u> The Nature Conservancy (TNC) in partnership with the California Rice Commission has offered a Bid4Bird habitat shorebird flooding program for fallow rice fields. Knaggs Ranch has fields located in the Upper, and Lower portions of the Yolo Bypass and has enrolled a series of fields in the program. They understand the financial mosquito control costs per the program guidelines, and will be billed for all treatments.

Agriculture Program
<u>Marengo Road Project:</u> Staff responded to the zone Technician's request to investigate standing water on agricultural fields at the corner of Marengo and Amador Roads located in Eastern Galt. Upon investigation, dense vegetation as well as beaver dams within Deadman's Gulch were discovered to be one of the complicating factors, coupled with over irrigations and other field blockages. The City provided plans to the newly installed culvert system to help the District understand the situation. Staff will continue to investigate at the end of the irrigation season when less water should be flowing through the area.

Planning Review Program
The Department recently received numerous planning projects for review. Responses will be made as appropriate.

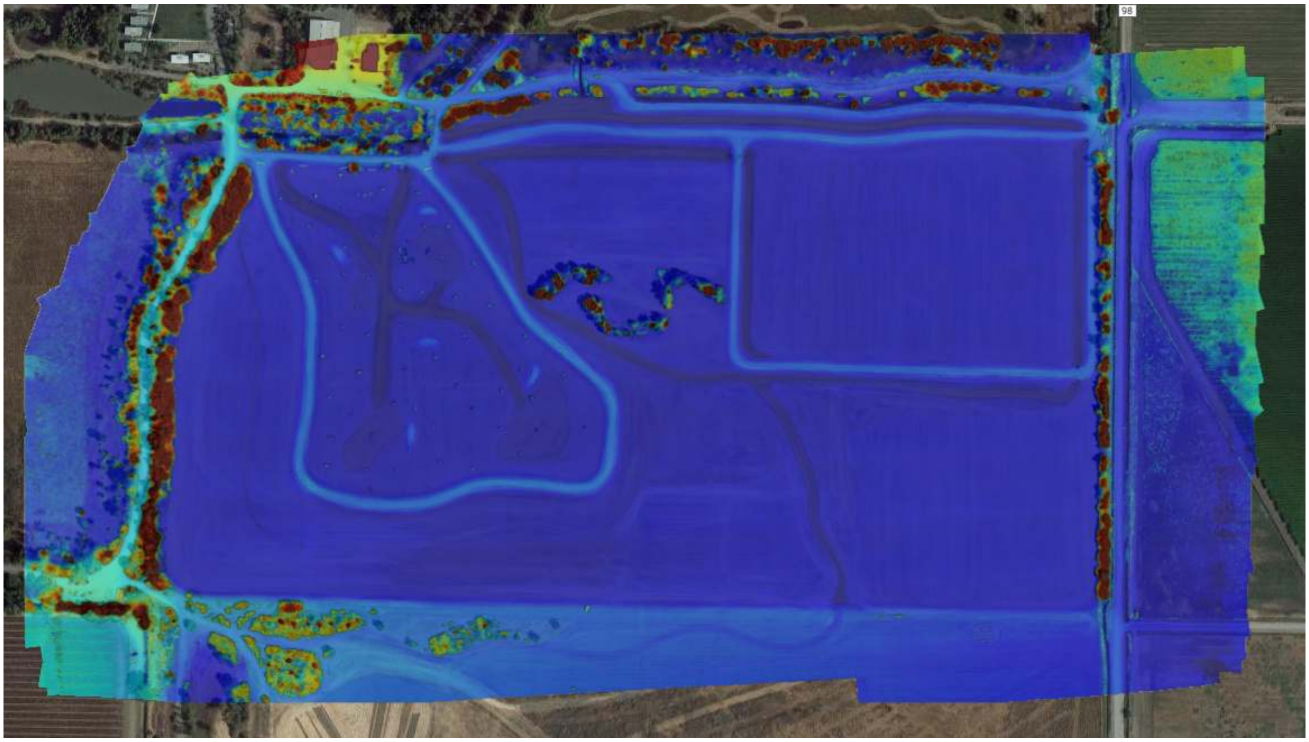
Mitchell Farms Subdivision: Staff reviewed the plans that the City of Citrus Heights posted for any potential drainage issues as a result of the proposed new subdivision and development. Given the historical drainage of the existing land, vegetated swales will be added to drainages that flow directly into Arcade Creek. Staff will continue to monitor the development and will make comments to the City as appropriate.

Folsom Ranch, Toll Brothers Project: Staff reviewed the Mosquito and Vector Control Plan submitted by Mackay and Somps Civil Engineers, Inc. for the Toll Brothers at Folsom Ranch Project, and submitted an acceptance letter. The Plan adequately details routine maintenance and ownership responsibilities of the drainage systems upon buildout of the project located south of Folsom.

UAS Program
Staff continues to coordinate UAS treatments with Leading Edge Aerial Technologies, Inc. as orders are turned in by Control Operations.

Ducks Unlimited: Staff assisted Ducks Unlimited in early August with some imaging of the new agricultural crossings, pump station and drainages on a project located in the Yolo Bypass within the Vic Fazio Wildlife Area.

<u>Roosevelt Ranch:</u> Staff was asked to help determine new acreages of a series of re-constructed ponds on the Roosevelt Ranch located East of Zamora, CA. Seventy two acres of test plots were turned in to a series of brood ponds and upland habitat. Staff flew the area with the District's survey grade UAS unit and was able to accurately determine the size, location, and elevations of the new ponds, swales, and drainage canals.



Roosevelt Ranch new ponds (light blue) and swales (dark blue)

Staff will be presenting a one hour presentation for the Pesticide Applicators Professional Association (PAPA) via Zoom on the use of Unmanned Aerial Systems in Mosquito Control in early September.

BIOLOGICAL CONTROL
Monthly Report for September 2020 Board Meeting

In the month of August the rice field stocking program came to a close with a total of 2,299 pounds of mosquitofish used in 198 different rice fields totaling just over thirteen thousand acres in the most densely populated areas of our counties. The primary focus was fields nearest Natomas, Woodland, and Davis where some fields are less than 500 feet away from dense housing developments. With the rice field stocking window closed, the fisheries department has shifted focus to preparing ponds for cleanup and the upcoming flood ups of wetland habitat and duck clubs. We are expecting to use approximately 500-1000 more pounds of fish for these fall flood up fish plants. The main areas of focus will be the Vic Fazio Yolo Wildlife Area, Cosumnes River Preserve and Stone Lakes National Wildlife Refuge. In addition to these wildlife wetlands Sacramento and Yolo Counties have many re-flooded rice fields to serve as waterfowl habitat.

Daily activities such as tank cleaning, water quality monitoring, setting out aerators and pumps were also performed to maintain the high quality of our fish population. The Fisheries Department continues with many projects including monitoring dissolved oxygen levels, crayfish trapping and trying to determine ideal stocking rates in rice fields and wetlands.

Log of Treatment Applied for August

Material	AMT	Area Treated	Rate	Treatments
Mosquitofish	459.87 lbs.	1,506.96 Acres	.3 lbs. /ac	271

Log of Treatment Applied for the year 2020

Material	AMT	Area Treated	Rate	Treatments
Mosquitofish	2,819.56 lbs.	15, 51327 Acres	.17lbs./ac	3,764

Fisheries Budget

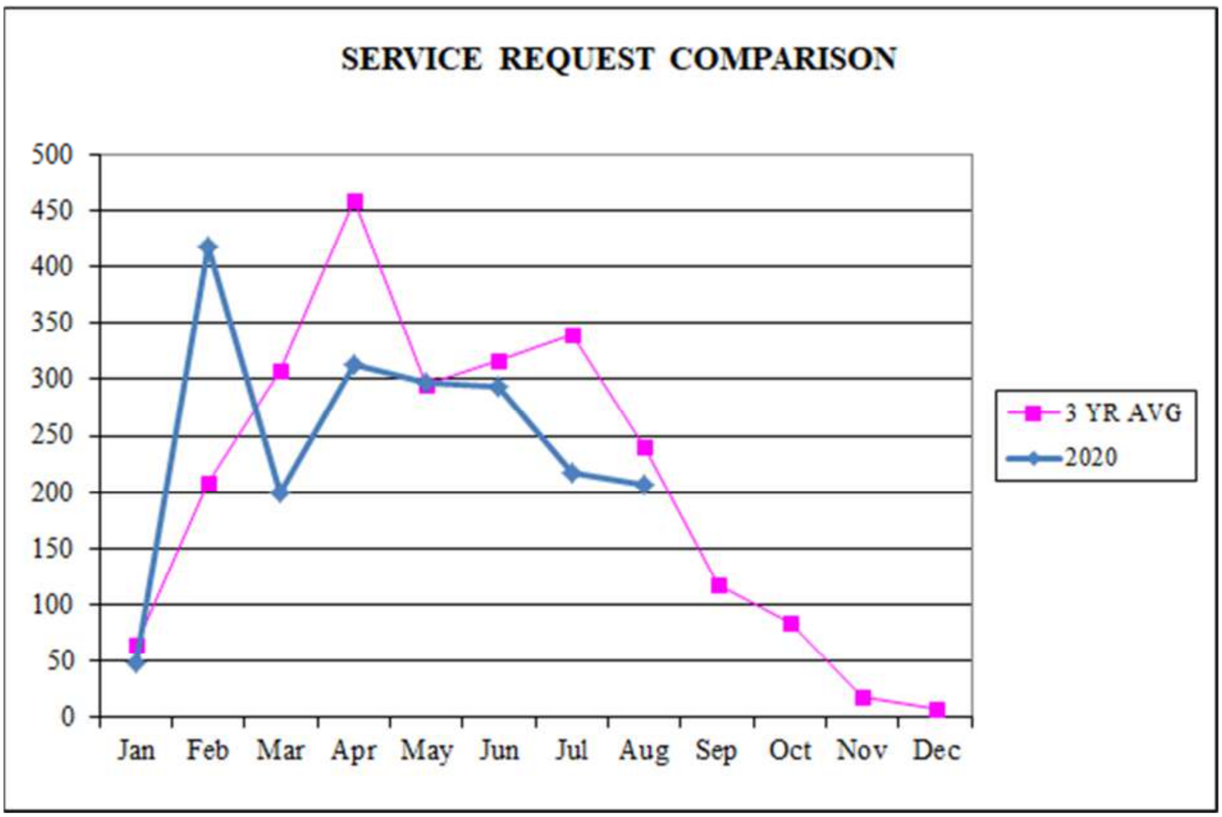
Total	Spent	Remaining	% Spent
27,000.00	3,801.65	23,189.35	14%

An example of a densely vegetated wetland. Very typical of the wetlands in our district, large open areas of water with dense mosquito habitat.

Photo by Cameron Pinkerton

CONTROL OPERATIONS
Monthly Report for September 2020 Board Meeting

Changes to mosquito breeding sources is typical for this time of year; rice begins to drain, wetlands prepare to flood, corn harvest starts and hay growers try to get some final irrigations in. All of this variance has been keeping field crews extremely busy. The uptick of WNv in August has crews in both counties performing radius work, catch basin inspections and ULV treatments where needed. Toward the end of August the rice larvacide retreat program was stopped due to field draining. This program proved to be beneficial for both counties and will continue next year. Aerial adulticiding will continue through the season in response to virus and high adult numbers in the rice growing areas. Fine tuning on the A1 vehicles used in low volume applications has been ongoing in preparation for *Aedes aegypti* detections. Trials are scheduled to continue through the fall flooding season.



Larvicide Applications thru August 31st				
	2020		2019	
Locations/Roles	Treatments	Acres	Treatments	Acres
Sacramento County	7,282	6,707	5,153	9,793
Sac County Aerial	23 Order, 381 Sources	12,477	22 Orders,452 Sources	19,111
Sac County Drone Treatments	12 orders	546.48		
Yolo County	1,629	3,616	1,852	6,092
Yolo County Aerial	52 Order, 941 Sources	50,217	44 Orders 739 Sources	71,323
Yolo County Drone Treatments	7 Order	440		
CB Treated	121,349	--	141,359	--
CB Inspected -not treated	135,463	--	128,079	--

Aerial Adulticide Summary thru August 31st				
	2020		2019	
County	# Applications	Acres	# Applications	Acres
Sacramento Ag	7	86,136	6	76,422
Sacramento Urban	0	0	0	0
Yolo Ag	25	396,188	20	376,115
Yolo Urban	0	0	0	0
Totals		482,324		452,537

VDCI Summary through August 31st, 2020 compared to: 2019

	2020	2019
Contract Acres (our portion) =	530,000	530,000
Acres used =	482,324	452,557
Acres remaining =	(47,676)	(77,443)
% Acres used =	91%	85%
% Acres remaining =	8%	15%

San Joaquin County MVCD has used 76,283 acres of their 190,000 acre contract commitment.
Placer MVCD has used 65,725 acres of their 100,000 acre commitment.
Turlock MAD has used 103,459 acres of their 180,000 acre commitment.

PUBLIC INFORMATION AND EDUCATION
Monthly Report for August 2020 Board Meeting

Presentations:
As a direct result of the Zoom presentation to the Walnut Grove Rotary Club last month, I received another invitation to speak to the Laguna/Sunrise Rotary Club. The presentation is scheduled for September 23rd at 8:00 am. I have also registered in the Rotary Club speaker's bureau so I can be contacted by other clubs in our service area.

Advertising:
The paid advertising campaign will wrap up at the end of the month. The last big push for advertising messages 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.

Social Media and Nextdoor
Our social media efforts continue and to date we have 11,692 followers on Facebook. Content is focused on signing up for email spray notification, West Nile virus activity to date, reporting dead birds and promotion of District services. We have continued to launch some Facebook ads geared towards increasing our number of fans and other ads encouraging residents to sign up for spray notifications due to the ongoing mosquito control efforts and the detection of West Nile virus activity. In areas where much of the WNV is concentrated, we have also done targeted posts geared to specific zip codes.

We have actively started posting on Nextdoor especially in neighborhoods where West Nile virus activity has been high. Prior to Labor Day we also had a general post to our entire District service area focusing on the use of repellent while spending time outdoors for the holiday.

Repellent Distribution
Repellent distribution continues as field technicians distribute repellent and other district materials to all service requests. Recently, mosquito repellent wipes were dropped off at a community clean up event in north Sacramento for use by the volunteers participating in the event.

Media Coverage:
As a result of the Labor Day press release, we did have some media coverage including a print article in the Woodland Daily Democrat.

Sacramento-Yolo Mosquito and Vector Control District

September 15, 2020 Board Meeting

4. Board Review and Consideration of CalPERS Valuation Report

Staff Report:
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, 2019 is used to set the rates for the 2021-2022 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.

Percentage of Payroll
The Tier 1 (2.5% at 55) employer normal cost rate for 21/22 will be 12.73%. The District currently pays the employee contribution on behalf of employees and that remains at 8% of gross payroll for a total of 20.73% of payroll.

The Tier 2 (2% at 62) employer normal cost rate for 21/22 will be 7.38%, The employee contribution is paid by the employees and the contribution rate, which has a maximum of 8%, is going to be the same this year at 7.50%.

Unfunded Accrued Liability (UAL)
The Tier 1 (2.5% at 55) unfunded liability as listed on page 6 of the report is $11,424,089 which is nearly $3.4M less than the previous year's valuation report. This reduction is due to the District's commitment to lower the UAL and additional discretionary payments made to further that goal. The fund is currently 77% funded vs. 69.2% last year. The annual payment can be invoiced monthly or as a singular lump sum payment. The District has historically made the lump sum payment to save on interest. The payment is not due until July 2021.

The Tier 2 (2% at 62) unfunded liability as listed on page 6 of the report is $61,920 which is just over $20K more than the previous year's valuation report. The increase in the UAL is mainly due to the fact that as classic members retire, they are being replaced by members in this Tier. The fund is currently 90.5% funded vs. 91.5% last year. The annual payment can be invoiced monthly or as a singular lump sum payment. The District has historically made the lump sum payment to save on interest. The payment is not due until July 2021.

The UAL is a significant concern for the District and its future finances, however the Board and staff have committed to trying to make additional payments on an annual basis to help reduce the uncertainty of the fund each year. The UAL is not a fixed amount and will fluctuate every year due to the ever-changing investment returns and the profile of our plans. We currently have 50 active employees and 77 retirees in the Tier 1 fund while the Tier 2 fund has 19 active employees. The District is trying to mirror our budgeted annual payment to mimic the 15 year schedule in the report for Tier 1. This will not only allow the District to predict and plan better for our annual budgets, it will also save nearly three million dollars in interest charges. This commitment was evidenced by the additional payment made to the fund in the current fiscal year and the four million dollar payment made in fiscal year 2018-2019. The District has also tried to pay the UAL for Tier 2 off each year as the amount at the moment is still small and we don't want to see its growth get out of hand which will cost the District more interest in the future.

The valuation report 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 2020

Miscellaneous Plan of the Sacramento-Yolo Mosquito and Vector Control District
(CalPERS ID: 1375523307)
Annual Valuation Report as of June 30, 2019

Dear Employer,

Attached to this letter, you will find the June 30, 2019 actuarial valuation report of your CalPERS pension plan. **Provided in this report is the determination of the minimum required employer contributions for fiscal year 2021-22**. 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, 2019.

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, 2019 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, 2020.

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 2021-22 along with estimates of the required contributions for fiscal year 2022-23. 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
2021-22	12.73%	$806,844
Projected Results		
2022-23	*12.7%*	*$916,000*

The actual investment return for fiscal year 2019-20 was not known at the time this report was prepared. The projections above assume the investment return for that year would be 7.00%. ***To the extent the actual investment return for fiscal year 2019-20 differs from 7.00%, the actual contribution requirements for fiscal year 2022-23 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 2026-27.

Changes from Previous Year's Valuation

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 as a level dollar amount. In addition, the new policy does not utilize a 5-year ramp-up and ramp-down on Unfunded Accrued Liability (UAL) bases attributable to assumption and method changes and non-investment gains/losses. The new policy does not utilize a 5-year ramp-down on investment gains/losses. These changes apply only to new UAL bases established on or after June 30, 2019.

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

Questions

We understand that you might have some 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, 2020 to contact us with actuarial questions. If you have other questions, you may call the Customer Contact Center at (888)-CalPERS or (**888-225-7377**).

Sincerely,

SCOTT TERANDO
Chief Actuary

CalPERS

Actuarial Valuation
as of June 30, 2019

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

(CalPERS ID: 1375523307)

Required Contributions
for Fiscal Year
July 1, 2021 - June 30, 2022

Table of Contents

Section 1

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

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

Table of Contents

Actuarial Certification

Section 1 of this report is based on the member and financial data contained in our records as of June 30, 2019 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, 2019 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 the Unfunded Accrued Liability amortization bases as of June 30, 2019 and employer contribution as of July 1, 2021 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

Highlights and Executive Summary

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

Introduction

This report presents the results of the June 30, 2019 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 2021-22.

Purpose of Section 1

This Section 1 report for the Miscellaneous Plan of the Sacramento-Yolo Mosquito and Vector Control District of CalPERS was prepared by the plan actuary in order to:

- Set forth the assets and accrued liabilities of this plan as of June 30, 2019;
- Determine the minimum required employer contribution for this plan for the fiscal year July 1, 2021 through June 30, 2022; and
- Provide actuarial information as of June 30, 2019 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.

Assessment and Disclosure of Risk

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

- A "Scenario Test," projecting future results under different investment income returns.
- A "Sensitivity Analysis," showing the impact on current valuation results using alternative discount rates of 6.0% and 8.0%.
- A "Sensitivity Analysis," showing the impact on current valuation results assuming rates of mortality are 10% lower or 10% higher than our current mortality assumptions adopted in 2017.
- Plan maturity measures indicating how sensitive a plan may be to the risks noted above.

Required Employer Contributions

	Fiscal Year
Required Employer Contributions	**2021-22**
Employer Normal Cost Rate	**12.73%**
Plus, Either	
1) Monthly Employer Dollar UAL Payment	**$67,237.00**
Or	
2) Annual UAL Prepayment Option*	**$780,006**

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 2020-21	Fiscal Year 2021-22
Development of Normal Cost as a Percentage of Payroll[1]		
Base Total Normal Cost for Formula	19.695%	19.55%
Surcharge for Class 1 Benefits[2]		
a) FAC 1	0.619%	0.61%
b) 75% IDR	0.539%	0.53%
Phase out of Normal Cost Difference[3]	0.000%	0.00%
Plan's Total Normal Cost	20.853%	20.69%
Formula's Expected Employee Contribution Rate	7.953%	7.96%
Employer Normal Cost Rate	12.900%	12.73%
Projected Payroll for the Contribution Fiscal Year	$4,111,692	$4,178,578
Estimated Employer Contributions Based on Projected Payroll		
Plan's Estimated Employer Normal Cost	$530,408	$531,933
Plan's Payment on Amortization Bases[4]	655,963	806,844
% of Projected Payroll (illustrative only)	15.954%	19.31%
Estimated Total Employer Contribution	$1,186,371	$1,338,777
% of Projected Payroll (illustrative only)	28.854%	32.04%

[1] The results shown for fiscal year 2020-21 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, 2019.

[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% for the first year of pooling and is incrementally reduced by 20% 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 Schedule of Plan's Amortization Bases.

Additional Discretionary Employer Contributions

The minimum required employer contribution towards the Unfunded Accrued Liability (UAL) for this rate plan for the 2021-22 fiscal year is $806,844. CalPERS allows employers to make additional discretionary payments (ADPs) at any time and in any amount. These optional payments serve to reduce the UAL and future required contributions and can result in significant long-term savings. Employers can also use ADPs to stabilize annual contributions as a fixed dollar amount, percent of payroll or percent of revenue.

Provided below are select ADP options for consideration. Making such an ADP during fiscal year 2021-22 does not require an ADP be made in any future year, nor does it change the remaining amortization period of any portion of unfunded liability. For information on permanent changes to amortization periods, see the "Amortization Schedule and Alternatives" section of the report.

If you are considering making an ADP, please contact your actuary for additional information.

Minimum Required Employer Contribution for Fiscal Year 2021-22

Estimated Normal Cost	Minimum UAL Payment	ADP	Total UAL Contribution	Estimated Total Contribution
$531,933	$806,844	$0	$806,844	$1,338,777

Alternative Fiscal Year 2021-22 Employer Contributions for Greater UAL Reduction

Funding Target	Estimated Normal Cost	Minimum UAL Payment	ADP[1]	Total UAL Contribution	Estimated Total Contribution
20 years	$531,933	$806,844	$234,994	$1,041,838	$1,573,771
15 years	$531,933	$806,844	$404,987	$1,211,831	$1,743,764
10 years	$531,933	$806,844	$764,612	$1,571,456	$2,103,389
5 years	$531,933	$806,844	$1,885,039	$2,691,883	$3,223,816

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

Note that the calculations above are based on the projected Unfunded Accrued Liability as of June 30, 2021 as determined in the June 30, 2019 actuarial valuation. New unfunded liabilities can emerge in future years due to assumption or method changes, changes in plan provisions and actuarial experience different than assumed. Making an ADP illustrated above for the indicated number of years will not result in a plan that is exactly 100% funded in the indicated number of years. Valuation results will vary from one year to the next and can diverge significantly from projections over a period of several years.

Plan's Funded Status

	June 30, 2018	June 30, 2019
1. Present Value of Projected Benefits (PVB)	$54,055,616	$55,335,473
2. Entry Age Normal Accrued Liability (AL)	48,169,015	49,570,862
3. Plan's Market Value of Assets (MVA)	33,353,036	38,146,773
4. Unfunded Accrued Liability (UAL) [(2) - (3)]	14,815,979	11,424,089
5. Funded Ratio [(3) / (2)]	69.2%	77.0%

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 the required and projected employer contributions (before cost sharing) for the next six fiscal years. The projection assumes that all actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur during the projection period. As of the preparation date of this report, the year to date return for the 2019-20 fiscal year was well below the 7% assumed return. Actual contribution rates during this projection period could be significantly higher than the projection shown below.

	Required Contribution	Projected Future Employer Contributions (Assumes 7.00% Return for Fiscal Year 2019-20)				
Fiscal Year	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**2026-27**
Normal Cost %	12.73%	12.7%	12.7%	12.7%	12.7%	12.7%
UAL Payment	$806,844	$916,000	$979,000	$1,047,000	$1,079,000	$1,108,000

For some sources of UAL, the change in UAL is 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. This method phases in the impact of the change in UAL over a 5-year period in order to reduce employer cost volatility from year to year. As a result of this methodology, dramatic changes in the required employer contributions in any one year are less likely. However, required contributions can change gradually and significantly over the next five years. In years when there is a large 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.

Cost

Actuarial Determination of Pension Plan Cost

Contributions to fund the pension plan are comprised of two components:

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

For fiscal years prior to FY 2016-17, the Amortization of UAL component was expressed as a percentage of total active payroll. Starting with FY 2016-17, the Amortization of UAL component was expressed as a dollar amount and invoiced on a monthly basis. There continues to be an option to prepay this amount during July of each fiscal year.

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

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

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

These assumptions reflect CalPERS' best estimate of future experience of the plan and are long term in nature. We recognize that all assumptions will not be realized in any given year. For example, the investment earnings at CalPERS have averaged 5.8% over the 20 years ending June 30, 2019, yet individual fiscal year returns have ranged from -23.6% to +20.7%. In addition, CalPERS reviews all actuarial assumptions by conducting in-depth experience studies every four years, with the most recent experience study completed in 2017.

Changes Since the Prior Year's Valuation

Benefits

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

This valuation generally reflects plan changes by amendments effective before the date of the report. Please refer to the "Plan's Major Benefit Options" and Appendix B for a summary of the plan provisions used in this valuation. The effect of any mandated benefit changes or plan amendments on the unfunded liability is shown in the "(Gain)/Loss Analysis" and the effect on the employer contribution is shown in the "Reconciliation of Required Employer Contributions." It should be noted that no change in liability or contribution is shown for any plan changes which were already included in the prior year's valuation.

Actuarial Methods and Assumptions

The CalPERS Board of Administration adopted a new amortization policy effective with this 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 as a level dollar amount. In addition, the new policy does not utilize a 5-year ramp-up and ramp-down on UAL bases attributable to assumption and method changes and non-investment gains/losses. The new policy also does not utilize a 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, 2017. 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.

Subsequent Events

The contribution requirements determined in this actuarial valuation report are based on demographic and financial information as of June 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 future required contributions while investment returns above the assumed rate of return will decrease future required contributions.

The projected employer contributions on Page 6 are calculated under the assumption that the discount rate remains at 7.0% going forward and that the realized rate of return on assets for fiscal year 2019-20 is 7.0%.

This actuarial valuation report reflects statutory changes, regulatory changes and CalPERS Board actions through January 2020. 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	$19,011,487
Transferred Members	959,418
Terminated Members	754,549
Members and Beneficiaries Receiving Payments	28,845,408
Total	$49,570,862

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	$49,570,862
2.	Projected UAL balance at 6/30/2019	11,045,392
3.	Pool's Accrued Liability[1]	18,394,114,919
4.	Sum of Pool's Individual Plan UAL Balances at 6/30/2019[1]	4,268,374,183
5.	Pool's 2018/19 Investment (Gain)/Loss[1]	68,711,010
6.	Pool's 2018/19 Non-Investment (Gain)/Loss[1]	70,985,020
7.	Plan's Share of Pool's Investment (Gain)/Loss: [(1) - (2)] ÷ [(3) - (4)] × (5)	187,397
8.	Plan's Share of Pool's Non-Investment (Gain)/Loss: (1) ÷ (3) × (6)	191,300
9.	Plan's New (Gain)/Loss as of 6/30/2019: (7) + (8)	378,697
10.	Other Changes in the UAL[2]	0

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

[2] May include Golden Handshakes, Service Purchases, etc. See Schedule of Plan's Amortization Bases for details.

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

11.	Plan's UAL: (2) + (9) + (10)	$11,424,089
12.	Plan's Share of Pool's MVA: (1) - (11)	$38,146,773

Schedule of 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, 2019.
- The required employer contributions determined by the valuation are for the fiscal year beginning two years after the valuation date: fiscal year 2021-22.

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.

Reason for Base	Date Est.	Ramp Level 2021-22	Ramp Shape	Escala-tion Rate	Amort. Period	Balance 6/30/19	Expected Payment 2019-20	Balance 6/30/20	Expected Payment 2020-21	Balance 6/30/21	Minimum Required Payment 2021-22
Share of Pre-2013 Pool UAL	6/30/13	No Ramp		2.75%	15	1,160,831	437,053	789,998	68,024	774,933	69,894
Non-Investment (Gain)/Loss	6/30/13	100%	Up/Down	2.75%	24	(45,911)	(3,080)	(45,939)	(3,116)	(45,932)	(3,202)
Investment (Gain)/Loss	6/30/13	100%	Up/Down	2.75%	24	4,977,717	333,890	4,980,779	337,881	4,979,927	347,173
Non-Investment (Gain)/Loss	6/30/14	100%	Up/Down	2.75%	25	4,143	220	4,205	278	4,212	286
Investment (Gain)/Loss	6/30/14	100%	Up/Down	2.75%	25	(3,625,872)	(192,469)	(3,680,592)	(243,386)	(3,686,473)	(250,079)
Assumption Change	6/30/14	100%	Up/Down	2.75%	15	2,310,771	171,862	2,294,750	218,206	2,229,668	224,207
Non-Investment (Gain)/Loss	6/30/15	100%	Up/Down	2.75%	26	(187,415)	(7,479)	(192,798)	(10,084)	(195,863)	(12,952)
Investment (Gain)/Loss	6/30/15	100%	Up/Down	2.75%	26	2,192,321	87,492	2,255,281	117,960	2,291,132	151,505
Non-Investment (Gain)/Loss	6/30/16	80%	Up/Down	2.75%	27	(339,447)	(9,170)	(353,723)	(13,901)	(364,104)	(19,044)
Investment (Gain)/Loss	6/30/16	80%	Up/Down	2.75%	27	2,608,751	70,475	2,718,464	106,832	2,798,249	146,360
Assumption Change	6/30/16	80%	Up/Down	2.75%	17	834,720	30,810	861,280	46,892	873,064	64,242
Non-Investment (Gain)/Loss	6/30/17	60%	Up/Down	2.75%	28	(69,211)	(962)	(73,061)	(1,942)	(76,166)	(2,993)
Investment (Gain)/Loss	6/30/17	60%	Up/Down	2.75%	28	(1,262,650)	(17,542)	(1,332,890)	(35,430)	(1,389,543)	(54,607)
Assumption Change	6/30/17	60%	Up/Down	2.75%	18	906,955	17,131	952,721	34,741	983,475	53,545
Non-Investment (Gain)/Loss	6/30/18	40%	Up/Down	2.75%	29	196,034	0	209,756	2,865	221,475	5,887
Investment (Gain)/Loss	6/30/18	40%	Up/Down	2.75%	29	(370,090)	0	(395,996)	(5,408)	(418,122)	(11,114)
Assumption Change	6/30/18	40%	Up/Down	2.75%	19	1,370,345	(27,483)	1,494,698	27,868	1,570,500	57,269

Schedule of Plan's Amortization Bases (continued)

Reason for Base	Date Est.	Ramp Level 2021-22	Ramp Shape	Escala-tion Rate	Amort. Period	Balance 6/30/19	Expected Payment 2019-20	Balance 6/30/20	Expected Payment 2020-21	Balance 6/30/21	Minimum Required Payment 2021-22
Method Change	6/30/18	40%	Up/Down	2.75%	19	383,400	(1,818)	412,119	7,684	433,019	15,790
Non-Investment (Gain)/Loss	6/30/19	No Ramp		0.00%	20	191,300	0	204,691	0	219,019	19,986
Investment (Gain)/Loss	6/30/19	20%	Up Only	0.00%	20	187,397	0	200,515	0	214,551	4,691
Total						**11,424,089**	**888,930**	**11,304,258**	**655,964**	**11,417,021**	**806,844**

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

Amortization Schedule and Alternatives

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

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

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

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

In any year when one of the above scenarios occurs, the actuary will consider corrective action such as replacing the existing unfunded liability bases with a single "fresh start" base and amortizing it over 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		20 Year Amortization		15 Year Amortization	
Date	**Balance**	**Payment**	**Balance**	**Payment**	**Balance**	**Payment**
6/30/2021	11,417,021	806,844	11,417,021	1,041,838	11,417,021	1,211,831
6/30/2022	11,381,605	915,711	11,138,527	1,041,838	10,962,685	1,211,831
6/30/2023	11,231,098	979,155	10,840,538	1,041,838	10,476,545	1,211,831
6/30/2024	11,004,432	1,046,627	10,521,690	1,041,839	9,956,375	1,211,831
6/30/2025	10,692,102	1,079,035	10,180,522	1,041,838	9,399,794	1,211,831
6/30/2026	10,324,385	1,107,514	9,815,473	1,041,839	8,804,252	1,211,831
6/30/2027	9,901,471	1,136,777	9,424,869	1,041,838	8,167,022	1,211,831
6/30/2028	9,418,681	1,166,843	9,006,924	1,041,838	7,485,186	1,211,831
6/30/2029	8,870,995	1,197,734	8,559,723	1,041,839	6,755,621	1,211,831
6/30/2030	8,253,018	1,229,478	8,081,217	1,041,838	5,974,987	1,211,830
6/30/2031	7,558,947	1,262,098	7,569,217	1,041,839	5,139,709	1,211,830
6/30/2032	6,782,549	1,235,174	7,021,376	1,041,839	4,245,962	1,211,831
6/30/2033	5,979,652	1,205,853	6,435,186	1,041,839	3,289,652	1,211,831
6/30/2034	5,150,882	1,151,162	5,807,962	1,041,838	2,266,400	1,211,831
6/30/2035	4,320,673	1,066,494	5,136,834	1,041,839	1,171,520	1,211,830
6/30/2036	3,519,931	816,457	4,418,726	1,041,839		
6/30/2037	2,921,775	728,994	3,650,350	1,041,838		
6/30/2038	2,372,221	636,134	2,828,189	1,041,839		
6/30/2039	1,880,255	563,821	1,948,476	1,041,838		
6/30/2040	1,428,652	516,970	1,007,184	1,041,839		
6/30/2041	993,899	368,191				
6/30/2042	682,613	345,022				
6/30/2043	373,504	269,966				
6/30/2044	120,395	124,538				
6/30/2045						
6/30/2046						
6/30/2047						
6/30/2048						
6/30/2049						
6/30/2050						
Total		**20,956,592**		**20,836,770**		**18,177,462**
Interest Paid		**9,539,571**		**9,419,749**		**6,760,441**
Estimated Savings				**119,822**		**2,779,130**

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
2021 - 22	12.73%	806,844

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
06/30/2019	49,570,862	38,146,773	11,424,089	77.0%	3,851,971

Risk Analysis

- **Future Investment Return Scenarios**
- **Discount Rate Sensitivity**
- **Mortality Rate Sensitivity**
- **Maturity Measures**
- **Maturity Measures History**
- **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 (2019-20, 2020-21, 2021-22 and 2022-23). 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 2019-20, 2020-21, 2021-22, and 2022-23, each scenario assumes an alternate fixed annual return. The fixed return assumptions for the five scenarios are 1.0%, 4.0%, 7.0%, 9.0% and 12.0%.

These alternate investment returns were chosen based on stochastic analysis of possible future investment returns over the four-year period ending June 30, 2023. 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% had an average annual return of 4.0% 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% or greater than 12.0% over this four-year period, the likelihood of a single investment return less than 1.0% or greater than 12.0% in any given year is much greater.

Assumed Annual Return From 2019-20 through 2022-23	**Projected Employer Contributions**			
	2022-23	**2023-24**	**2024-25**	**2025-26**
1.0%				
Normal Cost	12.7%	12.7%	12.7%	12.7%
UAL Contribution	$973,000	$1,151,000	$1,392,000	$1,656,000
4.0%				
Normal Cost	12.7%	12.7%	12.7%	12.7%
UAL Contribution	$944,000	$1,066,000	$1,223,000	$1,376,000
7.0%				
Normal Cost	12.7%	12.7%	12.7%	12.7%
UAL Contribution	$916,000	$979,000	$1,047,000	$1,079,000
9.0%				
Normal Cost	13.0%	13.3%	13.5%	13.8%
UAL Contribution	$901,000	$938,000	$964,000	$939,000
12.0%				
Normal Cost	13.0%	13.3%	13.5%	13.8%
UAL Contribution	$873,000	$849,000	$779,000	$617,000

These projections reflect the impact of the CalPERS risk mitigation policy, which reduces the discount rate when investment returns exceed specified trigger points.

Discount Rate Sensitivity

The discount rate assumption is calculated as the sum of the assumed real rate of return and the assumed annual price inflation, currently 4.50% and 2.50%, respectively. Changing either the price inflation assumption or the real rate of return assumption will change the discount rate. The sensitivity of the valuation results to the discount rate assumption depends on which component of the discount rate is changed. Shown below are various valuation results as of June 30, 2019 assuming alternate discount rates by changing the two components independently. Results are shown using the current discount rate of 7.0% as well as alternate discount rates of 6.0% and 8.0%. The rates of 6.0% and 8.0% were selected since they illustrate the impact of a 1.0% increase or decrease to the 7.0% assumption.

Sensitivity to the Real Rate of Return Assumption

As of June 30, 2019	1% Lower Real Return Rate	Current Assumptions	1% Higher Real Return Rate
Discount Rate	**6.0%**	**7.0%**	**8.0%**
Inflation	2.5%	2.5%	2.5%
Real Rate of Return	**3.5%**	**4.5%**	**5.5%**
a) Total Normal Cost	25.88%	20.69%	16.73%
b) Accrued Liability	$56,052,280	$49,570,862	$44,190,093
c) Market Value of Assets	$38,146,773	$38,146,773	$38,146,773
d) Unfunded Liability/(Surplus) [(b) - (c)]	$17,905,507	$11,424,089	$6,043,320
e) Funded Status	68.1%	77.0%	86.3%

Sensitivity to the Price Inflation Assumption

As of June 30, 2019	1% Lower Inflation Rate	Current Assumptions	1% Higher Inflation Rate
Discount Rate	**6.0%**	**7.0%**	**8.0%**
Inflation	**1.5%**	**2.5%**	**3.5%**
Real Rate of Return	4.5%	4.5%	4.5%
a) Total Normal Cost	22.09%	20.69%	19.05%
b) Accrued Liability	$52,104,411	$49,570,862	$46,142,258
c) Market Value of Assets	$38,146,773	$38,146,773	$38,146,773
d) Unfunded Liability/(Surplus) [(b) - (c)]	$13,957,638	$11,424,089	$7,995,485
e) Funded Status	73.2%	77.0%	82.7%

Mortality Rate Sensitivity

The following table looks at the change in the June 30, 2019 plan costs and funded ratio under two different longevity scenarios, namely assuming post-retirement rates of mortality are 10% lower or 10% higher than our current mortality assumptions adopted in 2017. This type of analysis highlights the impact on the plan of improving or worsening mortality over the long-term.

As of June 30, 2019	10% Lower Mortality Rates	Current Assumptions	10% Higher Mortality Rates
a) Total Normal Cost	21.04%	20.69%	20.37%
b) Accrued Liability	$50,647,811	$49,570,862	$48,581,122
c) Market Value of Assets	$38,146,773	$38,146,773	$38,146,773
d) Unfunded Liability/(Surplus) [(b) - (c)]	$12,501,038	$11,424,089	$10,434,349
e) Funded Status	75.3%	77.0%	78.5%

Maturity Measures

As pension plans mature they become more sensitive to risks. Understanding plan maturity and how it affects the ability of a pension plan 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 60%-65%.

Ratio of Retiree Accrued Liability to Total Accrued Liability	**June 30, 2018**	**June 30, 2019**
1. Retired Accrued Liability	29,204,675	28,845,408
2. Total Accrued Liability	48,169,015	49,570,862
3. Ratio of Retiree AL to Total AL [(1) / (2)]	0.61	0.58

Another measure of maturity level of CalPERS and its plans is to look at the ratio of actives to retirees, also called the Support Ratio. A pension plan in its infancy will have a very high ratio of active to retired members. As the plan matures, and members retire, the ratio 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, 2018**	**June 30, 2019**
1. Number of Actives	51	50
2. Number of Retirees	79	77
3. Support Ratio [(1) / (2)]	0.65	0.65

Maturity Measures (Continued)

The actuarial calculations supplied in this communication are based on various assumptions about long-term demographic and economic behavior. Unless these assumptions (e.g., terminations, deaths, disabilities, retirements, salary growth, 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)

Shown in the table below is the asset volatility ratio (AVR), which is the ratio of market value of assets to payroll. Plans that have higher AVR experience more volatile employer contributions (as a percentage of payroll) due to investment return. For example, a plan with 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. 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)

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

Contribution Volatility	June 30, 2018	June 30, 2019
1. Market Value of Assets	$33,353,036	$38,146,773
2. Payroll	3,790,313	3,851,971
3. Asset Volatility Ratio (AVR) [(1) / (2)]	8.8	9.9
4. Accrued Liability	$48,169,015	$49,570,862
5. Liability Volatility Ratio (LVR) [(4) / (2)]	12.7	12.9

Maturity Measures History

Valuation Date	Ratio of Retiree Accrued Liability to Total Accrued Liability	Support Ratio	Asset Volatility Ratio	Liability Volatility Ratio
06/30/2017	0.63	0.66	8.6	12.1
06/30/2018	0.61	0.65	8.8	12.7
06/30/2019	0.58	0.65	9.9	12.9

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, 2019. 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 limiting the funding risk. However, this asset allocation has a lower expected rate of return than the PERF and consequently, a lower discount rate is assumed. The lower discount rate for the Terminated Agency Pool results in higher liabilities for terminated plans.

The effective termination discount rate will depend on actual market rates of return for risk-free securities on the date of termination. As market discount rates are variable, the table below shows a range for the hypothetical termination liability based on the lowest and highest interest rates observed during an approximate 19-month period from 12 months before the valuation date to 7 months after.

Market Value of Assets (MVA)	Hypothetical Termination Liability[1,2] @ 1.75%	Funded Status	Unfunded Termination Liability @ 1.75%	Hypothetical Termination Liability[1,2] @ 3.25%	Funded Status	Unfunded Termination Liability @ 3.25%
$38,146,773	$94,316,159	40.5%	$56,169,386	$75,937,447	50.2%	$37,790,674

[1] The hypothetical liabilities calculated above include a 5% 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 2.31% on June 30, 2019, and was 1.83% on January 31, 2020.

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, 2018	**June 30, 2019**
Reported Payroll	$3,790,313	$3,851,971
Projected Payroll for Contribution Purposes	$4,111,692	$4,178,578
Number of Members		
Active	51	50
Transferred	14	14
Separated	21	21
Retired	79	77

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 Section 2.

	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		
Social Security Coverage	No	No		
Full/Modified	Full	Full		
Employee Contribution Rate		8.00%		
Final Average Compensation Period	One Year	One Year		
Sick Leave Credit	Yes	Yes		
Non-Industrial Disability	Improved	Improved		
Industrial Disability	Increased	Increased		
Pre-Retirement Death Benefits				
Optional Settlement 2	Yes	Yes		
1959 Survivor Benefit Level	Level 3	Level 3		
Special	Yes	Yes		
Alternate (firefighters)	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

Risk Pool Actuarial Valuation Information

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 2020

PEPRA Miscellaneous Plan of the Sacramento-Yolo Mosquito and Vector Control District
(CalPERS ID: 1375523307)
Annual Valuation Report as of June 30, 2019

Dear Employer,

Attached to this letter, you will find the June 30, 2019 actuarial valuation report of your CalPERS pension plan. **Provided in this report is the determination of the minimum required employer contributions for fiscal year 2021-22**. 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, 2019.

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, 2019 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, 2020.

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 2021-22 along with estimates of the required contributions for fiscal year 2022-23. 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
2021-22	7.38%	$6,473	7.50%
Projected Results			
2022-23	*7.4%*	*$6,700*	*TBD*

The actual investment return for fiscal year 2019-20 was not known at the time this report was prepared. The projections above assume the investment return for that year would be 7.00%. ***To the extent the actual investment return for fiscal year 2019-20 differs from 7.00%, the actual contribution requirements for fiscal year 2022-23 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 2026-27.

Changes from Previous Year's Valuation

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 as a level dollar amount. In addition, the new policy does not utilize a 5-year ramp-up and ramp-down on Unfunded Accrued Liability (UAL) bases attributable to assumption and method changes and non-investment gains/losses. The new policy does not utilize a 5-year ramp-down on investment gains/losses. These changes apply only to new UAL bases established on or after June 30, 2019.

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

Questions

We understand that you might have some 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, 2020 to contact us with actuarial questions. If you have other questions, you may call the Customer Contact Center at (888)-CalPERS or (**888-225-7377**).

Sincerely,

SCOTT TERANDO
Chief Actuary

Actuarial Valuation
as of June 30, 2019

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

(CalPERS ID: 1375523307)

Required Contributions
for Fiscal Year
July 1, 2021 - June 30, 2022

Table of Contents

Section 1

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)

Table of Contents

Actuarial Certification

Section 1 of this report is based on the member and financial data contained in our records as of June 30, 2019 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, 2019 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 the Unfunded Accrued Liability amortization bases as of June 30, 2019 and employer contribution as of July 1, 2021 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

Highlights and Executive Summary

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

Introduction

This report presents the results of the June 30, 2019 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 2021-22.

Purpose of Section 1

This Section 1 report for the PEPRA Miscellaneous Plan of the Sacramento-Yolo Mosquito and Vector Control District of CalPERS was prepared by the plan actuary in order to:

- Set forth the assets and accrued liabilities of this plan as of June 30, 2019;
- Determine the minimum required employer contribution for this plan for the fiscal year July 1, 2021 through June 30, 2022; and
- Provide actuarial information as of June 30, 2019 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.

Assessment and Disclosure of Risk

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

- A "Scenario Test," projecting future results under different investment income returns.
- A "Sensitivity Analysis," showing the impact on current valuation results using alternative discount rates of 6.0% and 8.0%.
- A "Sensitivity Analysis," showing the impact on current valuation results assuming rates of mortality are 10% lower or 10% higher than our current mortality assumptions adopted in 2017.
- Plan maturity measures indicating how sensitive a plan may be to the risks noted above.

Required Employer Contributions

Required Employer Contributions	Fiscal Year 2021-22
Employer Normal Cost Rate	**7.38%**
Plus, Either	
1) Monthly Employer Dollar UAL Payment	**$539.42**
Or	
2) Annual UAL Prepayment Option*	**$6,258**

*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 2020-21	Fiscal Year 2021-22
Development of Normal Cost as a Percentage of Payroll[1]		
Base Total Normal Cost for Formula	14.482%	14.34%
Surcharge for Class 1 Benefits[2]		
a) 75% IDR	0.544%	0.54%
Phase out of Normal Cost Difference[3]	0.000%	0.00%
Plan's Total Normal Cost	15.026%	14.88%
Plan's Employee Contribution Rate[4]	7.500%	7.50%
Employer Normal Cost Rate	7.526%	7.38%
Projected Payroll for the Contribution Fiscal Year	$947,374	$1,220,721
Estimated Employer Contributions Based on Projected Payroll		
Plan's Estimated Employer Normal Cost	$71,299	$90,089
Plan's Payment on Amortization Bases[5]	5,975	6,473
% of Projected Payroll (illustrative only)	0.631%	0.53%
Estimated Total Employer Contribution	$77,274	$96,562
% of Projected Payroll (illustrative only)	8.157%	7.91%

[1] The results shown for fiscal year 2020-21 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, 2019.

[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% for the first year of pooling and is incrementally reduced by 20% 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 Schedule of Plan's Amortization Bases.

Additional Discretionary Employer Contributions

The minimum required employer contribution towards the Unfunded Accrued Liability (UAL) for this rate plan for the 2021-22 fiscal year is $6,473. CalPERS allows employers to make additional discretionary payments (ADPs) at any time and in any amount. These optional payments serve to reduce the UAL and future required contributions and can result in significant long-term savings. Employers can also use ADPs to stabilize annual contributions as a fixed dollar amount, percent of payroll or percent of revenue.

Provided below are select ADP options for consideration. Making such an ADP during fiscal year 2021-22 does not require an ADP be made in any future year, nor does it change the remaining amortization period of any portion of unfunded liability. For information on permanent changes to amortization periods, see the "Amortization Schedule and Alternatives" section of the report.

If you are considering making an ADP, please contact your actuary for additional information.

Minimum Required Employer Contribution for Fiscal Year 2021-22

Estimated Normal Cost	Minimum UAL Payment	ADP	Total UAL Contribution	Estimated Total Contribution
$90,089	$6,473	$0	$6,473	$96,562

Alternative Fiscal Year 2021-22 Employer Contributions for Greater UAL Reduction

Funding Target	Estimated Normal Cost	Minimum UAL Payment	ADP[1]	Total UAL Contribution	Estimated Total Contribution
15 years	$90,089	$6,473	$1,049	$7,522	$97,611
10 years	$90,089	$6,473	$3,282	$9,755	$99,844
5 years	$90,089	$6,473	$10,237	$16,710	$106,799

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

Note that the calculations above are based on the projected Unfunded Accrued Liability as of June 30, 2021 as determined in the June 30, 2019 actuarial valuation. New unfunded liabilities can emerge in future years due to assumption or method changes, changes in plan provisions and actuarial experience different than assumed. Making an ADP illustrated above for the indicated number of years will not result in a plan that is exactly 100% funded in the indicated number of years. Valuation results will vary from one year to the next and can diverge significantly from projections over a period of several years.

Plan's Funded Status

	June 30, 2018	June 30, 2019
1. Present Value of Projected Benefits (PVB)	$1,737,945	$2,240,096
2. Entry Age Normal Accrued Liability (AL)	489,042	648,653
3. Plan's Market Value of Assets (MVA)	447,456	586,733
4. Unfunded Accrued Liability (UAL) [(2) - (3)]	41,586	61,920
5. Funded Ratio [(3) / (2)]	91.5%	90.5%

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 the required and projected employer contributions (before cost sharing) for the next six fiscal years. The projection assumes that all actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur during the projection period. As of the preparation date of this report, the year to date return for the 2019-20 fiscal year was well below the 7% assumed return. Actual contribution rates during this projection period could be significantly higher than the projection shown below.

	Required Contribution	**Projected Future Employer Contributions (Assumes 7.00% Return for Fiscal Year 2019-20)**				
Fiscal Year	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**2026-27**
Normal Cost %	7.38%	7.4%	7.4%	7.4%	7.4%	7.4%
UAL Payment	$6,473	$6,700	$7,000	$7,200	$7,500	$7,700

For some sources of UAL, the change in UAL is 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. This method phases in the impact of the change in UAL over a 5-year period in order to reduce employer cost volatility from year to year. As a result of this methodology, dramatic changes in the required employer contributions in any one year are less likely. However, required contributions can change gradually and significantly over the next five years. In years when there is a large 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.

Cost

Actuarial Determination of Pension Plan Cost

Contributions to fund the pension plan are comprised of two components:

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

For fiscal years prior to FY 2016-17, the Amortization of UAL component was expressed as a percentage of total active payroll. Starting with FY 2016-17, the Amortization of UAL component was expressed as a dollar amount and invoiced on a monthly basis. There continues to be an option to prepay this amount during July of each fiscal year.

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

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

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

These assumptions reflect CalPERS' best estimate of future experience of the plan and are long term in nature. We recognize that all assumptions will not be realized in any given year. For example, the investment earnings at CalPERS have averaged 5.8% over the 20 years ending June 30, 2019, yet individual fiscal year returns have ranged from -23.6% to +20.7%. In addition, CalPERS reviews all actuarial assumptions by conducting in-depth experience studies every four years, with the most recent experience study completed in 2017.

Changes Since the Prior Year's Valuation

Benefits

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

This valuation generally reflects plan changes by amendments effective before the date of the report. Please refer to the "Plan's Major Benefit Options" and Appendix B for a summary of the plan provisions used in this valuation. The effect of any mandated benefit changes or plan amendments on the unfunded liability is shown in the "(Gain)/Loss Analysis" and the effect on the employer contribution is shown in the "Reconciliation of Required Employer Contributions." It should be noted that no change in liability or contribution is shown for any plan changes which were already included in the prior year's valuation.

Actuarial Methods and Assumptions

The CalPERS Board of Administration adopted a new amortization policy effective with this 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 as a level dollar amount. In addition, the new policy does not utilize a 5-year ramp-up and ramp-down on UAL bases attributable to assumption and method changes and non-investment gains/losses. The new policy also does not utilize a 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, 2017. 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.

Subsequent Events

The contribution requirements determined in this actuarial valuation report are based on demographic and financial information as of June 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 future required contributions while investment returns above the assumed rate of return will decrease future required contributions.

The projected employer contributions on Page 6 are calculated under the assumption that the discount rate remains at 7.0% going forward and that the realized rate of return on assets for fiscal year 2019-20 is 7.0%.

This actuarial valuation report reflects statutory changes, regulatory changes and CalPERS Board actions through January 2020. 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	$553,918
Transferred Members	79,633
Terminated Members	15,102
Members and Beneficiaries Receiving Payments	0
Total	$648,653

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	$648,653
2.	Projected UAL balance at 6/30/2019	56,537
3.	Pool's Accrued Liability[1]	18,394,114,919
4.	Sum of Pool's Individual Plan UAL Balances at 6/30/2019[1]	4,268,374,183
5.	Pool's 2018/19 Investment (Gain)/Loss[1]	68,711,010
6.	Pool's 2018/19 Non-Investment (Gain)/Loss[1]	70,985,020
7.	Plan's Share of Pool's Investment (Gain)/Loss: [(1) - (2)] ÷ [(3) - (4)] × (5)	2,880
8.	Plan's Share of Pool's Non-Investment (Gain)/Loss: (1) ÷ (3) × (6)	2,503
9.	Plan's New (Gain)/Loss as of 6/30/2019: (7) + (8)	5,383
10.	Other Changes in the UAL[2]	0

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

[2] May include Golden Handshakes, Service Purchases, etc. See Schedule of Plan's Amortization Bases for details.

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

11.	Plan's UAL: (2) + (9) + (10)	$61,920
12.	Plan's Share of Pool's MVA: (1) - (11)	$586,733

Schedule of 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, 2019.
- The required employer contributions determined by the valuation are for the fiscal year beginning two years after the valuation date: fiscal year 2021-22.

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.

Reason for Base	Date Est.	Ramp Level 2021-22	Ramp Shape	Escala-tion Rate	Amort. Period	Balance 6/30/19	Expected Payment 2019-20	Balance 6/30/20	Expected Payment 2020-21	Balance 6/30/21	Minimum Required Payment 2021-22
Fresh Start	6/30/18	No Ramp		2.75%	14	56,537	(5,565)	66,251	5,975	64,708	6,140
Non-Investment (Gain)/Loss	6/30/19	No Ramp		0.00%	20	2,503	0	2,678	0	2,865	261
Investment (Gain)/Loss	6/30/19	20%	Up Only	0.00%	20	2,880	0	3,082	0	3,298	72
Total						**61,920**	**(5,565)**	**72,011**	**5,975**	**70,871**	**6,473**

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

Amortization Schedule and Alternatives

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

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

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

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

In any year when one of the above scenarios occurs, the actuary will consider corrective action such as replacing the existing unfunded liability bases with a single “fresh start” base and amortizing it over 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**
6/30/2021	70,871	6,473	70,871	7,522	70,871	9,755
6/30/2022	69,136	6,715	68,051	7,522	65,741	9,755
6/30/2023	67,030	6,960	65,034	7,523	60,252	9,755
6/30/2024	64,522	7,209	61,805	7,523	54,379	9,755
6/30/2025	61,582	7,466	58,349	7,522	48,095	9,754
6/30/2026	58,170	7,655	54,653	7,523	41,372	9,755
6/30/2027	54,323	7,846	50,697	7,522	34,177	9,754
6/30/2028	50,010	8,047	46,465	7,523	26,480	9,755
6/30/2029	45,187	8,250	41,936	7,523	18,243	9,754
6/30/2030	39,816	8,459	37,090	7,522	9,430	9,754
6/30/2031	33,853	8,675	31,905	7,522		
6/30/2032	27,249	8,896	26,358	7,523		
6/30/2033	19,954	9,124	20,421	7,523		
6/30/2034	11,912	9,358	14,069	7,523		
6/30/2035	3,066	621	7,272	7,522		
6/30/2036	2,638	622				
6/30/2037	2,180	622				
6/30/2038	1,689	623				
6/30/2039	1,163	621				
6/30/2040	602	623				
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						
6/30/2050						
Total		**114,865**		**112,838**		**97,546**
Interest Paid		**43,994**		**41,967**		**26,675**
Estimated Savings				**2,027**		**17,319**

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
2021 - 22	7.38%	6,473

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
06/30/2019	648,653	586,733	61,920	90.5%	1,125,307

Risk Analysis

- **Future Investment Return Scenarios**
- **Discount Rate Sensitivity**
- **Mortality Rate Sensitivity**
- **Maturity Measures**
- **Maturity Measures History**
- **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 (2019-20, 2020-21, 2021-22 and 2022-23). 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 2019-20, 2020-21, 2021-22, and 2022-23, each scenario assumes an alternate fixed annual return. The fixed return assumptions for the five scenarios are 1.0%, 4.0%, 7.0%, 9.0% and 12.0%.

These alternate investment returns were chosen based on stochastic analysis of possible future investment returns over the four-year period ending June 30, 2023. 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% had an average annual return of 4.0% 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% or greater than 12.0% over this four-year period, the likelihood of a single investment return less than 1.0% or greater than 12.0% in any given year is much greater.

Assumed Annual Return From 2019-20 through 2022-23	**Projected Employer Contributions**			
	2022-23	**2023-24**	**2024-25**	**2025-26**
1.0%				
Normal Cost	7.4%	7.4%	7.4%	7.4%
UAL Contribution	$7,600	$9,600	$13,000	$16,000
4.0%				
Normal Cost	7.4%	7.4%	7.4%	7.4%
UAL Contribution	$7,200	$8,300	$9,900	$12,000
7.0%				
Normal Cost	7.4%	7.4%	7.4%	7.4%
UAL Contribution	$6,700	$7,000	$7,200	$7,500
9.0%				
Normal Cost	7.6%	7.7%	7.9%	8.1%
UAL Contribution	$6,500	$6,400	$6,100	$5,500
12.0%				
Normal Cost	7.6%	7.7%	7.9%	8.1%
UAL Contribution	$6,100	$5,000	$0	$0

These projections reflect the impact of the CalPERS risk mitigation policy, which reduces the discount rate when investment returns exceed specified trigger points.

Discount Rate Sensitivity

The discount rate assumption is calculated as the sum of the assumed real rate of return and the assumed annual price inflation, currently 4.50% and 2.50%, respectively. Changing either the price inflation assumption or the real rate of return assumption will change the discount rate. The sensitivity of the valuation results to the discount rate assumption depends on which component of the discount rate is changed. Shown below are various valuation results as of June 30, 2019 assuming alternate discount rates by changing the two components independently. Results are shown using the current discount rate of 7.0% as well as alternate discount rates of 6.0% and 8.0%. The rates of 6.0% and 8.0% were selected since they illustrate the impact of a 1.0% increase or decrease to the 7.0% assumption.

Sensitivity to the Real Rate of Return Assumption

As of June 30, 2019	1% Lower Real Return Rate	Current Assumptions	1% Higher Real Return Rate
Discount Rate	**6.0%**	**7.0%**	**8.0%**
Inflation	2.5%	2.5%	2.5%
Real Rate of Return	**3.5%**	**4.5%**	**5.5%**
a) Total Normal Cost	18.45%	14.88%	12.15%
b) Accrued Liability	$812,022	$648,653	$523,941
c) Market Value of Assets	$586,733	$586,733	$586,733
d) Unfunded Liability/(Surplus) [(b) - (c)]	$225,289	$61,920	($62,792)
e) Funded Status	72.3%	90.5%	112.0%

Sensitivity to the Price Inflation Assumption

As of June 30, 2019	1% Lower Inflation Rate	Current Assumptions	1% Higher Inflation Rate
Discount Rate	**6.0%**	**7.0%**	**8.0%**
Inflation	**1.5%**	**2.5%**	**3.5%**
Real Rate of Return	4.5%	4.5%	4.5%
a) Total Normal Cost	15.91%	14.88%	13.66%
b) Accrued Liability	$695,311	$648,653	$592,868
c) Market Value of Assets	$586,733	$586,733	$586,733
d) Unfunded Liability/(Surplus) [(b) - (c)]	$108,578	$61,920	$6,135
e) Funded Status	84.4%	90.5%	99.0%

Mortality Rate Sensitivity

The following table looks at the change in the June 30, 2019 plan costs and funded ratio under two different longevity scenarios, namely assuming post-retirement rates of mortality are 10% lower or 10% higher than our current mortality assumptions adopted in 2017. This type of analysis highlights the impact on the plan of improving or worsening mortality over the long-term.

As of June 30, 2019	10% Lower Mortality Rates	Current Assumptions	10% Higher Mortality Rates
a) Total Normal Cost	15.17%	14.88%	14.62%
b) Accrued Liability	$662,297	$648,653	$636,054
c) Market Value of Assets	$586,733	$586,733	$586,733
d) Unfunded Liability/(Surplus) [(b) - (c)]	$75,564	$61,920	$49,321
e) Funded Status	88.6%	90.5%	92.2%

Maturity Measures

As pension plans mature they become more sensitive to risks. Understanding plan maturity and how it affects the ability of a pension plan 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 60%-65%.

Ratio of Retiree Accrued Liability to Total Accrued Liability	**June 30, 2018**	**June 30, 2019**
1. Retired Accrued Liability	0	0
2. Total Accrued Liability	489,042	648,653
3. Ratio of Retiree AL to Total AL [(1) / (2)]	0.00	0.00

Another measure of maturity level of CalPERS and its plans is to look at the ratio of actives to retirees, also called the Support Ratio. A pension plan in its infancy will have a very high ratio of active to retired members. As the plan matures, and members retire, the ratio 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, 2018**	**June 30, 2019**
1. Number of Actives	15	19
2. Number of Retirees	0	0
3. Support Ratio [(1) / (2)]	N/A	N/A

Maturity Measures (Continued)

The actuarial calculations supplied in this communication are based on various assumptions about long-term demographic and economic behavior. Unless these assumptions (e.g., terminations, deaths, disabilities, retirements, salary growth, 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)

Shown in the table below is the asset volatility ratio (AVR), which is the ratio of market value of assets to payroll. Plans that have higher AVR experience more volatile employer contributions (as a percentage of payroll) due to investment return. For example, a plan with 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. 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)

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

Contribution Volatility	**June 30, 2018**	**June 30, 2019**
1. Market Value of Assets	$447,456	$586,733
2. Payroll	873,325	1,125,307
3. Asset Volatility Ratio (AVR) [(1) / (2)]	0.5	0.5
4. Accrued Liability	$489,042	$648,653
5. Liability Volatility Ratio (LVR) [(4) / (2)]	0.6	0.6

Maturity Measures History

Valuation Date	Ratio of Retiree Accrued Liability to Total Accrued Liability	Support Ratio	Asset Volatility Ratio	Liability Volatility Ratio
06/30/2017	0.00	N/A	0.4	0.4
06/30/2018	0.00	N/A	0.5	0.6
06/30/2019	0.00	N/A	0.5	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, 2019. 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 limiting the funding risk. However, this asset allocation has a lower expected rate of return than the PERF and consequently, a lower discount rate is assumed. The lower discount rate for the Terminated Agency Pool results in higher liabilities for terminated plans.

The effective termination discount rate will depend on actual market rates of return for risk-free securities on the date of termination. As market discount rates are variable, the table below shows a range for the hypothetical termination liability based on the lowest and highest interest rates observed during an approximate 19-month period from 12 months before the valuation date to 7 months after.

Market Value of Assets (MVA)	Hypothetical Termination Liability[1,2] @ 1.75%	Funded Status	Unfunded Termination Liability @ 1.75%	Hypothetical Termination Liability[1,2] @ 3.25%	Funded Status	Unfunded Termination Liability @ 3.25%
$586,733	$1,433,826	40.9%	$847,093	$963,690	60.9%	$376,957

[1] The hypothetical liabilities calculated above include a 5% 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 2.31% on June 30, 2019, and was 1.83% on January 31, 2020.

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, 2018	June 30, 2019
Reported Payroll	$873,325	$1,125,307
Projected Payroll for Contribution Purposes	$947,374	$1,220,721
Number of Members		
Active	15	19
Transferred	2	3
Separated	1	2
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 Section 2.

	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	7.50%	
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 California Public Employees' Pension Reform Act of 2013 (PEPRA) established new benefit formulas, final compensation period, and contribution requirements for "new" employees (generally those first hired into a CalPERS-covered position on or after January 1, 2013). In accordance with Government Code Section 7522.30(b), "new members … shall have an initial contribution rate of at least 50% of the normal cost rate." The normal cost rate is dependent on the plan of retirement benefits, actuarial assumptions and demographics of the risk pool, particularly members' entry age. Should the total normal cost rate change by more than 1% from the base total normal cost rate, the new member rate shall be 50% of the new normal cost rate rounded to the nearest quarter percent.

The table below shows the determination of the PEPRA member contribution rates effective July 1, 2021, based on 50% of the total normal cost rate as of the June 30, 2019 valuation.

		Basis for Current Rate		Rates Effective July 1, 2021			
Rate Plan Identifier	**Benefit Group Name**	**Total Normal Cost**	**Member Rate**	**Total Normal Cost**	**Change**	**Change Needed**	**Member Rate**
26232	Miscellaneous PEPRA Level	15.026%	7.50%	14.88%	(0.146 %)	No	7.50%

Section 2

CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

Risk Pool Actuarial Valuation Information

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

This page intentionally left blank