SPECIAL MEETING OF THE BOARD OF TRUSTEES
OF THE CONSOLIDATED MOSQUITO ABATEMENT DISTRICT
13151 E. Industrial Dr., Parlier, CA 93648

AGENDA

BOARD OF TRUSTEES MEETING **1:00 PM** **TUESDAY, FEBRUARY 18, 2020**

1. **ROLL CALL:**

2. **INTRODUCTION OF VISITORS:**
   The public may address the Board on each agenda item during consideration of that item.

3. **PUBLIC COMMENTS:**
   This is an opportunity for public comment on non-agenda items. The President reserves the right to limit the duration of each speaker to five (5) minutes. It is the policy of the Board not to answer any questions impromptu.

4. **APPROVAL OF JANUARY MINUTES:**
   The minutes of the Special Meeting of the Board of Trustees on January 21, 2020, will be presented for approval.

5. **APPROVAL OF JANUARY PAYROLL:**

6. **APPROVAL OF JANUARY BILLS:**

7. **REEDLEY DEPOT PROPERTY:**
   The Board will consider a Phase 1 Environmental Site Assessment and appraisal for the potential sale of the Reedley property.

8. **RESOLUTION TO TRANSFER FUNDS:**
   The Board will consider a resolution to transfer monies from the General Reserve to specific budget line item accounts.

9. **CALPERS ACTUARIAL VALUATION:**
   The Board will consider the District's pension plan actuarial valuation report and consider a resolution to transfer monies from the Contingent Liability Reserve to reduce the unfunded actuarial liabilities.

10. **DISPOSITION OF SURPLUS VEHICLES:**

The Board will be asked to declare as surplus and to sell or dispose of one 1999 Ford F150 truck, one 2004 Ford F150 truck, two 2007 Chevrolet Colorado trucks, and one 2009 Chevrolet Colorado truck.

11. **DISTRICT PARTICIPATION AT UPCOMING MEETINGS:**

a. Wide Area Larviciding System (WALS) workshop on February 25, 2020 in Sacramento,

b. MVCAC Spring Quarterly Meeting and Legislative Day on March 2 – 4, 2020 in Sacramento; and

c. AMCA Washington Conference in Washington, D.C. on May 12 – 13, 2020.

12. **CHANGE MARCH MEETING DATE:**

The Board will be asked to cancel the regular March Board meeting and call for a special meeting of the Board.

13. **MEETING REPORTS:**

Reports on District attendance at authorized meetings will be given by those who attended.

14. **BOARD GENERAL DISCUSSION:**

This is an opportunity for Board Members to ask questions for clarification, provide information to staff, request staff to report back on a matter or direct staff to place a matter on a subsequent agenda.

15. **STAFF REPORTS:**

This is an opportunity for staff to report on District activities.

16. **ADJOURNMENT:**

MINUTES OF THE BOARD OF TRUSTEES OF
THE CONSOLIDATED MOSQUITO ABATEMENT DISTRICT
January 21, 2020

The special meeting of the Board of Trustees of the Consolidated Mosquito Abatement District was held at the District Office, in Parlier, at 1:00 PM on January 21, 2020.

1. **Roll Call:**

Trustees Present:

Peggy Brisendine	Fresno	
Pete Esraelian	Selma	Arrived at 1:15 PM
Tokuo Fukuda	Kingsburg	
Mary Anne Hill	County	
Charles Lockhart	Orange Cove	
Dan Munk	Reedley	
Karl Peterson	Clovis	
Joe Reyna	Parlier	
Karen Steinhauer	Sanger	
Bruce Taylor	County	

Trustees Absent:

David Cardenas	Fowler

Others Present:

Steve Mulligan	District Manager
Karan Cox	Administrative Assistant

2. **President Munk called the meeting to order at 1:04 PM:**

3. **Public Comments:** None.

4. **Approval of December Minutes:** A motion was made by Trustee Taylor, seconded by Trustee Fukuda and passed by unanimous vote to approve the minutes of the December 16, 2019 Board meeting.

5. **Approval of December Payroll:** A motion was made by Trustee Reyna, seconded by Trustee Brisendine and passed by unanimous vote to approve the December payroll checks having District numbers 23872 – 23891, 23906 – 23938, 23953 in the total amount of $103,540.23.

6. **Approval of December Bills:** A motion was made by Trustee Hill, seconded by Trustee Fukuda and passed by unanimous vote to approve the December commercial checks having District numbers 23887 – 23888, 23892 – 23905, 23933 – 23934 and 23939 – 23992 in the total amount of $102,120.32.

7. **Election of Board Officers for 2020:** Esraelian arrived. President Munk authorized Manager Mulligan to conduct the election of officers for 2020. Officers to be elected were President and Vice President/Secretary.

Trustee Fukuda nominated Trustee Munk for President. With no further nominations, a motion was made by Trustee Taylor, seconded by Trustee Reyna and passed by unanimous vote to close nominations and to cast a unanimous ballot to elect Trustee Munk as President.

Trustee Esraelian nominated Trustee Steinhauer for Vice President/Secretary. With no further nominations, a motion was made by Trustee Taylor, seconded by Trustee Hill and passed by unanimous vote to close nominations and to cast a unanimous ballot to elect Trustee Steinhauer as Vice President/Secretary.

8. **Committee Appointments for 2020:** President Munk presented the following list of committees and members for 2020:

BUDGET	BUILDING	EQUIPMENT
Esraelian	Hill	Brisendine
Fukuda	Reyna	Cardenas
Reyna	Steinhauer	Lockhart
Taylor	Taylor	Peterson
Munk	Munk	Munk

9. **Authorization of Individuals to Sign District Checks:** A motion was made by Trustee Reyna, seconded by Trustee Brisendine and passed by unanimous vote to authorize the following persons to sign District checks:

Dan Munk	President
Karen Steinhauer	Vice President/Secretary
David Cardenas	Trustee
Pete Esraelian	Trustee
Tokuo Fukuda	Trustee
Joe Reyna	Trustee
Bruce Taylor	Trustee
Steve Mulligan	Manager

10. **Statement of Economic Interest:** Each trustee received a Statement of Economic Interest Form 700 that is required to be completed and returned to the District office by April 1, 2020.

11. **Quarterly Investment Report:** A motion was made by Trustee Hill, seconded by Trustee Esraelian and passed by unanimous vote to accept the quarterly investment report for the quarter ending December 31, 2019, as presented by the Manager.

12. **Trustee Attendance Record:** A record of trustee attendance at District meetings during 2019 was distributed to the Board.

13. **Warrant to Inspect and Abate:** A motion was made by Trustee Taylor, seconded by Trustee Esraelian and passed by unanimous vote to approve the submission of an application to the Fresno County Superior Court for an area-wide Inspection and Abatement Warrant and to authorize use of the warrant by District staff to enter private property for mosquito surveillance and control purposes.

14. **Reedley Depot Property:** After discussion, the Board made a determination to pursue the sale of the Reedley Depot property. A motion was made by Trustee Fukuda, seconded by Trustee Taylor and passed by unanimous vote to approve contracting with a geotechnical firm to conduct a Phase 1 Environmental Site Assessment of the Reedley property.

15. **Fresno Home & Garden Show:** A motion was made by Trustee Peterson, seconded by Trustee Brisendine and passed by unanimous vote to authorize District participation at the Fresno Home & Garden Show on March 6 – 8, 2020, for public information and outreach.

16. **District Participation at Meetings:** A motion was made by Trustee Reyna, seconded by Trustee Hill and passed by unanimous vote to authorize Area Supervisor Monis to attend the ATV Instructor Preparation and UTV Driver Coach Preparation Course in Rancho Cordova on February 19 – 22 and February 24 – 27, 2020.

    A motion was made by Trustee Lockhart, seconded by Trustee Fukuda and passed by unanimous vote to approve GIS Coordinator Schaak to attend the Esri User Conference in San Diego on July 13 – 17, 2020.

17. **Manager Participation at International Meeting:** A motion was made by Trustee Esraelian, seconded by Trustee Fukuda and passed by a vote of 9 – 1 (Taylor opposed) to authorize Manager Mulligan to attend and participate at the SOVE Indian Region Meeting and Training Workshop in Puducherry, India on March 9 – 13, 2020.

18. **Trustee Reappointments:** Manager Mulligan informed the Board that Trustees Esraelian, Fukuda and Steinhauer have been reappointed by the Cities of Selma, Kingsburg and Sanger for 4-year terms and that the City of Orange Cove has appointed Charles Lockhart to a 2-year term.

19. **Change February Meeting Date:** A motion was made by Trustee Fukuda, seconded by Trustee Reyna and passed by unanimous vote to cancel the regular February Board meeting, due to the President's Day holiday, and to set a special meeting of the Board for Tuesday, February 18, 2020, at 1:00 PM.

20. **Board General Discussion:** The Board discussed changing the March meeting date, as the AMCA Annual Meeting date overlaps.

21. **Staff Reports:** A monthly summary of District activities was presented to the Board.

    Manager Mulligan informed the Board that the District has three new regular full-time employees: Associate Biologist Jovana Benavides, Area Supervisor Devon Cornel, and GIS Coordinator Conner Schaak.

22. **Adjournment:** The meeting was adjourned at 2:48 PM. The next Board meeting will be held on Tuesday, February 18, 2020.

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Karen Steinhauer
Vice President/Secretary

Consolidated Mosquito Abatement District
Payroll Expenses
January 2020

Check #	Gross Pay	Net Pay	Payee	Description
23993	$2,447.28	$1,646.59	Amy Garcia	Full-Time Employee
23994	$2,523.50	$1,749.60	Brittany Deegan	Full-Time Employee
23995	$2,649.00	$1,927.25	Chris Monis	Full-Time Employee
23996	$1,652.48	$1,243.34	Conner Schaak	Full-Time Employee
23997	$2,649.00	$1,809.39	David Parker	Full-Time Employee
23998	$2,436.00	$1,702.41	Devon Cornel	Full-Time Employee
23999	$3,000.50	$1,955.92	Emma Lee	Full-Time Employee
24000	$2,649.00	$1,838.36	Gha Vang	Full-Time Employee
24001	$4,200.00	$3,006.06	Jodi Holeman	Full-Time Employee
24002	$2,649.00	$1,577.38	Jose Moreno	Full-Time Employee
24003	$2,238.00	$1,593.34	Jovana Benavides	Full-Time Employee
24004	$2,781.50	$1,900.51	Karan Cox	Full-Time Employee
24005	$3,655.00	$2,303.14	Katherine Ramirez	Full-Time Employee
24006	$6,000.00	$4,066.39	Steve Mulligan	Full-Time Employee
24038	$2,669.76	$1,790.58	Amy Garcia	Full-Time Employee
24039	$2,523.50	$1,749.61	Brittany Deegan	Full-Time Employee
24040	$2,649.00	$1,927.70	Chris Monis	Full-Time Employee
24041	$2,401.26	$1,717.13	Conner Schaak	Full-Time Employee
24042	$2,649.00	$1,809.40	David Parker	Full-Time Employee
24043	$2,436.00	$1,702.41	Devon Cornel	Full-Time Employee
24044	$3,000.50	$1,955.71	Emma Lee	Full-Time Employee
24045	$2,649.00	$1,838.60	Gha Vang	Full-Time Employee
24046	$4,200.00	$3,006.05	Jodi Holeman	Full-Time Employee
24047	$2,649.00	$1,578.08	Jose Moreno	Full-Time Employee
24048	$2,238.00	$1,593.35	Jovana Benavides	Full-Time Employee
24049	$2,781.50	$1,900.50	Karan Cox	Full-Time Employee
24050	$3,655.00	$2,303.83	Katherine Ramirez	Full-Time Employee
24051	$6,000.00	$4,066.15	Steve Mulligan	Full-Time Employee
Total	**$84,031.78**	**$57,258.78**		

Consolidated Mosquito Abatement District
Payroll Expenses
January 2020

Employee Deductions and Liabilities

Check #	Amount	Payee	Description
24007	$1,560.92	EDD	State Income Tax
24009	$7,544.51	CMAD	Federal, Social Security, Medicare
24010	$2,687.26	CalPERS	Retirement
24011	$725.00	ICMA	457K Retirement
24012	$150.00	Valley First Credit Union	Credit Union
24013	$150.00	California State Disbursement	Garnishment
24018	$337.08	Aflac	Disability Insurance
24052	$1,636.96	EDD	State Income Tax
24053	$7,813.80	CMAD	Federal, Social Security, Medicare
24054	$2,753.37	CalPERS	Retirement
24055	$725.00	ICMA	457K Retirement
24056	$150.00	Valley First Credit Union	Credit Union
24057	$150.00	California State Disbursement	Garnishment
24065	$86.96	Mutual of Omaha	Life Insurance
24071	$151.07	CalPERS	Retirement
24072	$151.07	CalPERS	Retirement
Total Deductions	**$26,773.00**		
Total Net Pay	**$57,258.78**		
Total Gross Pay	**$84,031.78**		

Consolidated Mosquito Abatement District
Maintenance and Operations Expenses
January 2020

Bank of the West Checks

Check #	Amount	Payee	Description
24008	$504.72	EDD	Unemployment Insurance
24009	$3,193.13	CMAD	District Social Security & Medicare
24010	$3,102.74	CalPERS	District Retirement
24014	$750.00	Emma Lee	H S A 1st Quarter
24015	$750.00	Chris Monis	H S A 1st Quarter
24016	$750.00	David Parker	H S A 1st Quarter
24017	$0.00	Voided	Void
24019	$636.00	Fresno County Treasurer	Hazardous Material Fee
24020	$4,682.40	Mark Woodley	Fire System Repairs
24021	$577.00	City of Parlier	Water Sewer Disposal
24022	$1,384.24	PG&E	Heat Light Power
24023	$81.12	City of Reedley	Water Sewer Disposal
24024	$33.93	Republic Service	Disposal
24025	$132.16	City of Sanger	Water Sewer Disposal
24026	$680.00	Serpa Auto Center	Vehicle Repairs
24027	$9,708.36	SDRMA	Health Insurance Premium
24028	$571.33	SoCal Gas	Heat
24029	$827.79	Tokuo Fukuda	Travel Expenses
24030	$1,256.94	Dan Munk	Travel Expenses
24031	$1,005.38	Karen Steinhauer	Travel Expenses
24032	$1,106.80	Bruce Taylor	Travel Expenses
24033	$827.79	Jovana Benavides	Travel Expenses
24034	$827.79	Brittany Deegan	Travel Expenses
24035	$827.79	Jodi Holeman	Travel Expenses
24036	$590.11	Katherine Ramirez	Travel Expenses
24037	$7,500.00	Premier Valley Bank	H S A 1st Quarter
24053	$3,265.80	CMAD	District Social Security & Medicare
24054	$3,173.03	CalPERS	District Retirement
24058	$291.69	AT&T	Telephone
24059	$243.11	AT&T	Telephone
24060	$882.85	AT&T	Internet
24061	$73.30	California Water Service	Water
24062	$300.00	Joe Saubert	Plumbing Services
24063	$533.01	Katherine Ramirez	Travel Expenses
24064	$289.56	Matson Alarm	Alarm Systems
24065	$166.25	Mutual of Omaha	Life Insurance
24066	$1,389.10	PG&E	Heat Light Power
24067	$81.12	City of Reedley	Water Sewer Disposal
24068	$681.93	Verizon Wireless	Cell Phones

Consolidated Mosquito Abatement District
Maintenance and Operations Expenses
January 2020

Check #	Amount	Payee	Description
24069	$86.23	Waste Management	Disposal
24070	$217.47	Petty Cash	Misc Expenses
24071	$156.32	CalPERS	Retirement - District Portion
24072	$156.32	CalPERS	Retirement - District Portion
24073	$35.00	Administrative Solutions Inc	Cobra Administration
24074	$45.81	AutoZone	Repair Parts
24075	$390.00	Bellwether, Inc.	Server Warranty
24076	$10.80	Central Supply Co	Repair Parts
24077	$299.27	Comcast	Telephone / Internet
24078	$4,708.76	CitiBusiness Card	Travel / Training
24079	$39.95	DoorKing	Gate Service
24080	$88.82	County of Fresno	GIS License
24081	$143.16	Gordon Industrial	Repair Parts
24082	$189.19	Grainger	Field Equipment
24083	$782.57	Home Depot	Field Equipment / Building & Ground
24084	$95.00	Kings Industrial	Pre-Employment Physicals
24085	$100.00	Manny's Upholstrey	Repairs
24086	$429.16	Mission Uniform Service	Uniforms & Safety
24087	$215.74	Napa Auto	Repair Parts
24088	$100.02	Nelson's Ace Hardware	Building & Ground
24089	$68.62	Nelson's Power Center	Field Equipment
24090	$380.61	O'Reilly Auto Parts	Repair Parts
24091	$111.95	Office Depot	Misc Office Expenses
24092	$1,585.00	Pacific Management Service	HazMat Consulting
24093	$1,726.93	PBM Supply	Field Equipment
24094	$6.91	Swanson Fahrney	Repair Parts
24095	$4.86	Sanger Nursery	Field Equipment
24096	$53.00	Steve Mulligan	Travel Expenses
24097	$328.00	Tire Hub, LLC	Tires
24098	$920.34	Tulare Polaris	Field Equipment
24099	$35.41	Wizix Technology	Copier Maintenance
Total	**$67,189.49**		

Consolidated Mosquito Abatement District
Maintenance and Operations Expenses
January 2020

County of Fresno Checks

Check #	Amount	Payee	Description
286239	$70,511.58	Consolidated Mosquito	Transfer funds to checking
286240	$66,982.56	Consolidated Mosquito	Transfer funds to checking
286241	$13,727.13	Consolidated Mosquito	Transfer funds to checking
	$151,221.27		

Summary of January Expenses

January 2020 Salaries & Wages	$84,031.78
January 2020 Maintenance & Operations	$67,189.49
Total January 2020 Expenditures	**$151,221.27**

Consolidated Mosquito Abatement District
Monthly Expenditures

ACCOUNT NUMBER	ACCOUNT NAME	BUDGET FY 2019/2020	SPENT TO DATE	BALANCE JAN 31, 2020
SALARIES, WAGES & EMPLOYEE BENEFITS				
6101-01	Salaried Wages	$1,014,000.00	$524,510.08	$489,489.92
6101-06	Hourly Wages & Extra Help	$810,000.00	$480,536.42	$329,463.58
6101-02	FICA Employers Contribution	$140,000.00	$76,919.37	$63,080.63
6101-03	Unemployment Insurance	$32,000.00	$9,751.30	$22,248.70
6101-04	Retirement District's Payment	$96,000.00	$70,495.71	$25,504.29
6101-05	Group Health Insurance	$200,000.00	$98,712.41	$101,287.59
6101-07	Pre-Employment & Misc. Expenses	$9,000.00	$1,201.00	$7,799.00
	TOTALS	**$2,301,000.00**	**$1,262,126.29**	**$1,038,873.71**
OPERATING & MAINTENANCE SUPPLIES & EXPENSE				
6102-01	Insecticides & Herbicides	$360,000.00	$247,499.12	$112,500.88
6102-02	Power Spray & Field Equipment	$22,000.00	$14,604.25	$7,395.75
6102-03	Misc Operating Supplies & Expense	$8,000.00	$1,673.98	$6,326.02
6102-05	Building & Ground Maintenance	$20,000.00	$21,877.47	($1,877.47)
6102-06	Airplane Expense	$3,000.00	$0.00	$3,000.00
	TOTALS	**$413,000.00**	**$285,654.82**	**127,345.18**
MOTOR VEHICLE SUPPLIES & EXPENSE				
6103-01	Fuel & Lubricants	$250,000.00	$78,860.20	$171,139.80
6103-02	Repairs & Shop Tools	$50,000.00	$23,754.04	$26,245.96
6103-03	Tires & Batteries	$12,000.00	$2,701.00	$9,299.00
	TOTALS	**$312,000.00**	**$105,315.24**	**$206,684.76**
UTILITIES & COMMUNICATIONS				
6104-01	Heat, Light & Power	$48,000.00	$20,662.53	$27,337.47
6104-04	Water Sewer & Disposal	$15,000.00	$7,041.94	$7,958.06
6105-01	Telephone	$24,000.00	$12,208.45	$11,791.55
6105-02	Cellular Phones	$16,000.00	$12,448.94	$3,551.06
	TOTALS	**$103,000.00**	**$52,361.86**	**$50,638.14**
OFFICE SUPPLIES & EXPENSE				
6106-02	Postage, Printing & Stationery	$9,000.00	$652.33	$8,347.67
6106-04	Repairs & Maintenance	$6,000.00	$2,057.09	$3,942.91
6106-05	Misc Office Supplies	$13,000.00	$7,354.65	$5,645.35
6106-06	Office Equipment & Furniture	$13,000.00	$2,486.04	$10,513.96
	TOTALS	**$41,000.00**	**$12,550.11**	**28,449.89**
INSURANCE				
6107-01	Liability, Property & Auto	$60,000.00	$58,266.00	$1,734.00
6107-02	Workers Compensation	$73,000.00	$71,472.00	$1,528.00
	TOTALS	**$133,000.00**	**$129,738.00**	**$3,262.00**

Consolidated Mosquito Abatement District
Monthly Expenditures

ACCOUNT NUMBER	ACCOUNT NAME	BUDGET FY 2019/2020	SPENT TO DATE	BALANCE JAN 31, 2020
TRAVEL & SUBSISTENCE EXPENSE				
6108-01	Meetings & Travel Allowance	$70,000.00	$29,331.55	$40,668.45
6108-02	Trustee Allowance	$1,000.00	$0.00	$1,000.00
6108-03	Meal Allowance	$7,000.00	$1,664.57	5,335.43
	TOTALS	**$78,000.00**	**$30,996.12**	**$47,003.88**
MISCELLANEOUS EXPENDITURES				
6109-01	Rent: Land, Buildings and Equipment	$61,000.00	$41,821.70	$19,178.30
6109-02	Dues, Subscriptions and Fees	$17,000.00	$23,371.00	(6,371.00)
6109-03	Education & Publicity	$30,000.00	$4,717.69	$25,282.31
6109-04	Accounting	$5,000.00	$4,000.00	$1,000.00
6109-05	Legal	$6,000.00	$5,123.63	$876.37
6109-06	County Service Charge	$45,000.00	$0.00	$45,000.00
6109-07	Uniforms, Safety Apparel & Equipment	$23,000.00	$5,352.34	$17,647.66
6109-08	Surveillance & Research	$55,000.00	$32,613.35	$22,386.65
6109-09	Other Miscellaneous Expenditures	$0.00	$25,000.00	($25,000.00)
6109-10	GIS & GPS	$80,000.00	$18,546.27	$61,453.73
	TOTALS	**$322,000.00**	**$160,545.98**	**$161,454.02**
	TOTAL OPERATIONAL EXPENDITURES	**$3,703,000.00**	**$2,039,288.42**	**$1,663,711.58**
CAPITAL OUTLAY				
6110-01	Office & Lab Furniture & Equipment	$8,000.00	$0.00	$8,000.00
6110-02	Auto Equipment	$100,000.00	$0.00	100,000.00
6110-03	Shop Equipment	$10,000.00	$0.00	$10,000.00
6110-04	Field Equipment	$15,000.00	$13,869.73	$1,130.27
6110-05	Building & Ground Improvement	$40,000.00	$51,534.08	(11,534.08)
6110-06	Loan & Lease Purchase Payments	$290,000.00	$0.00	290,000.00
	TOTAL CAPITAL OUTLAY EXPENDITURES	**$463,000.00**	**$65,403.81**	**$397,596.19**
	TOTAL EXPENDITURES	**$4,166,000.00**	**$2,104,692.23**	**$2,061,307.77**
SPECIAL PROJECTS RESERVE		$80,000.00	$0.00	$80,000.00
CONTINGENT LIABILITY RESERVE		$300,000.00	$0.00	$300,000.00
BUILDING RESERVE		$370,000.00	$0.00	$370,000.00
EQUIPMENT RESERVE		$60,000.00	$0.00	$60,000.00
GENERAL RESERVE		$3,456,000.00	$0.00	$3,456,000.00
	TOTAL RESERVES	**$4,266,000.00**	**$0.00**	**$4,266,000.00**
	TOTAL EXPENDITURES AND RESERVES	**$8,432,000.00**	**$2,104,692.23**	**$6,327,307.77**

Consolidated Mosquito Abatement District
Monthly Expenditures

FRESNO COUNTY ACCOUNT- BANK OF THE WEST	
CASH ON HAND, DECEMBER 31, 2019	**$4,990,217.60**
PROPERTY TAXES WITHHELD BY FRS COUNTY	$0.00
DECEMBER REVENUE	$0.00
DECEMBER INTEREST	$7,856.16
TAXES - FRESNO COUNTY / KINGS COUNTY	$118,442.29
TOTAL REVENUE FOR DECEMBER	$126,298.45
SUB-TOTAL	**$5,116,516.05**
COUNTY ADMIN COST FOR FY WITHHELD BY COUNTY	$0.00
MONEY TRANSFERRED TO CHECKING	($151,221.27)
CASH ON HAND, JANUARY 31, 2020	**$4,965,294.78**
YEARLY REVENUE THROUGH 12-31-19	**$2,273,326.95**
JANUARY REVENUE	$126,298.45
YEARLY REVENUE THROUGH 01-31-20	**$2,399,625.40**
CMAD CHECKING ACCOUNT - BANK OF THE WEST	
CASH ON HAND, DECEMBER 31, 2019	**$10,000.00**
MONEY TRANSFERRED FROM FRS CO ACCT	$151,221.27
JANUARY EXPENDITURES	($151,221.27)
CASH ON HAND, JANUARY 31, 2020	**$10,000.00**
NEW HEADQUARTERS FACILITY LOAN - US BANK	
ORIGINAL LOAN AMOUNT	**$4,000,000.00**
CASH AVAILABLE, DECEMBER 31, 2019	**$6,767.39**
JANUARY EXPENDITURES	$0.00
JANUARY INTEREST EARNED	$0.86
CASH AVAILABLE, JANUARY 31, 2020	**$6,768.25**
SAVINGS ACCOUNT- CITIBANK	
CASH ON HAND, DECEMBER 31, 2019	**$14,100.35**
INTEREST EARNED FOR JANUARY	$1.19
CASH ON HAND, JANUARY 31, 2020	**$14,101.54**

Enclosures

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6108-01 1047.96
6102-02 650.40
6109-03 2257.54
6106-02 176.60
6101-07 35.00
6109-10 24.95
6106-05 129.97
6108-03 98.43
6102-03 34.80
6106-06 253.11

STEVE MULLIGAN - XXXX-XXXX-XXXX-8590

Statement Balance:	$4,708.76
Last Payment Amount:	$5,246.89
Minimal Payment Due on 03/03/20:	**$70.00**
Statement/Closing Date:	02/10/2020

ACCOUNT SUMMARY

Previous Balance	$5,246.89
Payments. Credits, and Adjustments	$5,406.68
Purchases	$4,868.55
Cash Advances	$0.00
Fees	$0.00
Interest Charges	$0.00
New Balance	**$4,708.76**

QUICK REFERENCE

Minimum Payment	**$70.00**
New Balance	**$4,708.76**
Payment Due Date	**03/03/2020**
Business Credit Line	$50,900.00
Cash Advance Line	$21,500.00
Available Credit Line	$46,191.00
Available Cash Advance Line	$21,500.00

STATEMENT MESSAGES

To avoid paying interest on purchases, you should pay $4,708.76 by the due date.

Great News. Your Annual account summary is now available online. Please go to www.citicards.com and login to your account online for more details.

Please be sure to pay on time. If you submit your payment by mail, we suggest you mail it no later than 02/25/2020 to allow enough time for regular mail to reach us.

FINANCE CHARGE SUMMARY

	Nominal APR	Periodic Finance Change	Transaction Fee/Interest Change
Purchases (Standard Purch)	24.740%	$0.00	$0.00
Cash Advances (Standard Adv)	24.740%	$0.00	$0.00
TOTAL Interest Charge	**$0.00**		

BUSINESS PAYMENTS, CREDITS, AND ADJUSTMENTS

Post Date	Description	Amount
01/28	ONLINE PAYMENT, THANK YOU	($5,246.89)

CARDHOLDER SUMMARY

Cardholder	Account Number (Last 4 digits)	Employee Credit Line	Employee Cash Advance Line	Total Activity Amount
FRED S MULLIGAN	0151	$15,100	$0	$4,577.12

Transaction Date:	Post Date:	Description:	Charged to:	Amount:

02/05	02/05	ALASKA A0272154480294 8006545669 WA NAME: FUKUDA/TOKUO DEPART: 03/16/20 FAT TO PDX : AS: CLASS: R : STOP:	Standard Purch	$502.40 8-1
02/05	02/05	ALASKA A0272154482191 8006545669 WA NAME: HOLEMAN/JODI DEPART: 03/16/20 FAT TO PDX : AS: CLASS: R : STOP:	Standard Purch	$484.60 8-1
02/04	02/04	AMZN Mktp US*5M4RK8113 Amzn.com/bill WA	Standard Purch	$32.27 2-2
02/04	02/04	AMZN Mktp US*6S52Z40F3 Amzn.com/bill WA	Standard Purch	$7.54 9-3
01/31	01/31	USPS PO 0558560648 PARLIER CA	Standard Purch	$165.00 6-7
01/29	01/29	CHECKR, INC CHECKR.COM 8558333364 CA	Standard Purch	$35.00 1-7
01/27	01/27	STI INC 1-877-212-7400 2129577400 NY	Standard Purch	$24.95 9-10
01/24	01/24	SUPERATV, LLC 8125747777 IN	Standard Purch	$171.55 2-2
01/23	01/23	RECREATIONAL OFF-HI 949-225-2560 CA	Standard Purch	$1,250.00 9-3
01/23	01/23	SPECIALTY VEHICLE INST 949-727-4211 CA	Standard Purch	$1,000.00 9-3
01/23	01/23	SUPERATV, LLC 8125747777 IN	Standard Purch	$273.44 2-2
01/23	01/23	VISTAPR*VistaPrint.com 866-8936743 MA	Standard Purch	$22.45 6-5
01/22	01/22	HARBOR FREIGHT TOOLS 6 CLOVIS CA	N/A	($145.76) 2-2
01/22	01/22	VISTAPR*VistaPrint.com 866-8936743 MA	Standard Purch	$23.31 6-5
01/22	01/22	CRESCO RESCO FRESNO CA	Standard Purch	$12.96 6-5
01/22	01/22	VISTAPR*VistaPrint.com 866-8936743 MA	Standard Purch	$5.40 6-5
01/22	01/22	VISTAPR*VistaPrint.com 866-8936743 MA	Standard Purch	$2.43 6-5
01/21	01/21	SAVEMART #654 KINGSB KINGSBURG CA	Standard Purch	$27.75 8-3
01/17	01/17	HARBOR FREIGHT TOOLS 6 CLOVIS CA	Standard Purch	$221.33 2-2
01/17	01/17	BIG 5 SPORTING GOODS 4 DINUBA CA	Standard	$48.79 2-2

			Purch	
01/17	01/17	BIG 5 SPORTING GOODS 3 SELMA CA	Standard Purch	$48.78 2-2
01/17	01/17	AMZN Mktp US*L25HX2A63 Amzn.com/bill WA	Standard Purch	$36.43 6-5
01/17	01/17	VISTAPR*VistaPrint.com 866-8936743 MA	Standard Purch	$21.59 6-5
01/16	01/16	VISTAPR*VistaPrint.com 866-8936743 MA	Standard Purch	$5.40 6-5
01/15	01/15	USPS PO 0558560648 PARLIER CA	Standard Purch	$11.60 6-2
01/15	01/15	Amazon Prime 8665572820 WA	N/A	($14.03) 6-5
01/11	01/11	Amazon Prime*844R472D3 8665572820 WA	Standard Purch	$14.03 6-5
01/10	01/10	WAL-MART #1882 SELMA CA	Standard Purch	$34.80 2-3
01/08	01/09	Amazon.com*U798J44A3 Amzn.com/bill WA	Standard Purch	$253.11 6-6

STEVE MULLIGAN		2859	$50,900	$21,500	$131.64

Transaction Date:	Post Date:	Description:	Charged to:	Amount:
01/27	01/27	CITY OF FRESNO AIRPORT FRESNO CA	Standard Purch	$24.55 8-1
01/27	01/27	UBER TRIP 8005928996 CA	Standard Purch	$17.21 8-1
01/26	01/26	UBER TRIP 8005928996 CA	Standard Purch	$19.20 8-1
01/23	01/23	THE PUB LLC REEDLEY CA	Standard Purch	$34.81 8-3
01/17	01/17	SANSEI USA INC REEDLEY CA	Standard Purch	$35.87 8-3

RESOLUTION NO. 1-2020

A RESOLUTION OF THE BOARD OF TRUSTEES OF THE CONSOLIDATED MOSQUITO ABATEMENT DISTRICT TO TRANSFER MONIES FROM THE GENERAL RESERVE TO INSECTICIDES & HERBICIDES (6102-01), BUILDING & GROUND MAINTENANCE (6102-05), CELLULAR PHONES (6105-02), DUES, SUBSCRIPTIONS AND FEES (6109-02), LEGAL (6109-05), SURVEILLANCE & RESEARCH (6109-08), OTHER MISCELLANEOUS EXEPENDITURES (6109-09) , AND CAPITAL OUTLAY BUILDING & GROUND IMPROVEMENT (6110-05).

WHEREAS, the BOARD OF TRUSTEES (Board) of the CONSOLIDATED MOSQUITO ABATEMENT DISTRICT (District) promotes community health, comfort and prosperity by continuous mosquito control measures through the appropriate expenditure of District funds; and

WHEREAS, current fiscal year expenses will result in necessary expenditures above budgeted line item amounts; and

WHEREAS, monies are held in the General Reserve and made available for District expenditures and transferred to respective line item accounts, when such expenditure is authorized by the Board; and

WHEREAS, it is necessary, in order to expend and account for such monies, that these monies be transferred to respective line item accounts.

NOW, THEREFORE, BE IT RESOLVED, that the BOARD OF TRUSTEES of the CONSOLIDATED MOSQUITO ABATEMENT DISTRICT does hereby approve and authorize the following:

1. The transfer of Twenty Thousand Dollars ($20,000) from the General Reserve to Insecticides & Herbicides line item account no. 6102 – 01.

2. The transfer of Ten Thousand Dollars ($10,000) from the General Reserve to Building & Ground Maintenance line item account no. 6102 – 05.

3. The transfer of Six Thousand Dollars ($6,000) from the General Reserve to Cellular Phones line item account no. 6105-02.

4. The transfer of Ten Thousand Dollars ($10,000) from the General Reserve to Dues, Subscriptions & Fees line item account no. 6109 – 01.

5. The transfer of Six Thousand Dollars ($6,000) from the General Reserve to Legal line item account no. 6109 – 05.

6. The transfer of Ten Thousand Dollars ($10,000) from the General Reserve to Surveillance & Research line item account no. 6109 – 08.

7. The transfer of Twenty-Five Thousand Dollars ($25,000) from the General Reserve to Other Miscellaneous Expenditures line item account no. (6109 – 09).

8. The transfer of Thirty Thousand Dollars ($30,000) from the General Reserve to Capital Outlay Building & Ground Improvement line item account no. 6110 – 05.

PASSED AND ADOPTED by the BOARD OF TRUSTEES of the CONSOLIDATED MOSQUITO ABATEMENT DISTRICT on the 18th day of February, 2020 by the following vote:

AYES:

NOES:

ABSENT:

_____

President, Board of Trustees
Consolidated Mosquito Abatement District

_____

Secretary, Board of Trustees
Consolidated Mosquito Abatement District

RESOLUTION NO. 2-2020

A RESOLUTION OF THE BOARD OF TRUSTEES OF THE CONSOLIDATED MOSQUITO ABATEMENT DISTRICT TO TRANSFER MONIES FROM THE CONTINGENT LIABILITY RESERVE TO THE RETIREMENT DISTRICT'S PAYMENT ACCOUNT 6101-04

WHEREAS, the BOARD OF TRUSTEES (Board) of the CONSOLIDATED MOSQUITO ABATEMENT DISTRICT (District) authorized and approved the expenditure of funds for lump sum payments to reduce the District's California Public Employees Retirement System (CalPERS) unfunded actuarial liabilities of $124,003 for Classic Miscellaneous Plan and $1,346 for PEPRA Miscellaneous Plan; and

WHEREAS, monies are held in the Contingent Liability Reserve and made available for District expenditures, and transferred to respective line item accounts, when such expenditures are approved and authorized by the Board.

NOW, THEREFORE, BE IT RESOLVED, that the BOARD OF TRUSTEES of the CONSOLIDATED MOSQUITO ABATEMENT DISTRICT does hereby approve and authorize the

> Transfer of One Hundred Twenty-Six Thousand ($126,000) from the Contingent Liability Reserve to the Retirement District's Payment line item account no. 6101-04.

PASSED AND ADOPTED by the BOARD OF TRUSTEES of the CONSOLIDATED MOSQUITO ABATEMENT DISTRICT on the 18th day of February, 2020 by the following vote:

AYES:

NOES:

ABSENT:

_____

President, Board of Trustees
Consolidated Mosquito Abatement District

_____

Secretary, Board of Trustees
Consolidated Mosquito Abatement District

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

July 2019

Miscellaneous Plan of the Consolidated Mosquito Abatement District
(CalPERS ID: 1965051103)
Annual Valuation Report as of June 30, 2018

Dear Employer,

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

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

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

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

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

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

Required Contribution

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

Fiscal Year	Employer Normal Cost Rate	Employer Amortization of Unfunded Accrued Liability
2020-21	8.794%	$24,003
Projected Results		
2021-22	*8.8%*	*$32,000*

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

Changes from Previous Year's Valuation

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

Upcoming Change for June 30, 2019 Valuations

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

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

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

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

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

Sincerely,

SCOTT TERANDO
Chief Actuary

Actuarial Valuation as of June 30, 2018

for the Miscellaneous Plan of the Consolidated Mosquito Abatement District

(CalPERS ID: 1965051103)

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

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Section 2 – Risk Pool Actuarial Valuation Information

Section 1

CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

Plan Specific Information for the Miscellaneous Plan of the Consolidated Mosquito Abatement District

(CalPERS ID: 1965051103)
(Valuation Rate Plan ID: 3366)

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Actuarial Certification

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

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

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

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

CHYNA KWOK, FSA, EA, FCA, MAAA
Senior Pension Actuary, CalPERS
Plan Actuary

Highlights and Executive Summary

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

Introduction

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

Purpose of Section 1

This Section 1 report for the Miscellaneous Plan of the Consolidated Mosquito Abatement District of the California Public Employees' Retirement System (CalPERS) was prepared by the plan actuary in order to:

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

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

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

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

California Actuarial Advisory Panel Recommendations

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

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

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

Required Employer Contributions

		Fiscal Year
Required Employer Contributions		**2020-21**
Employer Normal Cost Rate		**8.794%**
Plus, Either		
1) Monthly Employer Dollar UAL Payment	**$**	**2,000.27**
Or		
2) Annual UAL Prepayment Option*	**$**	**23,205**

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

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

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

		Fiscal Year 2019-20		Fiscal Year 2020-21
Development of Normal Cost as a Percentage of Payroll[1]				
Base Total Normal Cost for Formula		14.996%		15.712%
Surcharge for Class 1 Benefits[2]				
None		0.000%		0.000%
Phase out of Normal Cost Difference[3]		0.000%		0.000%
Plan's Total Normal Cost		14.996%		15.712%
Formula's Expected Employee Contribution Rate		6.915%		6.918%
Employer Normal Cost Rate		8.081%		8.794%
Projected Payroll for the Contribution Fiscal Year	$	981,234	$	1,009,265
Estimated Employer Contributions Based on Projected Payroll				
Plan's Estimated Employer Normal Cost	$	79,294	$	88,755
Plan's Payment on Amortization Bases[4]		18,994		24,003
% of Projected Payroll (illustrative only)		1.936%		2.378%
Estimated Total Employer Contribution	$	98,288	$	112,758
% of Projected Payroll (illustrative only)		10.017%		11.172%

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

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

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

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

Plan's Funded Status

	June 30, 2017	June 30, 2018
1. Present Value of Projected Benefits (PVB)	$ 6,804,897	$ 7,411,682
2. Entry Age Normal Accrued Liability (AL)	5,867,005	6,409,967
3. Plan's Market Value of Assets (MVA)	5,371,384	5,849,022
4. Unfunded Accrued Liability (UAL) [(2) - (3)]	495,621	560,945
5. Funded Ratio [(3) / (2)]	91.6%	91.2%

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

Projected Employer Contributions

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

	Required Contribution	Projected Future Employer Contributions (Assumes 7.00% Return for Fiscal Year 2018-19)				
Fiscal Year	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**
Normal Cost %	8.794%	8.8%	8.8%	8.8%	8.8%	8.8%
UAL Payment	$24,003	$32,000	$41,000	$46,000	$52,000	$54,000

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

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

Changes Since the Prior Year's Valuation

Benefits

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

Actuarial Methods and Assumptions

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

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

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

Subsequent Events

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

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

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

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

Assets and Liabilities

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

Breakdown of Entry Age Normal Accrued Liability

Active Members	$	3,320,221
Transferred Members		94,592
Terminated Members		13,335
Members and Beneficiaries Receiving Payments		2,981,819
Total	$	6,409,967

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	$	6,409,967
2.	Projected UAL balance at 6/30/18		382,035
3.	Pool's Accrued Liability[1]		17,424,237,070
4.	Sum of Pool's Individual Plan UAL Balances at 6/30/18[1]		3,777,499,883
5.	Pool's 2017/18 Investment & Asset (Gain)/Loss[1]		(135,628,188)
6.	Pool's 2017/18 Other (Gain)/Loss[1]		66,272,613
7.	Plan's Share of Pool's Asset (Gain)/Loss: [(1) - (2)] ÷ [(3) - (4)] × (5)		(59,909)
8.	Plan's Share of Pool's Other (Gain)/Loss: (1) ÷ (3) × (6)		24,380
9.	Plan's New (Gain)/Loss as of 6/30/2018: (7) + (8)		(35,529)
10.	Increase in Pool's Accrued Liability due to Change in Assumptions[1]		453,914,155
11.	Plan's Share of Pool's Change in Assumptions: (1) ÷ (3) × (10)		166,984
12.	Increase in Pool's Accrued Liability due to Change in Method[1]		128,995,852
13.	Plan's Share of Pool's Change in Method: (1) ÷ (3) × (12)		47,455

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

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

14.	Plan's UAL: (2) + (9) + (11) + (13)	$	560,945
15.	Plan's Share of Pool's MVA: (1) - (14)	$	**5,849,022**

Schedule of Plan's Amortization Bases

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

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

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

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

Schedule of Plan's Amortization Bases

Reason for Base	Date Established	Ramp Up/Down 2020-21	Escalation Rate	Amortization Period	Balance 6/30/18	Payment 2018-19	Balance 6/30/19	Payment 2019-20	Balance 6/30/20	Amounts for Fiscal 2020-21 Scheduled Payment for 2020-21
FRESH START	06/30/15	No Ramp	2.750%	27	$148,430	$8,954	$149,558	$9,200	$150,511	$9,296
NON-ASSET (GAIN)/LOSS	06/30/16	60% ↗	2.750%	28	$(41,993)	$(583)	$(44,329)	$(1,198)	$(46,193)	$(1,815)
ASSET (GAIN)/LOSS	06/30/16	60% ↗	2.750%	28	$263,187	$101,419	$176,701	$4,697	$184,211	$7,239
ASSUMPTION CHANGE	06/30/16	60% ↗	2.750%	18	$107,847	$2,035	$113,291	$4,182	$116,895	$6,364
NON-ASSET (GAIN)/LOSS	06/30/17	40% ↗	2.750%	29	$(8,424)	$0	$(9,014)	$(125)	$(9,516)	$(253)
ASSET (GAIN)/LOSS	06/30/17	40% ↗	2.750%	29	$(196,992)	$0	$(210,781)	$(2,928)	$(222,507)	$(5,915)
ASSUMPTION CHANGE	06/30/17	40% ↗	2.750%	19	$109,980	$(6,910)	$124,826	$2,358	$131,125	$4,782
NON-ASSET (GAIN)/LOSS	06/30/18	20% ↗	2.750%	30	$24,380	$0	$26,087	$0	$27,913	$381
ASSET (GAIN)/LOSS	06/30/18	20% ↗	2.750%	30	$(59,909)	$0	$(64,102)	$0	$(68,589)	$(937)
METHOD CHANGE	06/30/18	20% ↗	2.750%	20	$47,455	$(434)	$51,226	$(446)	$55,273	$1,031
ASSUMPTION CHANGE	06/30/18	20% ↗	2.750%	20	$166,984	$(6,566)	$185,465	$(6,746)	$205,426	$3,830
TOTAL					**$560,945**	**$97,915**	**$498,928**	**$8,994**	**$524,549**	**$24,003**

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

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

Amortization Schedule and Alternatives

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

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

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

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

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

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

Amortization Schedule and Alternatives

	Current Amortization Schedule		Alternate Schedules			
			15 Year Amortization		10 Year Amortization	
Date	**Balance**	**Payment**	**Balance**	**Payment**	**Balance**	**Payment**
6/30/2020	524,549	24,003	524,549	47,311	524,549	64,677
6/30/2021	536,439	32,412	512,329	48,612	494,366	66,455
6/30/2022	540,462	41,266	497,907	49,949	460,229	68,283
6/30/2023	535,609	46,319	481,093	51,323	421,813	70,161
6/30/2024	525,189	52,391	461,681	52,734	378,765	72,090
6/30/2025	507,759	53,832	439,451	54,184	330,708	74,073
6/30/2026	487,618	55,312	414,164	55,674	277,236	76,110
6/30/2027	464,535	56,833	385,565	57,205	217,915	78,203
6/30/2028	438,264	58,396	353,381	58,778	152,275	80,353
6/30/2029	408,537	60,002	317,317	60,395	79,817	82,563
6/30/2030	375,068	61,652	277,057	62,056		
6/30/2031	337,549	63,348	232,260	63,762		
6/30/2032	295,651	65,090	182,562	65,516		
6/30/2033	249,017	66,880	127,571	67,317		
6/30/2034	197,267	65,617	66,868	69,169		
6/30/2035	143,201	60,643				
6/30/2036	90,495	47,844				
6/30/2037	47,340	34,295				
6/30/2038	15,178	15,701				
6/30/2039						
6/30/2040						
6/30/2041						
6/30/2042						
6/30/2043						
6/30/2044						
6/30/2045						
6/30/2046						
6/30/2047						
6/30/2048						
6/30/2049						
Totals	**961,836**		**863,984**		**732,967**	
Interest Paid	**437,286**		**339,434**		**208,417**	
Estimated Savings			**97,851**		**228,868**	

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	7.159%	$0
2017 - 18	7.200%	$9,372
2018 - 19	7.634%	$16,165
2019 - 20	8.081%	$18,994
2020 - 21	8.794%	$24,003

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	$ 4,255,192	$ 3,192,254	$ 1,062,938	75.0%	$ 889,238
06/30/2012	4,474,251	3,239,234	1,235,017	72.4%	872,354
06/30/2013	4,533,778	3,463,567	1,070,211	76.4%	844,634
06/30/2014	5,110,508	4,159,849	950,659	81.4%	858,682
06/30/2015	5,378,411	5,247,552	130,859	97.6%	935,598
06/30/2016	5,653,700	5,098,615	555,085	90.2%	902,267
06/30/2017	5,867,005	5,371,384	495,621	91.6%	901,246
06/30/2018	6,409,967	5,849,022	560,945	91.2%	930,379

Risk Analysis

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

Future Investment Return Scenarios

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

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

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

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

Assumed Annual Return From 2018-19 through 2021-22	Projected Employer Contributions			
	2021-22	2022-23	2023-24	2024-25
1.0%				
Normal Cost	8.8%	8.8%	8.8%	8.8%
UAL Contribution	$41,000	$68,000	$99,000	$141,000
4.0%				
Normal Cost	8.8%	8.8%	8.8%	8.8%
UAL Contribution	$37,000	$55,000	$73,000	$98,000
7.0%				
Normal Cost	8.8%	8.8%	8.8%	8.8%
UAL Contribution	$32,000	$41,000	$46,000	$52,000
9.0%				
Normal Cost	9.0%	9.2%	9.3%	9.5%
UAL Contribution	$31,000	$36,000	$35,000	$33,000
12.0%				
Normal Cost	9.0%	9.2%	9.3%	9.5%
UAL Contribution	$26,000	$0	$0	$0

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

Discount Rate Sensitivity

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

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

Sensitivity Analysis				
As of June 30, 2018	**Plan's Total Normal Cost**	**Accrued Liability**	**Unfunded Accrued Liability**	**Funded Status**
7.0% (current discount rate)	15.712%	$6,409,967	$560,945	91.2%
6.0%	19.375%	$7,213,156	$1,364,134	81.1%
8.0%	12.879%	$5,738,052	$(110,970)	101.9%

Mortality Rate Sensitivity

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

As of June 30, 2018	**Current Mortality**	**10% Lower Mortality Rates**	**10% Higher Mortality Rates**
a) Accrued Liability	$6,409,967	$6,562,650	$6,269,697
b) Market Value of Assets	$5,849,022	$5,849,022	$5,849,022
c) Unfunded Liability (Surplus) [(a)-(b)]	$560,945	$713,628	$420,675
d) Funded Status	91.2%	89.1%	93.3%

A 10 percent increase (decrease) in assumed mortality rates over the long-term would result in approximately a 2.1 percent increase (decrease) to the funded ratio.

Inflation Rate Sensitivity

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

As of June 30, 2018	Current Inflation Rate	-1% Inflation Rate	+1% Inflation Rate
a) Accrued Liability	$6,409,967	$6,018,068	$6,664,921
b) Market Value of Assets	$5,849,022	$5,849,022	$5,849,022
c) Unfunded Liability (Surplus) [(a)-(b)]	$560,945	$169,046	$815,899
d) Funded Status	91.2%	97.2%	87.8%

A decrease of 1 percent in the liability inflation rate (2.50 percent to 1.50 percent) reduces the Accrued Liability by 6.1 percent. However, a 1 percent increase in the liability inflation rate (2.50 percent to 3.50 percent) increases the Accrued Liability by 4.0 percent.

Maturity Measures

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

Ratio of Retiree Accrued Liability to Total Accrued Liability	June 30, 2017	June 30, 2018
1. Retired Accrued Liability	2,890,119	2,981,819
2. Total Accrued Liability	5,867,005	6,409,967
3. Ratio of Retiree AL to Total AL [(1) / (2)]	0.49	0.47

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

Support Ratio	June 30, 2017	June 30, 2018
1. Number of Actives	15	15
2. Number of Retirees	9	9
3. Support Ratio [(1) / (2)]	1.67	1.67

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

Asset Volatility Ratio (AVR)

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

Liability Volatility Ratio (LVR)

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

Contribution Volatility		**June 30, 2017**		**June 30, 2018**
1. Market Value of Assets	$	5,371,384	$	5,849,022
2. Payroll		901,246		930,379
3. Asset Volatility Ratio (AVR) [(1) / (2)]		6.0		6.3
4. Accrued Liability	$	5,867,005	$	6,409,967
5. Liability Volatility Ratio (LVR) [(4) / (2)]		6.5		6.9
6. Accrued Liability (7.00% discount rate)		6,019,209		6,409,967
7. Projected Liability Volatility Ratio [(6) / (2)]		6.7		6.9

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

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

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

Market Value of Assets (MVA)	Hypothetical Termination Liability[1,2] @ 2.50%	Funded Status	Unfunded Termination Liability @ 2.50%	Hypothetical Termination Liability[1,2] @ 3.25%	Funded Status	Unfunded Termination Liability @ 3.25%
$5,849,022	$10,538,456	55.5%	$4,689,435	$9,727,781	60.1%	$3,878,759

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

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

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

Participant Data

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

	June 30, 2017	June 30, 2018
Reported Payroll	$ 901,246	$ 930,379
Projected Payroll for Contribution Purposes	$ 981,234	$ 1,009,265
Number of Members		
Active	15	15
Transferred	1	1
Separated	3	3
Retired	9	9

List of Class 1 Benefit Provisions

This plan has the additional Class 1 Benefit Provisions:

- None

Plan's Major Benefit Options

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

	Benefit Group	
Member Category	Misc	
Demographics		
Actives	Yes	
Transfers/Separated	Yes	
Receiving	Yes	
Benefit Provision		
Benefit Formula	2% @ 60	
Social Security Coverage	Yes	
Full/Modified	Modified	
Employee Contribution Rate	7.00%	
Final Average Compensation Period	Three Year	
Sick Leave Credit	Yes	
Non-Industrial Disability	Standard	
Industrial Disability	No	
Pre-Retirement Death Benefits		
Optional Settlement 2	Yes	
1959 Survivor Benefit Level	No	
Special	No	
Alternate (firefighters)	No	
Post-Retirement Death Benefits		
Lump Sum	$500	
Survivor Allowance (PRSA)	No	
COLA	2%	

Section 2

CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

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

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

July 2019

PEPRA Miscellaneous Plan of the Consolidated Mosquito Abatement District
(CalPERS ID: 1965051103)
Annual Valuation Report as of June 30, 2018

Dear Employer,

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

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

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

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

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

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

Required Contribution

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

Fiscal Year	Employer Normal Cost Rate	Employer Amortization of Unfunded Accrued Liability	PEPRA Employee Rate
2020-21	7.732%	$1,346	6.750%
Projected Results			
2021-22	*7.7%*	*$1,400*	*TBD*

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

Changes from Previous Year's Valuation

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

Upcoming Change for June 30, 2019 Valuations

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

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

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

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

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

Sincerely,

SCOTT TERANDO
Chief Actuary

Actuarial Valuation as of June 30, 2018

for the PEPRA Miscellaneous Plan of the Consolidated Mosquito Abatement District

(CalPERS ID: 1965051103)

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

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Section 1 – Plan Specific Information

Section 2 – Risk Pool Actuarial Valuation Information

Section 1

CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

Plan Specific Information for the PEPRA Miscellaneous Plan of the Consolidated Mosquito Abatement District

(CalPERS ID: 1965051103)
(Valuation Rate Plan ID: 27250)

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Actuarial Certification

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

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

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

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

CHYNA KWOK, FSA, EA, FCA, MAAA
Senior Pension Actuary, CalPERS
Plan Actuary

Highlights and Executive Summary

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

Introduction

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

Purpose of Section 1

This Section 1 report for the PEPRA Miscellaneous Plan of the Consolidated Mosquito Abatement District of the California Public Employees' Retirement System (CalPERS) was prepared by the plan actuary in order to:

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

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

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

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

California Actuarial Advisory Panel Recommendations

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

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

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

Required Employer Contributions

		Fiscal Year
Required Employer Contributions		**2020-21**
Employer Normal Cost Rate		**7.732%**
Plus, Either		
1) Monthly Employer Dollar UAL Payment	**$**	**112.13**
Or		
2) Annual UAL Prepayment Option*	**$**	**1,301**

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

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

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

		Fiscal Year 2019-20		Fiscal Year 2020-21
Development of Normal Cost as a Percentage of Payroll[1]				
Base Total Normal Cost for Formula		13.735%		14.482%
Surcharge for Class 1 Benefits[2]				
None		0.000%		0.000%
Phase out of Normal Cost Difference[3]		0.000%		0.000%
Plan's Total Normal Cost		13.735%		14.482%
Plan's Employee Contribution Rate[4]		6.750%		6.750%
Employer Normal Cost Rate		6.985%		7.732%
Projected Payroll for the Contribution Fiscal Year	$	281,898	$	245,636
Estimated Employer Contributions Based on Projected Payroll				
Plan's Estimated Employer Normal Cost	$	19,691	$	18,993
Plan's Payment on Amortization Bases[5]		751		1,346
% of Projected Payroll (illustrative only)		0.266%		0.548%
Estimated Total Employer Contribution	$	20,442	$	20,339
% of Projected Payroll (illustrative only)		7.251%		8.280%

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

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

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

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

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

Plan's Funded Status

	June 30, 2017	June 30, 2018
1. Present Value of Projected Benefits (PVB)	$ 384,152	$ 425,338
2. Entry Age Normal Accrued Liability (AL)	44,203	73,443
3. Plan's Market Value of Assets (MVA)	41,310	70,227
4. Unfunded Accrued Liability (UAL) [(2) - (3)]	2,893	3,216
5. Funded Ratio [(3) / (2)]	93.5%	95.6%

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

Projected Employer Contributions

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

	Required Contribution	Projected Future Employer Contributions (Assumes 7.00% Return for Fiscal Year 2018-19)				
Fiscal Year	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**
Normal Cost %	7.732%	7.7%	7.7%	7.7%	7.7%	7.7%
UAL Payment	$1,346	$1,400	$1,400	$1,500	$1,500	$0

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

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

Changes Since the Prior Year's Valuation

Benefits

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

Actuarial Methods and Assumptions

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

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

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

Subsequent Events

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

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

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

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

Assets and Liabilities

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

Breakdown of Entry Age Normal Accrued Liability

Active Members	$	56,669
Transferred Members		5,892
Terminated Members		10,882
Members and Beneficiaries Receiving Payments		0
Total	$	73,443

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	$	73,443
2.	Projected UAL balance at 6/30/18		1,198
3.	Pool's Accrued Liability[1]		17,424,237,070
4.	Sum of Pool's Individual Plan UAL Balances at 6/30/18[1]		3,777,499,883
5.	Pool's 2017/18 Investment & Asset (Gain)/Loss[1]		(135,628,188)
6.	Pool's 2017/18 Other (Gain)/Loss[1]		66,272,613
7.	Plan's Share of Pool's Asset (Gain)/Loss: [(1) - (2)] ÷ [(3) - (4)] × (5)		(718)
8.	Plan's Share of Pool's Other (Gain)/Loss: (1) ÷ (3) × (6)		279
9.	Plan's New (Gain)/Loss as of 6/30/2018: (7) + (8)		(439)
10.	Increase in Pool's Accrued Liability due to Change in Assumptions[1]		453,914,155
11.	Plan's Share of Pool's Change in Assumptions: (1) ÷ (3) × (10)		1,913
12.	Increase in Pool's Accrued Liability due to Change in Method[1]		128,995,852
13.	Plan's Share of Pool's Change in Method: (1) ÷ (3) × (12)		544

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

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

14.	Plan's UAL: (2) + (9) + (11) + (13)	$	3,216
15.	Plan's Share of Pool's MVA: (1) - (14)	$	**70,227**

Schedule of Plan's Amortization Bases

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

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

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

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

Schedule of Plan's Amortization Bases

Reason for Base	Date Established	Ramp Up/Down 2020-21	Escalation Rate	Amortization Period	Balance 6/30/18	Payment 2018-19	Balance 6/30/19	Payment 2019-20	Amounts for Fiscal 2020-21 Balance 6/30/20	Amounts for Fiscal 2020-21 Scheduled Payment for 2020-21
FRESH START	06/30/18	No Ramp	2.750%	5	$3,216	$(465)	$3,922	$(1,751)	$6,007	$1,346
TOTAL					**$3,216**	**$(465)**	**$3,922**	**$(1,751)**	**$6,007**	**$1,346**

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

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

Amortization Schedule and Alternatives

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

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

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

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

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

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

Amortization Schedule and Alternatives

	Current Amortization Schedule		Alternate Schedules			
			0 Year Amortization		0 Year Amortization	
Date	**Balance**	**Payment**	**Balance**	**Payment**	**Balance**	**Payment**
6/30/2020	6,008	1,346	N/A	N/A	N/A	N/A
6/30/2021	5,036	1,383				
6/30/2022	3,959	1,421				
6/30/2023	2,766	1,460				
6/30/2024	1,450	1,500				
6/30/2025						
6/30/2026						
6/30/2027						
6/30/2028						
6/30/2029						
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6/30/2046						
6/30/2047						
6/30/2048						
6/30/2049						
Totals	**7,109**		**N/A**		**N/A**	
Interest Paid	**1,101**		**N/A**		**N/A**	
Estimated Savings			**N/A**		**N/A**	

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	6.555%	$17
2017 - 18	6.533%	$45
2018 - 19	6.842%	$125
2019 - 20	6.985%	$751
2020 - 21	7.732%	$1,346

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
06/30/2014	$ 7,487	$ 7,820	$ (333)	104.5%	$ 101,894
06/30/2015	11,454	10,745	709	93.8%	160,807
06/30/2016	20,931	18,166	2,765	86.8%	158,702
06/30/2017	44,203	41,310	2,893	93.5%	258,918
06/30/2018	73,443	70,227	3,216	95.6%	226,437

Risk Analysis

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

Future Investment Return Scenarios

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

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

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

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

Assumed Annual Return From 2018-19 through 2021-22	Projected Employer Contributions			
	2021-22	2022-23	2023-24	2024-25
1.0%				
Normal Cost	7.7%	7.7%	7.7%	7.7%
UAL Contribution	$1,500	$1,700	$2,100	$2,600
4.0%				
Normal Cost	7.7%	7.7%	7.7%	7.7%
UAL Contribution	$1,400	$1,600	$1,800	$2,000
7.0%				
Normal Cost	7.7%	7.7%	7.7%	7.7%
UAL Contribution	$1,400	$1,400	$1,500	$1,500
9.0%				
Normal Cost	7.9%	7.3%	7.5%	7.7%
UAL Contribution	$1,400	$1,400	$0	$0
12.0%				
Normal Cost	7.9%	7.3%	7.5%	7.7%
UAL Contribution	$1,300	$0	$0	$0

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

Discount Rate Sensitivity

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

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

Sensitivity Analysis				
As of June 30, 2018	**Plan's Total Normal Cost**	**Accrued Liability**	**Unfunded Accrued Liability**	**Funded Status**
7.0% (current discount rate)	14.482%	$73,443	$3,216	95.6%
6.0%	17.929%	$88,670	$18,443	79.2%
8.0%	11.838%	$61,740	$(8,487)	113.7%

Mortality Rate Sensitivity

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

As of June 30, 2018	**Current Mortality**	**10% Lower Mortality Rates**	**10% Higher Mortality Rates**
a) Accrued Liability	$73,443	$74,778	$72,205
b) Market Value of Assets	$70,227	$70,227	$70,227
c) Unfunded Liability (Surplus) [(a)-(b)]	$3,216	$4,551	$1,978
d) Funded Status	95.6%	93.9%	97.3%

A 10 percent increase (decrease) in assumed mortality rates over the long-term would result in approximately a 1.7 percent increase (decrease) to the funded ratio.

Inflation Rate Sensitivity

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

As of June 30, 2018	Current Inflation Rate	-1% Inflation Rate	+1% Inflation Rate
a) Accrued Liability	$73,443	$64,974	$81,773
b) Market Value of Assets	$70,227	$70,227	$70,227
c) Unfunded Liability (Surplus) [(a)-(b)]	$3,216	$(5,253)	$11,546
d) Funded Status	95.6%	108.1%	85.9%

A decrease of 1 percent in the liability inflation rate (2.50 percent to 1.50 percent) reduces the Accrued Liability by 11.5 percent. However, a 1 percent increase in the liability inflation rate (2.50 percent to 3.50 percent) increases the Accrued Liability by 11.3 percent.

Maturity Measures

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

Ratio of Retiree Accrued Liability to Total Accrued Liability	June 30, 2017	June 30, 2018
1. Retired Accrued Liability	0	0
2. Total Accrued Liability	44,203	73,443
3. Ratio of Retiree AL to Total AL [(1) / (2)]	0.00	0.00

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

Support Ratio	June 30, 2017	June 30, 2018
1. Number of Actives	9	7
2. Number of Retirees	0	0
3. Support Ratio [(1) / (2)]	N/A	N/A

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

Asset Volatility Ratio (AVR)

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

Liability Volatility Ratio (LVR)

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

Contribution Volatility		**June 30, 2017**		**June 30, 2018**
1. Market Value of Assets	$	41,310	$	70,227
2. Payroll		258,918		226,437
3. Asset Volatility Ratio (AVR) [(1) / (2)]		0.2		0.3
4. Accrued Liability	$	44,203	$	73,443
5. Liability Volatility Ratio (LVR) [(4) / (2)]		0.2		0.3
6. Accrued Liability (7.00% discount rate)		46,148		73,443
7. Projected Liability Volatility Ratio [(6) / (2)]		0.2		0.3

Hypothetical Termination Liability

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

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

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

Market Value of Assets (MVA)	Hypothetical Termination Liability[1,2] @ 2.50%	Funded Status	Unfunded Termination Liability @ 2.50%	Hypothetical Termination Liability[1,2] @ 3.25%	Funded Status	Unfunded Termination Liability @ 3.25%
$70,227	$137,206	51.2%	$66,979	$113,419	61.9%	$43,192

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

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

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

Participant Data

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

	June 30, 2017	June 30, 2018
Reported Payroll	$ 258,918	$ 226,437
Projected Payroll for Contribution Purposes	$ 281,898	$ 245,636
Number of Members		
Active	9	7
Transferred	1	1
Separated	1	4
Retired	0	0

List of Class 1 Benefit Provisions

This plan has the additional Class 1 Benefit Provisions:

- None

Plan's Major Benefit Options

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

	Benefit Group	
Member Category	Misc	
Demographics		
Actives	Yes	
Transfers/Separated	Yes	
Receiving	No	
Benefit Provision		
Benefit Formula	2% @ 62	
Social Security Coverage	Yes	
Full/Modified	Full	
Employee Contribution Rate	6.75%	
Final Average Compensation Period	Three Year	
Sick Leave Credit	Yes	
Non-Industrial Disability	Standard	
Industrial Disability	No	
Pre-Retirement Death Benefits		
Optional Settlement 2	Yes	
1959 Survivor Benefit Level	No	
Special	No	
Alternate (firefighters)	No	
Post-Retirement Death Benefits		
Lump Sum	$500	
Survivor Allowance (PRSA)	No	
COLA	2%	

PEPRA Member Contribution Rates

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

		Basis for Current Rate		Rates Effective July 1, 2020			
Rate Plan Identifier	**Benefit Group Name**	**Total Normal Cost**	**Member Rate**	**Total Normal Cost**	**Change**	**Change Needed**	**Member Rate**
27250	Miscellaneous PEPRA Level	13.735%	6.750%	14.482%	0.747%	No	6.750%

Section 2

CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

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

Consolidated Mosquito Abatement District

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MVCAC Annual Conference, San Diego, CA January 26-28, 2020

The Mosquito and Vector Control Association of California held its 88th annual conference in San Diego, California, January 26-28, 2020. The plenary session had the usual welcome addresses and updates. Ed Manning provided a legislative update and Chris Barker filled in as the Keynote speaker with his talk on aspects of *Aedes aegypti* in California. He shared information on the yard drain study conducted in Madera in 2017 and 2018. This study showed a lack of correlation in *Ae. aegypti* collections from BG traps compared to *Ae. aegypti* collections from yard drain emergence traps. This study was conducted in front yards only. He also shared information on a study where they looked at water temperature inside cemetery vases to determine at what temperature *Ae. aegypti* larvae could not survive. They found survival declined when temperatures were below 10 degrees celsius. This information lead to the conclusion that *Ae. aegypti* must be either in the adult stage or the egg stage during the Winter months in Ca. His final point was this idea of starting an *Ae. aegypti* control program in late February or early March before adult *Ae. aegypti* are collected in surveillance traps. He did not go into detail about what that control program would consist of.

During Monday afternoon I attended both the Cal Surv and Public Policy and Governance symposiums. An interesting talk during the last symposium was from a Website vender, Streamline. This company is currently used by many MAD and MVCD in Ca. Streamline works to make an agency's website compliant along with updating images and content.

On Tuesday morning, I attended the following symposiums Challenges and Opportunities in Vector Borne Disease, SIT, and Community Engagement and Outreach. In the first symposium, Joseph Burns from CDPH offered some helpful information for anyone tracking rodents and how using fluorescent tracking power can be helpful in locating rodent burrows that may be hard to find. Another interesting talk in that symposium was also from a CDPH staff member, Marco Metzger, where he discussed the American Conenose bugs and the distribution of these bugs in California. The last symposium directed at community engagement and outreach had No. Ca and So. Ca agencies discussing their campaigns to engage and educate their constituents. One talk focused on how San Diego County VCD uses the social media platform Nextdoor and how geo-targeting can be used to target different demographics. It was also interesting to learn that this agency has simplified their outreach messages with simple and effective"Tip Cards".

During Tuesday afternoon I attended the Mosquito Operations and Technology symposium; which was dominated by talks from Districts in Southern California with Greater Los Angeles MVCD taking the lead. The So. Ca agencies focused on the overwhelming spread of *Ae. aegypti* infestations in their jurisdictions since 2014 while the No. Ca agencies introduced their 2019 initial detection and response to *Ae. aegypti*. This past mosquito season proved to be a challenge for mosquito agencies up and down the State of Ca.

Overall the annual conference was enjoyable and informative. The presentations were excellent as always. I offer my thanks to the District Manager and the Board of Trustees for so graciously allowing me to attend the MVCAC Annual Conference.

Katherine Ramirez
Science Education Coordinator

Consolidated Mosquito Abatement District

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MVCAC Annual Meeting
San Diego, California
January 26-29, 2020

This January I attended my second annual MVCAC conference in San Diego, California. The presentations I viewed focused on the biology of mosquitoes, field and lab techniques that may benefit the surveillance program, as well as outreach sessions, since I assist Kathy by creating all new outreach materials.

The talk that I found highly interesting, as well applicable to our surveillance program, discussed the efficacy of the BG Sentinel trap in regards to attracting and capturing host-seeking *Aedes aegypti* female mosquitoes. The speaker set up a trap in a semi-field environment and used to cameras to monitor the flight paths of mosquitoes as they approached the trap. She found that the trap had low efficiency, because the trap failed to capture most of the mosquitoes, for she observed that many rested on the trap or were able to escape the suction of the fan. This was enlightening because the BG trap is one of two main traps we use, and it helps us capture *Aedes aegypti* as well as *Culex* species. Recently, Devon, Jovana, and I performed a trap comparison test with *Aedes aegypti* mosquitoes that we reared, to compare the BG I (older model) and the BG II (newer model). We found that the BG II was more attractive to the mosquitoes over the BG I. This may be due to the higher color contrast visual, or a stronger fan windspeed. Of course, more replicates would be required to reinforce this claim.

Many talks in the outreach session included southern districts discussing program changes they have implemented to better address the *Aedes* infestation they have experienced for years. They said they have had to deal with residents who have false expectations, such as thinking their property would get sprayed, which we encountered this last year. They also tried to combat the situation wherein the most vocal residents drive the SR program, and control needs to be regained. Their changes are attempting to shift responsibility back onto the homeowners. Since I will be doing more outreach this year, by contacting the residents with their trap results, these talks were informative.

I found many topics of interest, but some of my favorites were: ivermectin treated chickens to decrease *Culex* abundance and local transmission, which could be applied in wild bird feed to decrease WNV transmission in the sylvatic cycle; the storage of collection samples in different temperatures to see if it disrupted virus detection, which is important in our sample testing; districts dealing with feral pig populations.

I offer my thanks to the District Manager and the Board of Trustees for allowing me to attend the conference at the MVCAC Annual meeting.

B. Deegan

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I was given the opportunity to attend the 88th annual MVCAC conference in San Diego. This opportunity granted me the chance to attend numerous informative lectures. Each lecture I attended allowed me to gain a deeper insight into the vector control industry. I am grateful that I am able to gain knowledge to incorporate into future projects. There were many fascinating lectures; however, two in particular were specifically prominent.

One of the first lectures was titled "Evaluating ivermectin-treated backyard chickens as a novel urban West Nile virus control strategy," by graduate student Karen M Holcomb. In this study, ivermectin was mixed into the feed of sentinel chickens. The chickens were given the treated feed daily and monitored for signs of distress. This study established that ivermectin can be given to chickens with no adverse side effects. Once Culex mosquitoes began to feed on the chickens,they would die due to the ivermectin circulating through the treated chickens. This project took place around the UC Davis area; however there was not a prevalent presence of the West Nile virus. The purpose of this study was to introduce an innovative control strategy to approach the West Nile virus. Although, this is a unique method to potentially control the West Nile virus further research is required. The goal of this experiment is to eventually expand to the treatment of wild birds. Simply by adding ivermectin to bird feeders in public areas throughout urban neighborhoods a substantial portion of the wild bird population could potentially be treated. This unique control strategy of the West Nile virus is also a safe alternative for mammals. Although, I can not presently incorporate aspects of this study into my daily work flow; it was refreshing to hear a unique strategy to approach the West Nile virus.

There was one particular lecture that I found to be extremely important and applicable to my daily work flow. The lecture was titled "The importance of dissolved oxygen for high yield production of quality *Gambusia affinis* and overall earthen pond health," by Tony Hedley from Sacramento Yolo MVCD. The amount of *Gambusia affinis* that the Sacramento district utilizes is substantial at 3,500 lbs per year to treat 20,000 acres of wetlands. In order to meet the high demand for fish this district has a vast array of ponds. However, the issue with many of these ponds was an insufficient amount of oxygen in the depths of the pond. Sacramento's fish program is an integral part of their control program. These fish struggled to find oxygen specifically at night when oxygen levels naturally drop. In order to establish the optimal amount of oxygen, they utilized solar powered aerators. There aerators were cemented to the bottom of each pond, which resulted in an increase in the overall fitness of their fish. If given the opportunity in the future, I hope to implement the addition of more efficient aerators into the holding tanks of Consolidated's fish program. Having aerators will help maintain stable oxygen levels at night, which will in turn increase the fitness of the fish. I want to thank the board of trustees for giving me the opportunity to attend the MVCAC conference to represent our district and further my knowledge of the vector control industry.

Jovana Benavides