

Marin/Sonoma
Mosquito & Vector Control District
595 Helman Lane
Cotati, California 94931
1-800-231-3236 (toll free) 707-285-2210 (fax)

BOARD OF TRUSTEES

**BOARD MEETING
AGENDA**

DATE: March 11, 2020
TIME: 7:00 PM
LOCATION: District Headquarters
595 Helman Lane
Cotati, Ca 94931

*Items marked * are enclosed attachments.
Items marked # will be handed out at the meeting.*

1. **CALL TO ORDER**
2. **PLEDGE OF ALLEGIANCE**
3. **ROLL CALL** (*13 members must be present for a quorum*)

Bruce Ackerman, Fairfax	Ranjiv Khush, San Anselmo
Gail Bloom, Larkspur	Matthew Naythons, Sausalito
Tamara Davis, Sonoma Co. at Large	Herb Rowland, Jr., Novato
Art Deicke, Santa Rosa	Ed Schulze, Marin Co. at Large
Julia Ettlin, Windsor	Richard Snyder, Belvedere (<i>Secretary</i>)
Laurie Gallian, Sonoma	Michael Thompson, Rohnert Park (<i>Second V.P.</i>)
Una Glass, Sebastopol	David Witt, Mill Valley
Pamela Harlem, San Rafael (<i>First V.P.</i>)	Shaun McCaffery, Healdsburg
Susan Hootkins, Petaluma	Carol Pigoni, Cloverdale (<i>President</i>)

Open Seats:

Corte Madera, Cotati, one Marin County at Large, Ross, one Sonoma County at Large and Tiburon

In accordance with the Americans with Disabilities Act, if you require special assistance to participate in this meeting, please contact the Marin/Sonoma Mosquito & Vector Control District (MSMVCD) at 1-800-231-3236.

Translators, American Sign Language interpreters, and/or assistive listening devices for individuals with hearing disabilities will be available upon request. A minimum of 48 hours is needed to ensure the availability of translation service.

MSMVCD hereby certifies that this agenda has been posted in accordance with the requirements of the Government Code.

4. APPOINTMENT OF NEW TRUSTEE

Please welcome Julia Ettlin, the new Trustee recently appointed by the Town of Windsor.

5. PUBLIC TIME

Public Time is time provided by the board so the public may make comment on any item not on the agenda.

The public will be given an opportunity to speak on each agenda item at the time the item is presented. Once the public comment portion of any item on this agenda has been closed by the Board, no further comment from the public will be permitted unless authorized by the Board President and if so authorized, said additional public comment shall be limited to the provision of information not previously provided to the Board or as otherwise limited by order of the Board.

We respectfully request that you state your name and address and provide the Board President with a Speaker Card so that you can be properly included in the consideration of the item.

Please limit your comments to three (3) minutes per person or twenty (20) minutes per subject in total so that all who wish to speak can be heard.

6. CONSENT CALENDAR

A. APPROVAL OF AGENDA

B.* MINUTES – Minutes for Board Meeting held on January 15, 2020.

C.* FINANCIAL

Warrants – January 2020

January Payroll: \$181,396.25

January Expenditures: \$278,731.73

Total: \$460,127.98

D.* FINANCIAL

Warrants – February 2020

February Payroll: \$180,151.10

February Expenditures: \$340,966.43

Total: \$521,117.53

ACTION NEEDED

INFORMATION ENCLOSED

E. ENDING ACCOUNT BALANCES:

Operating Fund: \$10,571,576.38

7. **NEW BUSINESS**

A. Brief Reports by Trustees and Staff who attended the 2020 Mosquito Vector Control Association of California (MVCAC) Annual Conference.

Pursuant to the Board Policy Manual, Section 2050.70, this time is allotted for Trustees and staff who attended the annual conference to provide a verbal or written report on an aspect of this premier training and education event.

B.* Report on the VCJPA 2020 Annual Workshop and Conference
Report by Manager Smith

INFORMATION ENCLOSED

C.* Report and Recommendations by Municipal Resource Group
1. Capital Asset Replacement Program Update
2. Target Fund Balance Analysis

ACTION NEEDED

Recommendation by Budget Committee, Executive Committee & staff:

1. Receive the presentation and discuss the report with MRG staff.
2. Provide general direction to staff concerning next steps.

INFORMATION ENCLOSED

D.* Development of Unmanned Aerial Systems Program
Please see enclosed Staff Report

INFORMATION ENCLOSED

E. Closed Session pursuant to California Government Code Section 54957.6

CONFERENCE WITH LABOR NEGOTIATORS

District Representatives: Kelly Tuffo, Liebert Cassidy Whitmore
Philip Smith
Erik Hawk

Employee Organization: Western Council of Engineers

F. Reconvene to Open Session. Report from closed session (if any)

8. **COMMITTEE & STAFF REPORTS**

A. Executive Committee
Report by President Carol Pigoni

B. Budget Committee
Report by Shaun McCaffrey, Chair

9.* MANAGER'S REPORTS

INFORMATION ENCLOSED

10. WRITTEN COMMUNICATIONS

CORRESPONDENCE RECEIVED BY THE DISTRICT FROM RESIDENTS OR ANY OTHER PARTY SHALL BE READ ALOUD OR HANDED OUT TO THE BOARD

11. OPEN TIME FOR BOARD OR STAFF COMMENTS

12. ADJOURNMENT

FOR THE HEALTH AND COMFORT OF ALL, PLEASE REFRAIN FROM WEARING FRAGRANCES AND SCENTED PRODUCTS TO THIS AND ALL MOSQUITO AND VECTOR CONTROL BOARD MEETINGS.

Marin/Sonoma Mosquito & Vector Control District

Board of Trustees
595 Helman Lane
Cotati, CA 94931

January 15, 2020

MINUTES

1. **CALL TO ORDER**

President McCaffery called the meeting to order at 7:00 pm.

2. **PLEDGE OF ALLEGIANCE**

3. **ROLL CALL**

Members present:

Blair, Ken	Hootkins, Susan
Bloom, Gail	Rowland Jr., Herb
Davis, Tamara	Schulze, Ed
Deicke, Art	Snyder, Richard
Gallian, Laurie	Thompson, Michael
Giovanatto (Pigoni), Carol	Witt, David
Harlem, Pamela	McCaffery, Shaun

Members absent:

Ackerman, Bruce
Glass, Una
Khush, Ranjiv
Kinser, Alannah
Naythons, Matthew

Open seats: Corte Madera, Cotati, one Marin County at Large, Ross and one Sonoma County at Large

Others present:

Phil Smith, District Manager
Erik Hawk, Assistant Manager
Dawn Williams, Confidential Administrative Assistant
Jennifer Crayne, Financial Manager

A quorum was present, and due notice had been published.

4. **PUBLIC TIME**
No public comment.

5. **CONSENT CALENDAR**

A. **CHANGES TO AGENDA/APPROVAL OF AGENDA**

B. **MINUTES** – Minutes of the Board Meeting held December 11, 2019.

C. **FINANCIAL**

Warrants – December 2019

December Payroll: \$187,375.50

December Expenditures: \$342,940.96

Total: \$530,316.46

D. **ENDING ACCOUNT BALANCES:**

Operating Fund: \$9,527,352.21

E. **2nd QUARTER FINANCIAL STATEMENT FOR FY 2019/20**

It was M/S Trustee Davis/Trustee Snyder to accept the Consent Calendar:

Motion passed with:

Ayes: Trustee Blair, Trustee Bloom, Trustee Davis, Trustee Deicke, Trustee Gallian, Trustee Giovanatto, Trustee Harlem, Trustee Hootkins, Trustee Rowland, Trustee Schulze, Trustee Snyder, Trustee Thompson, Trustee Witt and Trustee McCaffery

No: (none)

Abstain: (none)

Absent: Trustee Ackerman, Trustee Glass, Trustee Khush, Trustee Kinser and Trustee Naythons

6. **NEW BUSINESS**

A. **2020 Trustee Election Nominations and Election of Officers**

Manager Smith explained that the following list of recommendations for Board Officer positions was reviewed and submitted by the Nominating Committee at the December 11, 2019 Board meeting.

President – Carol Pigoni

1st Vice-President – Pamela Harlem

2nd Vice-President – Michael Thompson

Secretary – Richard Snyder

It was M/S Trustee Gallian/Trustee Schulze to accept the 2020 Board Officer nominations:

Motion passed with:

Ayes: Trustee Blair, Trustee Bloom, Trustee Davis, Trustee Deicke, Trustee Gallian, Trustee Harlem, Trustee Hootkins, Trustee Pigoni, Trustee Rowland, Trustee Schulze, Trustee Snyder, Trustee Thompson, Trustee Witt and Trustee McCaffery

No: (none)

Abstain: (none)

Absent: Trustee Ackerman, Trustee Glass, Trustee Khush, Trustee Kinser and Trustee Naythons

B. Passing of the Gavel

Manager Smith presented outgoing President McCaffery with the traditional award plaque and thanked him for his great leadership this past year, which facilitated the District accomplishing many worthwhile projects. Incoming President Carol Pigoni moved to the President's chair.

C. Committee Assignments

President Carol Pigoni noted that she had reviewed the 2019 committee lists and had contacted many Trustees to assist her in the selection of the proposed committee assignments for 2020. President Pigoni also suggested the possibility of holding certain committee meetings immediately before the Board meetings. Doing so could potentially increase attendance at committee meetings while lowering travel expenses for Trustees.

It was M/S Trustee Davis/Trustee Snyder to approve the list of Trustee committee assignments:

Motion passed with:

Ayes: Trustee Ackerman, Trustee Bloom, Trustee Davis, Trustee Deicke, Trustee Glass, Trustee Harlem, Trustee Hootkins, Trustee Khush, Trustee McCaffery, Trustee Naythons, Trustee Rowland, Trustee Schulze, Trustee Snyder, Trustee Witt and Trustee Pigoni

No: (none)

Abstain: (none)

Absent: Trustee Blair, Trustee Gallian, Trustee Kinser and Trustee Thompson

D. Approve Signature Card for District Bank Account

Manager Smith noted that each year the Board is asked to approve the signature card for the District bank account. This is primarily due to the new slate of Board officers.

Proposed Signers: President, 1st Vice-President, Secretary, Trustee Tamara Davis, Trustee Shaun McCaffery, District Manager Smith, and Assistant Manager Hawk.

It was M/S Trustee Davis/Trustee Gallian to approve the list of persons authorized to sign checks drawn on the District's Bank Accounts:

Motion passed with:

Ayes: Trustee Ackerman, Trustee Bloom, Trustee Davis, Trustee Deicke, Trustee Glass, Trustee Harlem, Trustee Hootkins, Trustee Khush, Trustee McCaffery, Trustee Naythons, Trustee Rowland, Trustee Schulze, Trustee Snyder, Trustee Witt and Trustee Pigoni

No: (none)

Abstain: (none)

Absent: Trustee Blair, Trustee Gallian, Trustee Kinser and Trustee Thompson

E. Annual presentation by Eric Engh highlighting the activities of the District's Education Program.

Mr. Engh delivered a PowerPoint presentation on various aspects of the Education Program. He covered the origins of the program and illustrated its growth, both in scope and the number of classroom presentations delivered.

The first classroom mosquito program was launched in 1994 when two programs were offered: "Mosquito School" and "Visiting the Vectors." In 2007, Mr. Engh began his tenure as the new Education Specialist and updated the program significantly to include lesson plans for various grade levels, while adapting the program to meet the current science content standards. The "hands-on" nature of the program and its associated learning materials has proved very effective. As a bonus, the program also served to bring important vector information home to student's families, who also learned about the District's services. Presently, the program includes grade-specific presentations on mosquitoes, ticks and yellowjackets to any school and grade level in Marin and Sonoma counties. Mr. Engh noted that he attends a variety of community events particularly those that are educational or geared toward children. In total, Mr. Engh has provided over 3,309 presentations, encompassing a total of 74,727 students.

F. Proposed Amendment of FY 2019/20 Annual Budget

Financial Manager Jennifer Crayne presented the second proposed amendment of the fiscal year (19-20), explaining that the main reasons for the adjustment are unforeseen equipment repairs, an increased need for aerial applications and a proposal to add permanent and seasonal staffing due to increased workloads. She noted that the amendment would result in increased expenditures of \$241,773 (a 2.46% overall increase) over the first amendment that was approved in July 2019. Ms. Crayne noted that, for the first time, this proposed budget adjustment uses audited (actual) revenue figures (from FY 18/19) to predict the revenue for the current fiscal year. Overall, the proposed budgetary amendment projected drawing \$220,052 from net assets to balance the budget.

It was M/S Trustee Davis/Trustee Snyder to approve the proposed amendment and thereby adopt the amended budget for FY 2019/20:

Motion passed with:

Ayes: Trustee Ackerman, Trustee Bloom, Trustee Davis, Trustee Deicke, Trustee Glass, Trustee Harlem, Trustee Hootkins, Trustee Khush, Trustee McCaffery, Trustee Naythons, Trustee Rowland, Trustee Schulze, Trustee Snyder, Trustee Witt and Trustee Pigoni

No: (none)

Abstain: (none)

Absent: Trustee Blair, Trustee Gallian, Trustee Kinser and Trustee Thompson

G. Report to Board Following Closure of Bank of America Account Ending in 5919

Manager Smith reported that as directed by the Board, he, Trustee McCaffery and Trustee Davis met with the Rohnert Park Bank of America branch manager on December 11, 2019 to close the District's account ending in 5919. The funds from this account were immediately redeposited in full to the County of Marin Treasury and credited by County staff to the District's Operating Fund. Copies of these transactions were included in the Board's agenda packet.

7. COMMITTEE & STAFF REPORTS

No Committee or Staff reports.

8. MANAGER'S REPORT

Manager Smith and Assistant Manager Hawk reported that the homeless encampment comprising over 220 occupants on the Joe Rodota Trail between Santa Rosa and Sebastopol had significant rodent problems. District staff visited the site several times and offered advice to the County and other agencies to help remedy the rat problems. *(Manager and Assistant Manager's reports were included in the January Board packet)*

9. WRITTEN COMMUNICATIONS

Manager Smith reported that he had just received notice from the Sonoma Local Agency Formation Commission (LAFCO) advising of an opportunity for a member of the District's Board to serve on Countywide Redevelopment Agency Oversight Board. Trustee Davis indicated her interest in applying for the position.

10. OPEN TIME FOR BOARD OR STAFF COMMENTS

Trustee Schulze recommended that the District purchase and include drones in its programs soon.

Trustee Gallian thanked Trustee McCaffery for his leadership as President during 2019. She stated it was a year of great challenges and growth, and his work was much appreciated.

11. **ADJOURNMENT**

There being no further business to come before the Board, it was M/S Trustee Davis/ Trustee Thompson to adjourn the meeting at 8:23 pm with the next meeting to be held on March 11, 2020.

District Representative
MSMVCD

Date of Approval

Trustee
MSMVCD Board of Trustees

Date of Approval

DRAFT

Marin/Sonoma Mosquito & Vector Control District
Fulltime Payroll 1/1-1/15/20

Check/Voucher	Check Type	Check Date	Employee Id	Employee Name	Net Amount	Dir Dep
276	Regular	1/15/2020	114	Crayne, Jennifer M	2,967.87	2,967.87
277	Regular	1/15/2020	83	Delsid, Paula A	1,095.74	1,095.74
278	Regular	1/15/2020	87	Smith, Philip D	5,441.57	5,441.57
279	Regular	1/15/2020	81	Williams, Dawn A	1,976.50	1,976.50
280	Regular	1/15/2020	60	Brooks, Sarah M	3,040.54	3,040.54
281	Regular	1/15/2020	64	Holt, Kristen A	2,986.94	2,986.94
282	Regular	1/15/2020	118	Liebman, Kelly A	2,989.39	2,989.39
283	Regular	1/15/2020	62	Beardsley, Kevin G	1,948.00	1,948.00
284	Regular	1/15/2020	86	Beck, David G	2,777.76	2,777.76
285	Regular	1/15/2020	26	Cole, Michael S	2,998.91	2,998.91
286	Regular	1/15/2020	55	Hawk, Erik T	4,045.46	4,045.46
287	Regular	1/15/2020	93	Karinen, Kasey L	2,238.71	2,238.71
288	Regular	1/15/2020	48	Leslie, Daniel W	2,981.74	2,981.74
289	Regular	1/15/2020	74	Miller, Steven L	2,539.04	2,539.04
290	Regular	1/15/2020	63	Mohrman Jr, John C	3,033.19	3,033.19
291	Regular	1/15/2020	52	Morton, Robert D	2,606.97	2,606.97
292	Regular	1/15/2020	61	Nadale, Marc A	2,632.08	2,632.08
293	Regular	1/15/2020	96	Newman, Jared K	2,084.88	2,084.88
294	Regular	1/15/2020	34	Ohlinger, Bruce R	2,127.68	2,127.68
295	Regular	1/15/2020	58	Petersen, Jeffery R	2,709.29	2,709.29
296	Regular	1/15/2020	67	Picinich, Nick A	2,205.78	2,205.78
297	Regular	1/15/2020	40	Reed, Nathen C	3,129.00	3,129.00
298	Regular	1/15/2020	53	Russo Jr, Anthony J	2,779.77	2,779.77
299	Regular	1/15/2020	45	Sequeira, Jason A	3,057.70	3,057.70
300	Regular	1/15/2020	106	Smith, James L	2,409.96	2,409.96
301	Regular	1/15/2020	68	Tescallo, Joseph A	1,597.26	1,597.26
302	Regular	1/15/2020	56	Thomas-Nett, Teresa A	2,407.33	2,407.33
303	Regular	1/15/2020	120	Tyner, Keith W	2,635.00	2,635.00
304	Regular	1/15/2020	54	Wells, Michael L	2,616.07	2,616.07
305	Regular	1/15/2020	28	Delucchi, Steven A	3,770.94	3,770.94
306	Regular	1/15/2020	104	McGovern, Robert A	2,998.76	2,998.76
307	Regular	1/15/2020	76	Engh, Eric S	2,620.19	2,620.19
308	Regular	1/15/2020	37	Sequeira, Nizza N	3,018.49	3,018.49

Totals for Payroll Checks	33 Items				90,468.51	90,468.51
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Summary Totals		Check Type	Count	Net Amount	Dir Dep
		Regular	33	90,468.51	90,468.51
		Totals	33	90,468.51	90,468.51

Report Totals

Check Type	Count	Net Amount	Dir Dep
Regular	33	90,468.51	90,468.51
Totals	33	90,468.51	90,468.51

Marin/Sonoma Mosquito & Vector Control District
 Date Range 12/19-12/31/19
 Paydate 1/15/20

Check/Voucher	Check Type	Check Date	Employee Id	Employee Name	Net Amount	Dir Dep
313	Regular	1/15/2020	113	Nunez, Monica A	555.40	555.40
Totals for Payroll Checks		1 Items			555.40	555.40

Summary

Totals	Check Type	Count	Net Amount	Dir Dep
	Regular	1	555.40	555.40
	Totals	1	555.40	555.40

Report Totals

Check Type	Count	Net Amount	Dir Dep
Regular	1	555.40	555.40
Totals	1	555.40	555.40

Marin/Sonoma Mosquito & Vector Control District
 Fulltime Employees
 Paydate: January 31,2020

Check/Voucher	Check Type	Check Date	Employee Id	Employee Name	Net Amount	Dir Dep
318	Regular	1/31/2020	114	Crayne, Jennifer M	2,967.87	2,967.87
319	Regular	1/31/2020	83	Delsid, Paula A	1,346.53	1,346.53
320	Regular	1/31/2020	87	Smith, Philip D	5,441.57	5,441.57
321	Regular	1/31/2020	81	Williams, Dawn A	1,976.50	1,976.50
322	Regular	1/31/2020	60	Brooks, Sarah M	3,040.54	3,040.54
323	Regular	1/31/2020	64	Holt, Kristen A	2,986.94	2,986.94
324	Regular	1/31/2020	118	Liebman, Kelly A	2,989.39	2,989.39
325	Regular	1/31/2020	62	Beardsley, Kevin G	1,948.00	1,948.00
326	Regular	1/31/2020	86	Beck, David G	2,777.76	2,777.76
327	Regular	1/31/2020	26	Cole, Michael S	2,998.91	2,998.91
328	Regular	1/31/2020	55	Hawk, Erik T	4,045.46	4,045.46
329	Regular	1/31/2020	93	Karinen, Kasey L	2,238.71	2,238.71
330	Regular	1/31/2020	48	Leslie, Daniel W	2,981.74	2,981.74
331	Regular	1/31/2020	74	Miller, Steven L	2,539.04	2,539.04
332	Regular	1/31/2020	63	Mohrman Jr, John C	2,702.51	2,702.51
333	Regular	1/31/2020	52	Morton, Robert D	2,606.97	2,606.97
334	Regular	1/31/2020	61	Nadale, Marc A	2,632.08	2,632.08
335	Regular	1/31/2020	96	Newman, Jared K	2,084.88	2,084.88
336	Regular	1/31/2020	34	Ohlinger, Bruce R	2,127.68	2,127.68
337	Regular	1/31/2020	58	Petersen, Jeffery R	2,709.29	2,709.29
338	Regular	1/31/2020	67	Picinich, Nick A	2,205.78	2,205.78
339	Regular	1/31/2020	40	Reed, Nathen C	3,112.72	3,112.72
340	Regular	1/31/2020	53	Russo Jr, Anthony J	2,779.77	2,779.77
341	Regular	1/31/2020	45	Sequeira, Jason A	3,057.70	3,057.70
342	Regular	1/31/2020	106	Smith, James L	2,409.96	2,409.96
343	Regular	1/31/2020	68	Tescallo, Joseph A	1,597.26	1,597.26
344	Regular	1/31/2020	56	Thomas-Nett, Teresa A	2,407.33	2,407.33
345	Regular	1/31/2020	120	Tyner, Keith W	2,635.00	2,635.00
346	Regular	1/31/2020	54	Wells, Michael L	2,616.07	2,616.07
347	Regular	1/31/2020	28	Delucchi, Steven A	3,770.94	3,770.94
348	Regular	1/31/2020	104	McGovern, Robert A	2,998.76	2,998.76
349	Regular	1/31/2020	76	Engh, Eric S	2,620.19	2,620.19
350	Regular	1/31/2020	37	Sequeira, Nizza N	3,018.49	3,018.49
Totals for Payroll Checks		33 Items			90,372.34	90,372.34

Summary

Totals	Check Type	Count	Net Amount	Dir Dep
	Regular	33	90,372.34	90,372.34
	Totals	33	90,372.34	90,372.34

Report Totals

Report Totals	Check Type	Count	Net Amount	Dir Dep
	Regular	33	90,372.34	90,372.34
	Totals	33	90,372.34	90,372.34

Account	Date	Amount	Check	Description
H 7487	01/07/2020	16,302.29	806454131	ADAPCO, INC.
H 7487	01/07/2020	10,000.00	806454132	ALDRICH NETWORK CONSULTING
H 7487	01/07/2020	1,962.77	806454133	ALDRICH NETWORK CONSULTING
H 7487	01/07/2020	554.52	806454134	ARGO ADVENTURE/LIEWER
H 7487	01/07/2020	207.91	806454135	AT & T
H 7487	01/07/2020	4,625.00	806454136	CALPERS 457 PLAN
H 7487	01/07/2020	1,901.54	806454137	CINTAS CORPORATION
H 7487	01/07/2020	700.98	806454138	COMMON SENSE BUSINESS SOLUTIONS, IN
H 7487	01/07/2020	122.27	806454139	COMPLETE WELDERS SUPPLY, INC.
H 7487	01/07/2020	88.30	806454140	TAMARA DAVIS
H 7487	01/07/2020	1,731.74	806454141	DEI-GO TRUCKING
H 7487	01/07/2020	3,685.39	806454142	DELTA DENTAL OF CALIFORNIA
H 7487	01/07/2020	53.37	806454143	DISH
H 7487	01/07/2020	598.87	806454144	GRAINGER
H 7487	01/07/2020	182.84	806454145	THE HARTFORD
H 7487	01/07/2020	200.92	806454146	HOME DEPOT CREDIT SERVICES
H 7487	01/07/2020	261.40	806454147	INTERSTATE BATTERY SYSTEM
H 7487	01/07/2020	31.75	806454148	JAY'S ENGRAVING & RUBBER STAMPS
H 7487	01/07/2020	116.60	806454149	LARSENGINES
H 7487	01/07/2020	7,284.00	806454150	LIEBERT CASSIDY WHITMORE
H 7487	01/07/2020	50.00	806454151	MARIN INDEPENDENT JOURNAL
H 7487	01/07/2020	2,580.00	806454152	MAZE & ASSOCIATES
H 7487	01/07/2020	3,704.74	806454153	NATIONWIDE TRUST COMPANY, FSB
H 7487	01/07/2020	200.00	806454154	NICK PICINICH
H 7487	01/07/2020	3,946.71	806454155	NORTH BAY PETROLEUM
H 7487	01/07/2020	695.21	806454156	P.G. & E.
H 7487	01/07/2020	718.34	806454157	PETALUMA MINUTEMAN PRESS
H 7487	01/07/2020	158.04	806454158	JEFF PETERSEN
H 7487	01/07/2020	340.32	806454159	PREFERRED ALLIANCE, INC.
H 7487	01/07/2020	223.47	806454160	RECOLOGY SONOMA MARIN
H 7487	01/07/2020	72.75	806454161	RELIABLE HARDWARE AND STEEL CO.
H 7487	01/07/2020	1,095.00	806454162	RICHARD A. SANCHEZ
H 7487	01/07/2020	575.13	806454163	SEBASTOPOL BEARING & HYDRAULIC
H 7487	01/07/2020	71.58	806454164	SIX ROBBLEES' INC.
H 7487	01/07/2020	103.00	806454165	SONOMA MEDIA INVESTMENTS, LLC
H 7487	01/07/2020	18.00	806454166	SONOMA MEDIA GROUP
H 7487	01/07/2020	718.75	806454167	TASC
H 7487	01/07/2020	746.22	806454168	TEAMSTERS LOCAL UNION NO. 856 HEALT
H 7487	01/07/2020	1,715.83	806454169	VERIZON WIRELESS
H 7487	01/07/2020	903.65	806454170	VISION SERVICE PLAN (CA)
H 7487	01/07/2020	145.09	806454171	WATERLOGIC
Total		69,394.29		
Count		41		

A/P 1.07.20

During the signing of these checks
all supporting documents were provided.

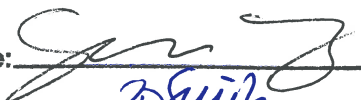

Signature: Tamara Davis

Signature: [Signature]

	Account	Date	Amount	Check	Description
H	7487	01/23/2020	1,279.14	806454172	AFLAC
H	7487	01/23/2020	2,262.65	806454173	ARGO ADVENTURE/LIEWER
H	7487	01/23/2020	32.43	806454174	AT & T
H	7487	01/23/2020	1,610.00	806454175	BEST BEST & KRIEGER, LLC.
H	7487	01/23/2020	70.83	806454176	BIOQUIP PRODUCTS
H	7487	01/23/2020	4,625.00	806454177	CALPERS 457 PLAN
H	7487	01/23/2020	1,605.87	806454178	CITY OF COTATI
H	7487	01/23/2020	3,000.00	806454179	CMI, A SOLUTIONS II COMPANY
H	7487	01/23/2020	155.05	806454180	COMCAST BUSINESS
H	7487	01/23/2020	78.13	806454181	FRIEDMAN'S HOME IMPROVEMENT
H	7487	01/23/2020	343.05	806454182	GREAT AMERICA FINANCIAL SERVICES
H	7487	01/23/2020	18.75	806454183	ICMA RETIREMENT CORPORATION
H	7487	01/23/2020	54,343.11	806454184	KAISER FOUNDATION HEALTH PLAN
H	7487	01/23/2020	250.00	806454185	KASEY KARINEN
H	7487	01/23/2020	118,416.55	806454186	MARIN COUNTY EMPLOYEES RETIREMENT A
H	7487	01/23/2020	3,724.74	806454187	NATIONWIDE TRUST COMPANY, FSB
H	7487	01/23/2020	1,131.40	806454188	OFFICE DEPOT BUSINESS CREDIT
H	7487	01/23/2020	2,631.96	806454189	P.G. & E.
H	7487	01/23/2020	610.28	806454190	P.G. & E.
H	7487	01/23/2020	1,550.00	806454191	PATRICK VON ELM
H	7487	01/23/2020	82.52	806454192	RELIABLE HARDWARE AND STEEL CO.
H	7487	01/23/2020	840.00	806454193	REYFF ELECTRIC INC.
H	7487	01/23/2020	4,041.97	806454194	SAFETY KLEEN CORP
H	7487	01/23/2020	692.83	806454195	SANTA ROSA AUTO PARTS
H	7487	01/23/2020	718.74	806454196	TASC
H	7487	01/23/2020	3,979.28	806454197	US BANK
H	7487	01/23/2020	771.00	806454198	VANTAGEPOINT TRANSFER AGENTS-803673
H	7487	01/23/2020	472.16	806454199	VECTOR CONTROL JPA
	Total		209,337.44		
	Count		28		

A/P 1.23.20

During the signing of these checks
all supporting documents were provided.

Signature: 
Signature: 

Marin/Sonoma Mosquito & Vector Control District
 Payroll Fulltime Employees
 Paydate: 2/14/2020

Check/Voucher	Check Type	Check Date	Employee Id	Employee Name	Net Amount	Dir Dep
356	Regular	2/14/2020	114	Crayne, Jennifer M	2,967.87	2,967.87
357	Regular	2/14/2020	83	Delsid, Paula A	985.08	985.08
358	Regular	2/14/2020	87	Smith, Philip D	5,441.57	5,441.57
359	Regular	2/14/2020	81	Williams, Dawn A	1,976.50	1,976.50
360	Regular	2/14/2020	60	Brooks, Sarah M	3,040.54	3,040.54
361	Regular	2/14/2020	64	Holt, Kristen A	2,986.94	2,986.94
362	Regular	2/14/2020	118	Liebman, Kelly A	3,094.34	3,094.34
363	Regular	2/14/2020	62	Beardsley, Kevin G	1,948.00	1,948.00
364	Regular	2/14/2020	86	Beck, David G	2,777.76	2,777.76
365	Regular	2/14/2020	26	Cole, Michael S	2,998.91	2,998.91
366	Regular	2/14/2020	55	Hawk, Erik T	4,045.46	4,045.46
367	Regular	2/14/2020	93	Karinen, Kasey L	2,238.71	2,238.71
368	Regular	2/14/2020	48	Leslie, Daniel W	3,002.82	3,002.82
369	Regular	2/14/2020	74	Miller, Steven L	2,550.13	2,550.13
370	Regular	2/14/2020	63	Mohrman Jr, John C	2,702.51	2,702.51
371	Regular	2/14/2020	52	Morton, Robert D	2,606.97	2,606.97
372	Regular	2/14/2020	61	Nadale, Marc A	2,632.08	2,632.08
373	Regular	2/14/2020	96	Newman, Jared K	2,084.88	2,084.88
374	Regular	2/14/2020	34	Ohlinger, Bruce R	2,127.68	2,127.68
375	Regular	2/14/2020	58	Petersen, Jeffery R	2,709.29	2,709.29
376	Regular	2/14/2020	67	Picinich, Nick A	2,205.78	2,205.78
377	Regular	2/14/2020	40	Reed, Nathen C	3,112.72	3,112.72
378	Regular	2/14/2020	53	Russo Jr, Anthony J	2,779.77	2,779.77
379	Regular	2/14/2020	45	Sequeira, Jason A	3,057.70	3,057.70
380	Regular	2/14/2020	106	Smith, James L	2,409.96	2,409.96
381	Regular	2/14/2020	68	Tescallo, Joseph A	1,597.26	1,597.26
382	Regular	2/14/2020	56	Thomas-Nett, Teresa A	2,407.33	2,407.33
383	Regular	2/14/2020	120	Tyner, Keith W	2,635.00	2,635.00
384	Regular	2/14/2020	54	Wells, Michael L	2,616.07	2,616.07
385	Regular	2/14/2020	28	Delucchi, Steven A	3,823.43	3,823.43
386	Regular	2/14/2020	104	McGovern, Robert A	2,998.76	2,998.76
387	Regular	2/14/2020	76	Engh, Eric S	2,620.19	2,620.19
388	Regular	2/14/2020	37	Sequeira, Nizza N	3,018.49	3,018.49

Totals for Payroll Checks	33 Items				90,200.50	90,200.50
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Summary

Totals for Payroll 2/14/20		Check Type	Count	Net Amount	Dir Dep
		Regular	33	90,200.50	90,200.50
		Totals	33	90,200.50	90,200.50

Marin Sonoma Mosquito & Vector Control District
Fulltime Payroll
Payperiod 2/16-2/28/20

Check/Voucher	Check Type	Check Date	Employee Id	Employee Name	Net Amount	Dir Dep
393	Regular	2/28/2020	114	Crayne, Jennifer M	2,967.87	2,967.87
394	Regular	2/28/2020	83	Delsid, Paula A	441.43	441.43
395	Regular	2/28/2020	87	Smith, Philip D	5,441.57	5,441.57
396	Regular	2/28/2020	81	Williams, Dawn A	1,976.50	1,976.50
397	Regular	2/28/2020	60	Brooks, Sarah M	3,040.54	3,040.54
398	Regular	2/28/2020	64	Holt, Kristen A	2,986.94	2,986.94
399	Regular	2/28/2020	118	Liebman, Kelly A	3,094.34	3,094.34
400	Regular	2/28/2020	62	Beardsley, Kevin G	1,948.00	1,948.00
401	Regular	2/28/2020	86	Beck, David G	2,777.76	2,777.76
402	Regular	2/28/2020	26	Cole, Michael S	3,292.66	3,292.66
403	Regular	2/28/2020	55	Hawk, Erik T	4,045.46	4,045.46
404	Regular	2/28/2020	93	Karinen, Kasey L	2,238.71	2,238.71
405	Regular	2/28/2020	48	Leslie, Daniel W	3,002.82	3,002.82
406	Regular	2/28/2020	74	Miller, Steven L	2,550.13	2,550.13
407	Regular	2/28/2020	63	Mohrman Jr, John C	2,702.51	2,702.51
408	Regular	2/28/2020	52	Morton, Robert D	2,606.97	2,606.97
409	Regular	2/28/2020	61	Nadale, Marc A	2,632.08	2,632.08
410	Regular	2/28/2020	96	Newman, Jared K	2,084.88	2,084.88
411	Regular	2/28/2020	34	Ohlinger, Bruce R	2,127.68	2,127.68
412	Regular	2/28/2020	58	Petersen, Jeffery R	2,709.29	2,709.29
413	Regular	2/28/2020	67	Picinich, Nick A	2,205.78	2,205.78
414	Regular	2/28/2020	40	Reed, Nathen C	3,112.72	3,112.72
415	Regular	2/28/2020	53	Russo Jr, Anthony J	2,779.77	2,779.77
416	Regular	2/28/2020	45	Sequeira, Jason A	3,057.70	3,057.70
417	Regular	2/28/2020	106	Smith, James L	2,409.96	2,409.96
418	Regular	2/28/2020	68	Tescalco, Joseph A	1,597.26	1,597.26
419	Regular	2/28/2020	56	Thomas-Nett,	2,407.33	2,407.33
420	Regular	2/28/2020	120	Tyner, Keith W	2,635.00	2,635.00
421	Regular	2/28/2020	54	Wells, Michael L	2,616.07	2,616.07
422	Regular	2/28/2020	28	Delucchi, Steven A	3,823.43	3,823.43
423	Regular	2/28/2020	104	McGovern, Robert	2,998.76	2,998.76
424	Regular	2/28/2020	76	Engh, Eric S	2,620.19	2,620.19
425	Regular	2/28/2020	37	Sequeira, Nizza N	3,018.49	3,018.49

		33 Items		89,950.60	89,950.60
Totals:			Check Type	Net Amount	Dir Dep
			Regular	89,950.60	89,950.60
			Totals	89,950.60	89,950.60

Report Totals

			Check Type	Net Amount	Dir Dep
			Regular	89,950.60	89,950.60
			Totals	89,950.60	89,950.60

Account	Date	Amount	Check	Description
H 7487	02/05/2020	4,807.00	806454200	ADAPCO, INC.
H 7487	02/05/2020	1,500.00	806454201	ALL CAL CONSTRUCTION SERVICES
H 7487	02/05/2020	14.68	806454202	ARGO ADVENTURE/LIEWER
H 7487	02/05/2020	206.02	806454203	AT & T
H 7487	02/05/2020	33.00	806454204	BRODIE'S TIRE & BRAKE INC.
H 7487	02/05/2020	4,825.00	806454205	CALPERS 457 PLAN
H 7487	02/05/2020	2,760.51	806454206	CINTAS CORPORATION
H 7487	02/05/2020	36.68	806454207	COMPLETE WELDERS SUPPLY, INC.
H 7487	02/05/2020	18,970.15	806454208	COUNTY OF MARIN
H 7487	02/05/2020	18,401.22	806454209	COUNTY OF MARIN
H 7487	02/05/2020	3,614.19	806454210	DELTA DENTAL OF CALIFORNIA
H 7487	02/05/2020	55.38	806454211	DISH
H 7487	02/05/2020	188.62	806454212	GRAINGER
H 7487	02/05/2020	182.84	806454213	THE HARTFORD
H 7487	02/05/2020	277.99	806454214	LARSENGINES
H 7487	02/05/2020	2,385.00	806454215	LIEBERT CASSIDY WHITMORE
H 7487	02/05/2020	594.90	806454216	KELLY LIEBMAN
H 7487	02/05/2020	213.57	806454217	LOWE'S BUSINESS ACCOUNT
H 7487	02/05/2020	5,095.09	806454218	MUNICIPAL RESOURCE GROUP, LLC
H 7487	02/05/2020	3,524.74	806454219	NATIONWIDE TRUST COMPANY, FSB
H 7487	02/05/2020	250.00	806454220	NEOFUNDS
H 7487	02/05/2020	4,961.28	806454221	NORTH BAY PETROLEUM
H 7487	02/05/2020	44.09	806454222	RELIABLE HARDWARE AND STEEL CO.
H 7487	02/05/2020	347.19	806454223	SANTA ROSA AUTO PARTS
H 7487	02/05/2020	2,843.26	806454224	SEBASTOPOL BEARING & HYDRAULIC
H 7487	02/05/2020	103.00	806454225	SONOMA MEDIA INVESTMENTS, LLC
H 7487	02/05/2020	718.74	806454226	TASC
H 7487	02/05/2020	818.18	806454227	TEAMSTERS LOCAL UNION NO. 856 HEALT
H 7487	02/05/2020	1,702.43	806454228	VERIZON WIRELESS
H 7487	02/05/2020	897.49	806454229	VISION SERVICE PLAN (CA)
Total		80,372.24		
Count		30		

A/P 2.05.20

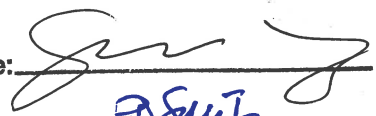

During the signing of these checks
all supporting documents were provided.

Signature: Tamara Dawe
Signature: D. Smith

Account	Date	Amount	Check	Description
H 7487	02/20/2020	9,903.85	806454230	ADAPCO, INC.
H 7487	02/20/2020	1,279.14	806454231	AFLAC
H 7487	02/20/2020	5,000.00	806454232	ALDRICH NETWORK CONSULTING
H 7487	02/20/2020	875.00	806454233	ALDRICH NETWORK CONSULTING
H 7487	02/20/2020	302.82	806454234	ARGO ADVENTURE/LIEWER
H 7487	02/20/2020	32.43	806454235	AT & T
H 7487	02/20/2020	1,364.61	806454236	BAY ALARM COMPANY
H 7487	02/20/2020	379.00	806454237	BAY AREA AIR QUALITY
H 7487	02/20/2020	202.50	806454238	BEST BEST & KRIEGER, LLC.
H 7487	02/20/2020	2,431.88	806454239	BRODIE'S TIRE & BRAKE INC.
H 7487	02/20/2020	4,825.00	806454240	CALPERS 457 PLAN
H 7487	02/20/2020	750.00	806454241	CMI, A SOLUTIONS II COMPANY
H 7487	02/20/2020	165.05	806454242	COMCAST BUSINESS
H 7487	02/20/2020	18,970.15	806454243	COUNTY OF MARIN
H 7487	02/20/2020	43.63	806454244	JENNIFER CRAYNE
H 7487	02/20/2020	43.63	806454245	TAMARA DAVIS
H 7487	02/20/2020	300.48	806454246	FISHMAN SUPPLY COMPANY
H 7487	02/20/2020	44.21	806454247	FRIEDMAN'S HOME IMPROVEMENT
H 7487	02/20/2020	343.05	806454248	GREAT AMERICA FINANCIAL SERVICES
H 7487	02/20/2020	1,000.00	806454249	GREEN VINE LANDSCAPING, INC.
H 7487	02/20/2020	486.74	806454250	HENRY CURTIS FORD/MERCURY
H 7487	02/20/2020	100.00	806454251	INTEGRAL LANDSCAPES
H 7487	02/20/2020	53,778.82	806454252	KAISER FOUNDATION HEALTH PLAN
H 7487	02/20/2020	7,776.65	806454253	LIEBERT CASSIDY WHITMORE
H 7487	02/20/2020	690.47	806454254	LIFE TECHNOLOGIES CORPORATION
H 7487	02/20/2020	118,025.84	806454255	MARIN COUNTY EMPLOYEES RETIREMENT A
H 7487	02/20/2020	50.00	806454256	MARIN INDEPENDENT JOURNAL
H 7487	02/20/2020	940.00	806454257	MAZE & ASSOCIATES
H 7487	02/20/2020	973.21	806454258	MITEL
H 7487	02/20/2020	3,524.74	806454259	NATIONWIDE TRUST COMPANY, FSB
H 7487	02/20/2020	942.50	806454260	NBS GOVERNMENT FINANCE GROUP
H 7487	02/20/2020	257.20	806454261	NORTH MARIN WATER DISTRICT
H 7487	02/20/2020	326.44	806454262	OFFICE DEPOT BUSINESS CREDIT
H 7487	02/20/2020	497.85	806454263	P.G. & E.
H 7487	02/20/2020	3,221.10	806454264	P.G. & E.
H 7487	02/20/2020	1,550.00	806454265	PATRICK VON ELM
H 7487	02/20/2020	223.47	806454266	RECOLOGY SONOMA MARIN
H 7487	02/20/2020	1,095.00	806454267	RICHARD A. SANCHEZ
H 7487	02/20/2020	67.50	806454268	SANTA ROSA AUTO PARTS
H 7487	02/20/2020	306.71	806454269	SEBASTOPOL BEARING & HYDRAULIC
H 7487	02/20/2020	51.25	806454270	PHILIP SMITH
H 7487	02/20/2020	718.74	806454271	TASC
H 7487	02/20/2020	8,089.53	806454272	UNIVAR USA INC
H 7487	02/20/2020	7,873.00	806454273	US BANK
H 7487	02/20/2020	771.00	806454274	VANTAGEPOINT TRANSFER AGENTS-803673
Total		260,594.19		
Count		45		

A/P 2.20.20

During the signing of these checks
all supporting documents were provided.

Signature: 
Signature: 

MEMORANDUM

DATE: March 11, 2020
TO: Board of Trustees
FROM: Philip Smith, District Manager
SUBJECT: Vector Control Joint Powers Agency (VCJPA) Report



Overall, the VCJPA ended 2019 in solid financial condition with over \$32M in cash and investments (average of AA grade). The JPA's net position increased 2.3% from the prior year and the rate of investment return was 2.61%, up from a meager 1% in fiscal year 14-15. In light of the recent market correction, the current fiscal year (VCJPA operates on the calendar year) may yield less favorable results. However, the JPA's financial advisor showed a graph depicting long term market trends, illustrating that paper losses from major corrections have always been outweighed by subsequent gains.

As decided at last year's conference, the JPA has reduced the annual refunds from retrospective adjustments to the 35 member districts by 50% in order to build equity in some of the mid-layer pools. This District will feel the impact of reduced refunds for a period of approximately five years. However, our balance (\$803,361) in the Member Contingency Fund is now in excess of the minimum considered prudent by the JPA administration staff at Sedgewick (formerly Bickmore). We earn the same 2.61% as the JPA funds, which is a higher rate than the recent County Treasury return of 2.2%.

Claims

Claims liabilities are down in general from previous years, but the funds available for member refunds are further reduced due to the increased reserves that may be needed to pay claims as part of the five-year retrospective adjustment process.

Bodily injury claims average around \$1,800 but employment practices liability claims average \$23,000, underscoring the value of training supervisory and administrative staff. One reason for the increase is that claimants can now obtain financing for the process of bringing their claims, rather than paying out of pocket or relying on an attorney's willingness to take a case on contingency.

Worker's compensation claims were lower last year. Although the program showed a net loss of \$1M, this was due to a \$2.5M adjustment for contingent liabilities. Field operations account for the highest number of claims by far. Only two claims last year were for psychological injury and distress, but the dollar amount represented almost half the total of WC claims.

Vehicle Programs

Operation of motor vehicles is a key driver of losses in these programs, principally caused by drivers backing into objects, sideswipe accidents on narrow roads, and districted driving (text/phone use). This District conducts regular initial and refresher driver training, including on the road observations with JPA risk management staff.

A total of 1,076 vehicles are covered for physical damage up to \$35,000 each, at a modest premium of \$50 per vehicle per year. Rates are now being smoothed to avoid the prior issue of years of large losses being followed by years of sizeable premium increases.

Crime

This coverage (for financial or other wrongdoing) is provided through AIG. Despite claims being very low, premiums are expected to rise 5% next year.

Aircraft

The JPA covers drone usage, provided that a district's board has authorized a UAS program. There was a prolonged discussion about transfer of risk and non-owned aircraft liability, as in the case of Alpine Helicopter (the District's contractor). As a result, we will seek additional risk transfer documentation and attempt to increase the amount of our coverage.

Excess Coverage

The JPA provides some coverages through in-house funding, while other specialized risks and larger amounts are provided by other JPA's such as CARMA, LAWXC (worker's compensation) & ERMA. A proposal from last year to switch carriers was dropped due to CARMA lowering its rates for VCJPA members. Trustee Davis serves on the CARMA board. Additional coverage is purchased in the reinsurance market but the market for purchasing excess liability coverage of all types is hardening due to the major losses suffered by insurers in recent years.

Almost all VCJPA member agencies also participate in ERMA, the Employment Risk Management Agency.

Outlook for Premium Costs

The proposed VCJPA budget will be considered by the Board in April, meaning that staff will advise us of our premiums in late April 2020. In the meantime, District staff estimates that premiums will increase between 5 and 10% over fiscal year 2019-20. Because our claims have been relatively low in volume and cost, the experience modification process (five-year lookback) should keep our increases modest and refunds healthy for the foreseeable future.

MARIN/SONOMA MOSQUITO AND VECTOR CONTROL DISTRICT

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Capital Asset Replacement Program Update and Target Fund Balance Analysis



Prepared by

**Mike Oliver
Mike Bakaldin
Dana Shigley**

Municipal Resource Group, LLC

February 2020

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Exhibits

- A. Fund Balance Classifications and Target Balances
- B. Capital Asset Replacement Schedule
- C. Assets Excluded from the Asset Replacement Schedule
- D. Pay-As-You-Go Strategy

I. EXECUTIVE SUMMARY

The Marin/Sonoma Mosquito and Vector Control District (“District”) requested Municipal Resource Group, LLC’s (MRG) assistance to conduct an analysis and develop recommendations for modifications and improvements to the Capital Asset Replacement Program and the District’s current Fund Balance Targets. MRG and the District worked together to analyze the two activity areas. MRG has developed recommendations, presented them to District staff and included them in this report.

MRG began our analysis of the District’s Capital Asset and Replacement Program by reviewing the previous MRG program created in 2016. Based on District staff input, we modified the asset list to include only those assets valued at more than \$5,000. The items removed (valued between \$500 and \$4,999) were included in a separate analysis that identifies and annualizes the projected increase in operating costs for inclusion in the District’s budget. We also developed several funding options for the Capital Replacement Program designed to add predictability to the replacement plan and provide adequate funds to ensure the program is self-funding and sustaining.

In conducting the analysis of the District’s Target Fund Balance Policy, we developed alternative approaches designed to provide the District with a prudent level of financial security while enhancing its utilization of current reserves. These alternatives were discussed with District staff. Our report contains recommendations designed to reduce the District’s unfunded liabilities, preserve adequate reserves, improve yearly cash flow, and help protect annual budgets from future economic downturns.

As part of the Capital Asset Replacement Schedule analysis, MRG completed the following activities and provides the following recommendations:

- MRG analyzed the equipment and facilities included in the District’s current Capital Asset Replacement Schedule, including only those assets with a value of more than \$5,000. As mentioned previously, MRG removed items valued at less than \$5,000 and estimated annual replacement costs. The remaining items were updated to reflect current costs, replacement frequency and replacement values.
- The District currently funds its capital replacements on a pay-as-you-go basis, resulting in significantly fluctuating contributions year to year, ranging from the low \$1,000s to \$1.0 million. To provide budget predictability and ensure adequate funding, we developed a revised funding program with consistent annual contributions and a beginning fund balance to ensure the yearly payment (and fund balance when needed) will be adequate to acquire all the identified items over the 20-year funding cycle.
- MRG developed two options for the funding program, including a \$1.0 million or \$2.0 million beginning fund balance. Both options will result in the same balance at the end of the 20-year period (\$1.0 million). However, the annual payments for

the \$1.0 million option will be significantly higher, requiring additional annual contributions to fully fund the program.

- The benefits of these recommendations include providing a predictable budget cost over the life of the program and ensuring adequate funds are available to make critical capital purchases.

As part of the District's Target Fund Balance Policy analysis, MRG completed the following activities and provides the following recommendations:

- MRG analyzed the District's current Target Fund Balance Policy, which is designed to ensure adequate funds for operations, capital replacement, cash flow interruptions and unforeseen critical emergencies.
- These Target Fund Balances were developed following the NBS Fiscal Review, and MRG confirmed that the District is currently in compliance with the reserve policy. Our analysis focused on both the practicality of the Fund Balances (i.e. purpose, likelihood and consequences of inadequacies) and the potential benefits the District could gain by applying any underutilized Fund Balance to existing unfunded liabilities. In addition, we explored the potential year-over-year benefit of reducing the obligations for unfunded liabilities on the District's annual cash flow.
- Our recommendation focuses on two of the current Fund Reserves: Capital Asset Replacement and Minimum Fund Balance for Interruptions in Revenue Flow. As discussed above, the Capital Replacement Fund Balance can be reduced to \$1.0 million and not significantly impair the District's ability to replace its equipment and facilities. Our analysis of the District's General Fund Minimum Fund Balance demonstrates that this Fund is adequate to provide a significant buffer for the District's operating activities during the quiescent funding period between receipt of property tax revenues. Based on this analysis, we conclude that the Interruptions in Revenue Flow Reserve provides extra cushion that can be prudently utilized to reduce a portion of the District's unfunded liabilities.
- The District's unfunded liabilities currently include an OPEB obligation that requires a yearly \$509,000 payment for the next 19 years. This amount is estimated to fully fund the amount required to pay for the District's future medical cost commitments.
- MRG recommends that the District utilize \$1.0 million from the Capital Replacement Reserve and approximately \$3.1 to \$4.0 million from the Interruptions in Revenue Reserve to substantially retire the OPEB liability, reducing annual costs by \$370,000 to \$450,000. The District could use these funds to rebuild reserves, offset declining revenues or other ongoing District needs.

Based on our review of the District's Capital Replacement Program and Target Reserve Policy, we believe that the District has a significant opportunity to utilize existing resources to make prudent modifications to these Programs and Policies and improve its financial position. These recommendations are based on the principle that the District needs to retain adequate

reserves for the contingencies it has identified. We believe that these modifications will not adversely impact these Policies.

II. PROJECT BACKGROUND AND CURRENT CONDITIONS

A. Project Background

The District’s Capital Asset Replacement Program was last updated in 2016. Since that time, the District has disposed of and acquired assets, as well as increased its capitalization level from \$500 to \$5,000, decreasing the number of assets in the capital program. These changes warrant a complete update to the Capital Asset Replacement Program.

The 2016 Capital Asset Replacement Study included a 20-year Capital Asset Replacement Forecast and two potential capital asset funding strategies. The Pay-As-You-Go Analysis determined the annual budget requirements to replace the existing capital assets in the year that they reached the end of their useful lives (Annual Budget Strategy). The Net Present Value Analysis determined the amount of money required to be reserved up front to pay for the eventual replacement of the existing capital assets (Reserve Strategy). Due to the significant up-front capital outlay, the District chose to continue to fund capital asset replacement using the Annual Budget Strategy.

The District continues to look for ways to reduce costs and set aside necessary funds to protect its finances against future funding shortfalls. To this end, the District asked MRG to complete two primary tasks: (1) update the District’s capital asset schedule and make recommendations for capital asset funding strategies; and (2) review the District’s fund balance targets to determine if they are sufficient or if adjustments are warranted.

B. Current Conditions

Although the District suffered negative net revenues during the recession and recovery years, for the past several years the District has experienced positive cash flow each year. This is the result of strong general revenue growth in the 2017/18 and 2018/19 fiscal years (5.91% each year) and excellent management of expenditures.

	2016/2017	2017/2018	Change	2018/2019	Change
General Revenue					
Taxes and Assessments	\$8,623,157	\$8,945,986	3.7%	\$9,389,137	5.0%
Use of Money and Property	\$57,377	\$128,001	123.1%	\$285,003	122.7%
Other Revenue	\$224,529	\$357,254	59.1%	\$314,435	-12.0%
Total General Revenue	\$8,905,063	\$9,431,241	5.9%	\$9,988,575	5.9%
Program Revenue	\$114,302	\$91,054	-20.3%	\$130,671	43.5%
Expenses	\$8,406,793	\$8,047,663	-4.3%	\$8,892,909	10.5%
Change in Net Position	\$612,572	\$1,474,632	140.7%	\$1,226,337	-16.8%
Ending Net Position	\$8,429,866	\$9,904,498	17.5%	\$11,130,835	12.4%

As with all local government agencies, operating revenues and expenses will vary year to year based on many factors, most of which are out of the control of the agency: regional and national economic cycles, housing prices, and the labor market will all impact District finances. Additionally, in the case of MSMVCD, public health and vector outbreaks can result in unplanned and significant expenses. It is important to look beyond the recent fiscal successes and plan for the inevitable long-term cycles that could once again stress District finances.

Striving to ensure that long-term finances remain stable, the District recently completed several important tasks. The District contracts with NBS to provide annual 10-year operating projections and, in late 2018, NBS completed its most recent analysis with recommendations for improving and stabilizing the District's finances. This analysis concluded that, despite positive cash flow in the last few years, growth in expenses in the coming decade will outpace growth in revenues, leaving the District in a negative cash flow position. The NBS report included four recommendations for the District to implement:

1. Revise and formalize financial policies for the District's fund balance targets. This task was completed in March 2019.
2. Revise budgeting practices to closer match spending habits. This is an ongoing task, requiring changes to budgeting methods and approach. As part of this effort, the District recently changed its method of projecting operating revenues to include actual revenue receipts for the prior year.
3. Update and develop a formal capital improvement plan and program. This is one of the two objectives for this MRG report.
4. Consider a minor new assessment to maintain the District's financial position. The District considered this recommendation and declined to move forward at this time, opting to take a closer look at fiscal trends and needs before considering a new assessment.

The District's newly-updated Fund Balance Classifications and Target Balances Policy is attached as **Exhibit A**. This policy sets aside five fund balance reserves intended to stabilize the District's finances and help ensure the District can continue to provide critical services when unanticipated fluctuations in revenues and expenses arise.

Public Health Emergency Reserve Fund Balance Commitment. This reserve will provide critical funds if needed to respond to a significant public health emergency, such as an outbreak of vector-borne disease or discovery of invasive species. The policy requires that 20% of the current year budgeted annual expenditures be set aside for this purpose. For the 2019/20 fiscal year, the District has a total expense budget of \$9,808,634, resulting in a required commitment of \$1,961,727. The District's balance sheet for June 30, 2019 shows a commitment of \$1,175,195; however, since January 30, 2019, the District transferred additional funds to this commitment and now has a current balance of \$1,970,100. The District is in compliance with this requirement.

Capital Replacement and Projects Target Fund Balance. This reserve is intended to set aside funds for the long-term replacement of capital assets, including vehicles, laboratory

equipment and similar equipment and facilities. Currently, the District has adopted a pay-as-you-go approach to capital asset replacement, expecting to budget from current year operating revenues each year as needed to replace capital assets. The policy requires a fixed \$2 million commitment to this fund to act as a buffer should capital needs exceed current year resources. The District’s balance sheet for June 30, 2019 shows a fund balance of \$3,194,012. However, since June 30, 2019, the District has reduced this balance to \$2,000,000, as required by the policy. The District is in compliance with this requirement.

General Fund Minimum Fund Balance to provide working capital during the “no-income” period and General Fund Minimum Fund Balance for Interruptions in Revenue Flow. These two policies address different, but related areas. The General Fund minimum balance during the “no-income” period addresses the intermittent nature of the District’s revenues, and the General Fund minimum balance for interruptions in revenue flow addresses situations where the District’s revenues are not available due to outside events, such as a natural or other disaster. Approximately 95% of the District’s total revenues are collected by the Counties of Sonoma and Marin, and distributed to the District twice annually. As such, the District receives little or no revenue for most months of the year, while expenses continue consistently throughout the year. These two fund balances will help ensure that the District has sufficient cash on hand to cover expenses during the months when very little revenue is received, as well as help protect District operations should there be an unanticipated and significant interruption in revenues. These two policies require similar amounts, equal to 50% of budgeted expenditures (with and without capital expenses).

	2109/20 Budget	50% Requirement
Working Capital during “No Income” Period	\$9,808,634	\$4,904,317
Interruptions in Revenue Flow	\$9,613,634 <i>(excludes capital expenses)</i>	\$4,806,817
Total Requirement		\$9,711,134

As of June 30, 2019, the District has fund balances and assignments as follows:

	June 30, 2019
Unassigned General Fund Balance	\$7,465,556
Commitment for Dry Period (No Income) Funding	\$3,200,000
Less: General Fund transfer to Retiree Health CERBT after June 30, 2019	(\$1,608,646)
Plus: Transfer from Capital Reserve Fund after June 30, 2019	\$428,310
Available Funds	\$9,490,269

The District is in substantial compliance with the funding requirements of this policy. Actual cash in the District’s Unassigned Fund Balance varies during the year; during 2019, actual cash ranged from \$7.4 to \$11.4 million. (Note that, while each of these two reserves are identified as “assigned fund balances” in the adopted policy, the financial statements show \$3.2 million assigned and the balance unassigned. This will be changed in future year financial statements to reflect the new policy.)

Insurance Pool Contingency Target Fund Balance. The District participates in the Vector Control Joint Powers Agency to manage self-insurance for general liability and workers’

compensation losses. While the JPA does provide insurance for significant losses, the District maintains a self-insured retention, similar to an insurance deductible, to cover some losses. This policy requires that the District will maintain a cash balance on deposit with the Joint Powers Agency equal to the amount determined appropriate by the JPA. As of June 30, 2019, the District has \$791,760 on deposit with the JPA, which exceeds the JPA minimum requirement. The District is in compliance with this requirement.

III. PROJECT METHODOLOGY

MRG worked collaboratively with District staff in conducting the analysis and in preparing this report. The project methodology included the following steps, tasks, analyses and deliverables:

- MRG consultants met with key District staff to confirm the project objectives and discuss the project tasks, timelines and deliverables.

For the Capital Asset Replacement Program Update portion of this report:

- MRG received a preliminary list of District assets, including date of purchase, purchase price or estimated replacement cost for each asset, and estimated service life. The District asset list was primarily derived from a Capital Asset Replacement Study conducted in 2015/16.
- MRG and District staff performed field assessments to verify and update the list of assets and to evaluate asset condition. MRG and District staff also standardized asset categories, refined useful life estimates to more accurately reflect the District's asset replacement practices and timelines, and updated replacement cost estimates.
- MRG prepared a Capital Asset Replacement Schedule, identifying for each capital asset the year it was placed in service, as well as its useful life, original or estimated acquisition cost and current replacement cost. MRG also prepared a list of existing capital assets that the District does not plan to replace.
- Based on the Capital Asset Replacement Schedule, MRG prepared a 20-year Capital Asset Replacement Forecast. Using the forecast, MRG and District staff considered the condition of all existing assets, especially those scheduled to be replaced in the next five years, to create a more refined five-year capital replacement expenditure plan.

For the Analysis and Recommendations for Target Fund Balance Analysis portion of this report:

- MRG consultants met with the District Manager and the Financial Manager to discuss the District's financial challenges, fiscal history, project goals, and to review financial reports. This included discussion of the District's long-term liabilities for retirement and retiree medical benefits.
- MRG consultants reviewed the following documents: current District reserve policy; District financial statements for the years ended June 30, 2018 and 2019;

operating and capital budget for fiscal year 2019/20; NBS 10-year projection dated December 3, 2018; Marin County Employees' Retirement Association's ("MCERA") actuarial report as of June 30, 2018; Bartel Associates' retiree healthcare plan actuarial valuations as of June 30, 2017 and 2019; Marin County Treasurer monthly statements for 2018 and 2019, and miscellaneous emails and other documents regarding the District's fiscal status.

- MRG developed a proposed long-term funding plan for the Capital Asset Replacement Program.
- MRG analyzed District fiscal information, reviewed samples from other agencies, performed calculations and developed recommendations for District fund balances and the reserve policy.

To complete the project:

- MRG prepared a draft Capital Asset Replacement Program Update and Target Fund Balance Analysis for consideration by District staff.
- MRG delivered the final Capital Asset Replacement Program Update and Target Fund Balance Analysis Report.

IV. CAPITAL ASSET REPLACEMENT SCHEDULE UPDATE

The District's capital assets include major building systems, vehicles and equipment. Several non-capital maintenance items, such as interior and exterior painting and flooring materials, were included in this report at the District's request. Even though these items do not qualify as capital assets, the District has an ongoing need to finance periodic replacement of these costly items.

MRG prepared a Capital Asset Replacement Schedule (**Exhibit B**), which includes approximately 113 separate assets, each with a current replacement cost in excess of \$5,000. Existing capital assets that will not be replaced and assets with a replacement cost of less than \$5,000 are not included in the Capital Asset Replacement Schedule.

The Capital Asset Replacement Schedule provides the following information:

Year Purchased/In Service – the year in which the capital asset was either purchased or placed into service by the District.

Asset Description – a brief description and/or the brand/model of the capital asset.

Service Life – the estimated useful life of the capital asset. Useful lives range from five years for computer servers and an asphalt seal coat to 40 years for an excavator.

Actual/Estimated Cost – the actual or estimated cost of the capital asset.

Year Actual/Estimated Cost Determined – the year that the capital asset’s *Actual/Estimated Cost* was determined via purchase price or estimate.

Replacement Cost Source – the methodology or the source of information used to estimate the current (2019/20) replacement cost of the capital asset. Several methods and/or sources were used to estimate current replacement cost:

Cost + ENR-BCI – for major building systems, the analysis uses the *Actual/Estimated Cost* and adjusts that cost by the Engineering News Record – 20 City Average Building Construction Cost Index (ENR-BCI) from the *Year Actual/Estimated Cost Determined* to 2019/20. The ENR-BCI is a commonly used index that tracks the average cost of construction. Over the past 20 years, the ENR-BCI averaged 2.92%.

Cost + CPI – for some capital assets, the analysis uses the *Actual/Estimated Cost* and adjusts that cost by a Consumer Price Index (CPI) factor. The analysis applies a 2.79% annual CPI factor from the *Year Actual/Estimated Cost Determined* to 2019/20, consistent with the Consumer Price Index – All Urban Consumers – San Francisco-Oakland-San Jose, which has averaged 2.79% annually over the past 20 years.

Actual Cost – actual cost paid by the District.

Contractor or Vendor – bids, estimates or quotes from contractors or vendors.

MRG – replacement cost is based on MRG’s experience in conducting similar analyses.

District – replacement cost is based on District staff’s experience in acquiring capital assets or on the costs derived by the 2016 Capital Asset Analysis.

Current Replacement Cost – the estimated or actual cost to replace the capital asset in 2019/20.

Assets Not Included in the Capital Asset Replacement Schedule

The District has a capitalization standard of \$5,000, meaning that any asset purchase in an amount less than \$5,000 is expensed and not carried in the District’s financial statements as an asset. The Capital Asset Replacement Schedule does not include existing assets with a current replacement cost of less than \$5,000. In addition, District staff identified certain capital assets that will not be replaced because of obsolescence or for other reasons.

Major building systems that will require eventual replacement are included in the Capital Asset Replacement Schedule (such as roofs and HVAC systems). However, complete replacement of the District’s permanent buildings is not included in the schedule for several reasons:

- Only assets that depreciate are typically included in a replacement schedule; buildings do not necessarily depreciate over time, and may in fact appreciate in value.

- If District facilities were to be relocated in the future, there would be significant resale value attributable to the existing buildings and facilities, the value of which is not known at this time.
- Purchase or construction of any future replacement buildings would likely be financed by bond proceeds with debt service payments made in the years following the purchase or construction of the new facilities, rather than reserved in advance.

In addition, replacement of entire buildings is often planned well ahead, allowing time to set aside funds for acquisition or construction. At this time, we are not aware of any plan to relocate the District’s facilities within the time horizon of this study (20 years).

Exhibit C lists the 41 existing capital assets that have been excluded from the Capital Asset Replacement Schedule.

The District recently raised its capitalization standard from \$500 to the current \$5,000, thereby removing approximately 250 capital assets from the Capital Asset Replacement Schedule. As part of this report, the District requested that MRG determine the approximate impact to the District’s annual operating budget for funding the ongoing replacement of these 250 capital assets.

Using the capital asset descriptions, service life estimates, and replacement costs from the 2016 study, MRG estimated that the average annual impact on the current operating budget to fund the ongoing replacement of the 250 assets is approximately \$47,600. The estimated annual replacement costs are summarized by asset category in the table below:

Asset Category	Annual Budget Impact
Equipment – Computers/Electronic/Office	\$17,500
Equipment – Shop and Spray	\$12,000
Furniture	\$10,000
Equipment – Lab and Fish	\$5,000
Trailers	\$2,500
Equipment – Education/Public Outreach	\$600
Total	\$47,600

The District will need to include an average of \$47,600 in the operating budget each year for these former capital asset replacement expenditures.

V. CAPITAL ASSET FUNDING STRATEGIES

There are two primary capital asset funding strategies: the Pay-As-You-Go Strategy and the Reserve Fund Strategy. In this report, we review how each strategy works, as well as the strengths and weaknesses of each approach.

Pay-As-You-Go Funding Strategy

The Pay-As-You-Go Strategy estimates the cost of replacing each existing capital asset in the year in which it is expected to be replaced (when the useful life expires). Using this funding method, the annual budget each year would include the cost to replace the capital asset funded from annual operating revenues. In some years, capital replacement costs are relatively low, and this would not strain the operating budget. However, in some years, the cost to replace essential capital assets could be quite high, exceeding the ability to fund the cost from annual operating revenues.

For this analysis, the cost in the replacement year is “inflation-adjusted” by one of the two following factors:

- For major building systems, the replacement cost in the year in which the asset is expected to be replaced is based on the current replacement cost adjusted by an average annual 2.92% ENR-BCI factor from 2019/20 to the expected replacement year. For example, a capital asset with a current (2019/20) replacement cost of \$100,000 that is scheduled to be replaced in 2020/21 would have a 2020/21 replacement cost of \$103,000 (all replacement costs are rounded to the nearest thousand).
- For equipment and vehicles, the replacement cost in the year in which the capital asset is expected to be replaced is based on the current (2019/20) replacement cost, adjusted by an average annual 2.79% CPI factor from 2019/20 to the replacement year.

Exhibit D provides the Pay-As-You-Go Analysis. It presents the inflation-adjusted replacement cost for all District-owned capital assets, with 2019/20 as the base year replacement cost and continuing from 2020/21 through 2039/40, a 20-year period. Most existing capital assets will be replaced at least once during the 20-year period. Assets with relatively short useful lives may be replaced more than once during the 20-year period.

Exhibit D can be used as an annual budget tool, because it estimates the amount in inflation-adjusted dollars required in any given year to replace capital assets that have reached the end of their useful lives.

The Pay-As-You-Go Analysis indicates that the annual replacement cost (in inflation-adjusted dollars) would range from a low of \$17,000 in 2029/30 to a high of \$1,164,000 in 2036/37. Exhibit D identifies the replacement cost for each capital asset reaching the end of its useful life from 2020/21 through 2039/40. **Table 1**, below, provides a summary of annual budget requirements in inflation-adjusted dollars.

Table 1: Annual Budget Requirements, Inflation-Adjusted Dollars

Year	Capital Budget Requirement
2020/21	\$446,000
2021/22	\$75,000
2022/23	\$172,000

Year	Capital Budget Requirement
2023/24	\$353,000
2024/25	\$410,000
2025/26	\$720,000
2026/27	\$408,000
2027/28	\$442,000
2028/29	\$346,000
2029/30	\$17,000
2030/31	\$516,000
2031/32	\$260,000
2032/33	\$423,000
2033/34	\$137,000
2034/35	\$144,000
2035/36	\$274,000
2036/37	\$1,164,000
2037/38	\$174,000
2038/39	\$403,000
2039/40	\$383,000

⇒ MRG recommends that the District update the Capital Asset Replacement Schedule as it acquires new assets or replaces existing assets. Maintaining an accurate and up-to-date Capital Asset Replacement Schedule will make future analyses much simpler to perform.

Five-Year Capital Asset Replacement Plan

Most municipal organizations and government-owned utilities prepare five-year capital improvement plans for the construction, acquisition, or replacement of capital assets. Capital improvement plans are critical, since municipalities and utilities are heavily capital asset dependent, with significant infrastructure both above and below ground. The replacement value of capital assets for small municipalities and utilities is often ten to one hundred million dollars or more. In comparison, the current replacement value of the District’s capital assets is approximately \$4 million, and the majority of its capital assets are equipment, such as vehicles, spray equipment, and laboratory equipment, which are relatively inexpensive to repair and replace.

District staff and MRG reviewed the Capital Asset Replacement Schedule with a tighter focus on the capital assets that will require replacement over the next five years. This detailed review determined that the replacement schedule accurately represents the assets that will likely need to be replaced over the next five years and a separate schedule for the Five-Year Capital Asset Replacement Plan is not necessary. This is a result of the careful review and updating of the service life estimates for each asset that occurred as part of this update process.

The one noteworthy exception is the 1996 Chevrolet 1 Ton Service Truck, which the schedule calls for replacement in 2020/21. District staff believes that the vehicle has several years of service life yet and would likely not replace it until 2024/25. Three less expensive pieces of equipment, the Nuair safety cabinet (\$9,000 in 2020/21), the dual mixer mill (\$14,000 in 2021/22), and the laboratory negative pressure fan (\$29,000 in 2021/22) have the potential to be deferred into future years, as these types of equipment are typically not replaced until they fail, exhibit poor reliability or functionality, or until repair is infeasible due to cost or obsolescence.

Reserve Fund Strategy

The Reserve Fund Strategy starts with a net present value analysis to estimate the amount of money that would need to be set aside in a Capital Replacement Fund in 2020/21, which if invested at a given interest rate (also known as a discount rate) would provide sufficient funding to pay for the inflation-adjusted cost of replacing all capital assets scheduled to be replaced over the 20-year period.

The net present value analysis assumes that money in a Capital Replacement Fund would accrue interest income at an annual interest rate of 2.26%, which has been the average annual California State Treasurer Local Agency Investment Fund (LAIF) interest rate over the past 20 years. A lower interest rate (discount rate) would result in a higher net present value and a higher amount required to be set aside in 2020/21 to fully fund the replacement of all existing capital assets. Similarly, a higher interest rate (discount rate) would result in a lower net present value and a lower amount required to be set aside in 2020/21 to fully fund the replacement of all existing capital assets.

Based on the Capital Asset Replacement Schedule and an assumed interest rate/discount rate of 2.26%, the District would need to set aside \$5,737,436 in a Capital Replacement Fund in 2020/21. This amount would be invested and would accrue interest at an annual rate of 2.26% over the 20-year period, and would provide sufficient funding for the replacement of the District's existing capital assets, as shown in Table 1.

Currently, the District is not in a position to set aside sufficient cash to finance the replacement of its major capital assets for the next 20 years. Few agencies are able to fully fund their capital replacement program in advance and most, instead, create a replacement reserve that is funded over time. With this approach, the District would deposit an equal and predictable amount of funds each year into the reserve, then spend the reserve each year on scheduled capital asset replacement. Thus, in some years, the District would spend more from the fund than deposited, while in other years the deposits would exceed expenditures. The amount of each deposit is calculated to fully fund the program over the course of the 20-year period.

This method has two significant benefits. First, it allows the District to budget each year for a predictable deposit into the fund. Transfers from the general fund are the same every year, reducing unpredictable demands on limited general fund dollars. Second, since the cash is set aside for capital replacement, there is less pressure to defer replacements because of insufficient cash flow. This encourages good asset management practices by replacing assets

when needed rather than holding them beyond their useful lives and spending operating funds on extraordinary repairs. While the practice of repeatedly repairing capital equipment can be cost effective in the short term, it does shift costs from the capital budget to the operating budget. Rather than repeatedly making repairs, assets should be replaced when they reach the end of their useful lives in order to minimize repair costs and help ensure the equipment is safe and reliable.

The District's current practice is to avoid the use of debt when replacing capital assets. This is an excellent strategy; however, there are times when long-term financing may be beneficial. For example, the State or other agency may offer below-market financing (or even 0% financing), or the asset cost may exceed available cash. If the District does choose to obtain long-term financing, the principal portion of the debt payments would be paid from the Capital Replacement Reserve Fund (as the value of the asset is included in the replacement program). The interest costs would be paid from other funding sources (typically the General Fund).

To maximize the benefit of the reserve fund, the District would make the annual contribution to the reserve fund early in each fiscal year to maximize interest earnings. Then, once or twice a year, the District would tally capital purchases in the General Fund and reimburse the General Fund from the reserve fund for these expenses.

When considering alternatives for a Reserve Fund Strategy, the District should consider three variables: the amount of the initial deposit, the amount of future annual contributions, and the fund balance at the end of the 20-year planning cycle.

The *initial contribution* should be sufficient to ensure that the reserve fund has adequate cash to support annual capital expenditures in the early years without cash flow deficits. The initial contribution also earns interest each year, reducing the required annual contributions.

The *annual contributions* should be an amount that can be funded by the General Fund and will be adequate to fully fund the Capital Asset Replacement Program over the 20-year period.

The *fund balance* at the end of the 20-year planning cycle will serve two purposes. First, during the 20-year period, it serves as a reserve in the event of a sudden and unplanned need to replace significant assets. Second, the ending balance will provide an initial deposit for the subsequent 20-year capital asset planning cycle. For example, the District may desire to maintain an amount equal to 25% of the current replacement cost of assets (approximately \$1,000,000 currently) as the ending fund balance/reserve. (This value could be changed periodically, resulting in adjustments to future annual contributions.)

Based on these variables, the District may consider two alternatives for a Reserve Fund Strategy.

- Alternative 1: Up Front Contribution of \$2,000,000 with Flat Annual Deposits and \$1,000,000 ending Fund Balance – The District could make an up-front contribution of \$2,000,000, followed by equal annual deposits of \$274,500 from 2021/22 through 2039/40 into the Capital Replacement Fund. This would leave an ending fund balance of approximately \$1,000,000 at the end of the planning period.
- Alternative 2: Up Front Contribution of \$1,000,000 with Flat Annual Deposits and \$1,000,000 ending Fund Balance - Alternately, the District could make an up-front contribution of \$1,000,000, followed by equal annual deposits of \$337,200 from 2021/22 through 2039/40 into the Capital Replacement Fund. This would leave an ending fund balance of approximately \$1,000,000 at the end of the planning period.

As with the Pay-As-You-go plan, any new capital assets that are added to the District’s inventory in the future would need to be added to the Capital Asset Replacement Schedule, and the Reserve Fund Strategy would need to be updated at regular intervals.

Cash Flow Analysis

Each of the two reserve fund strategies would result in different cash flow requirements in the Capital Replacement Fund. In each case, the District’s cash deposits would earn interest, assumed for this analysis at 2.26%. Additionally, the District would spend funds each year on capital assets, as shown in Table 1. The cash flow analysis, below, is provided to confirm that annual funding is adequate for the replacement of the existing capital assets, based on the assumptions described in this report. However, note that the analysis is interest rate sensitive. While the interest rates have averaged 2.26% over the past 20 years, rates fluctuate over time. If interest rates trend low for an extended period of time or do not achieve the long-term 2.26% average, the initial and on-going Capital Reserve Fund deposits could be insufficient to fully fund the replacement of all capital assets.

- *Alternative 1: Initial Deposit of \$2,000,000*

Under the first alternative, as presented in **Table 2** below, the District would make an initial deposit of \$2,000,000, followed by flat annual deposits of \$274,500 for the years 2021/22 through 2039/40 into the Capital Replacement Fund. This will leave a fund balance at the end of the 20-year period of approximately \$1,000,000. In this scenario, \$1,000,000 of the initial deposit would be spent over the course of the 20-year period as part of the Capital Asset Replacement Program.

Table 2: Alternative 1: Initial Deposit of \$2,000,000

Year	Beginning Fund Balance	Plus: Interest Income (2.26%) ¹	Plus: Annual Deposits	Less: Capital Expense	Ending Fund Balance
2020/21	2,000,000	45,200	274,500	446,000	\$1,873,700
2021/22	1,837,700	42,346	274,500	75,000	\$2,115,546
2022/23	2,115,546	47,811	274,500	172,000	\$2,265,857
2023/24	2,265,857	51,208	274,500	353,000	\$2,238,565

Year	Beginning Fund Balance	Plus: Interest Income (2.26%) ¹	Plus: Annual Deposits	Less: Capital Expense	Ending Fund Balance
2024/25	2,238,565	50,592	274,500	410,000	\$2,153,657
2025/26	2,153,657	48,673	274,500	720,000	\$1,756,830
2026/27	1,756,830	39,704	274,500	408,000	\$1,663,034
2027/28	1,663,034	37,585	274,500	442,000	\$1,533,118
2028/29	1,533,118	34,648	274,500	346,000	\$1,496,267
2029/30	1,496,267	33,816	274,500	17,000	\$1,787,583
2030/31	1,787,583	40,399	274,500	516,000	\$1,586,482
2031/32	1,586,482	35,854	274,500	260,000	\$1,636,836
2032/33	1,636,836	36,993	274,500	423,000	\$1,525,329
2033/34	1,525,329	34,472	274,500	137,000	\$1,697,301
2034/35	1,697,301	38,359	274,500	144,000	\$1,866,160
2035/36	1,866,160	42,175	274,500	274,000	\$1,908,836
2036/37	1,908,836	43,140	274,500	1,164,000 ²	\$1,062,475
2037/38	1,062,475	24,012	274,500	174,000	\$1,186,987
2038/39	1,186,987	26,826	274,500	403,000	\$1,085,313
2039/40	1,085,313	24,528	274,500	383,000	\$1,001,341

Notes: 1) Total interest income over the life of the 20-year program equals \$778,341.
2) Includes full replacement of solar system, valued at \$816,000.

- **Alternative 2: Initial Deposit of \$1,000,000**

Under the second alternative, presented in **Table 3** below, the District would make an initial deposit of \$1,000,000, followed by flat annual deposits of \$337,200 for the years 2021/22 through 2039/40 into the Capital Replacement Fund. This will leave a fund balance at the end of the 20-year period of approximately \$1,000,000. In this scenario, \$1,000,000 of the current Capital Asset Replacement Reserve would be used to fund other needs (discussed later in this report).

Table 3: Alternative 2: Initial Deposit of \$1,000,000

Year	Beginning Fund Balance	Plus: Interest Income (2.26%) ¹	Plus: Annual Deposits	Less: Capital Expense	Ending Fund Balance
2020/21	1,000,000	22,600	337,200	446,000	\$913,800
2021/22	913,800	20,652	337,200	75,000	\$1,196,652
2022/23	1,196,652	27,044	337,200	172,000	\$1,388,896
2023/24	1,388,896	31,389	337,200	353,000	\$1,404,485
2024/25	1,404,485	31,741	337,200	410,000	\$1,363,427
2025/26	1,363,427	30,813	337,200	720,000	\$1,011,440
2026/27	1,011,440	22,859	337,200	408,000	\$963,499
2027/28	963,499	21,775	337,200	442,000	\$880,474
2028/29	880,474	19,899	337,200	346,000	\$891,572
2029/30	891,572	20,150	337,200	17,000	\$1,231,922
2030/31	1,231,922	27,841	337,200	516,000	\$1,080,963
2031/32	1,080,963	24,430	337,200	260,000	\$1,182,593
2032/33	1,182,593	26,727	337,200	423,000	\$1,123,520

Year	Beginning Fund Balance	Plus: Interest Income (2.26%) ¹	Plus: Annual Deposits	Less: Capital Expense	Ending Fund Balance
2033/34	1,123,520	25,392	337,200	137,000	\$1,349,111
2034/35	1,349,111	30,490	337,200	144,000	\$1,572,801
2035/36	1,572,801	35,545	337,200	274,000	\$1,671,547
2036/37	1,671,547	37,777	337,200	1,164,000 ²	\$882,523
2037/38	882,523	19,945	337,200	174,000	\$1,065,668
2038/39	1,065,668	24,084	337,200	403,000	\$1,023,953
2039/40	1,023,953	23,141	337,200	383,000	\$1,001,294

Notes: 1) Total interest income over the life of the 20-year program equals \$594,294.

2) Includes full replacement of solar system, valued at \$816,000.

⇒ MRG recommends that the District update the Pay-As-You-Go and Net Present Value Analyses at approximately five-year intervals to ensure that adequate funds are being set aside for capital asset replacement. Regular updates to the Pay-As-You-Go and Net Present Value Analyses will ensure that the District can adjust its funding needs as new assets are acquired, existing assets are replaced, economic conditions evolve, and asset replacements outside the initial 20-year period come due.

VI. LONG-TERM LIABILITIES

The District has two primary revenue sources representing 99% of its total fiscal resources: ad valorem property taxes and benefit assessment. While these revenues in recent years have been strong, both are real-estate based and, with all the District’s “eggs in one basket,” economic downturns could significantly impact these revenues. Additionally, 75% of the benefit assessment revenues have reached their legal maximum and will not increase in future years, which will attenuate District revenues.

The 2018 NBS report modeled both revenue and expense projections for the next 10 years using various inflation factors, and concluded that revenue growth will not keep up with expenses in future years. Because economic downturns cannot be accurately predicted, the NBS report assumed even growth in both revenues and expenses during the 10-year period. Should the economy slow, revenues may slow even more than projected in the NBS report.

Based on the NBS report, the District is rightfully interested in reconciling the strong fiscal results experienced in recent years with predicted future shortfalls. The District cannot easily nor quickly increase revenues; increased or new benefit assessments require considerable time to implement and must be supported by the electorate. The District desires to reduce both the risk of future budget variations and long-term obligations in order to fortify future budgets against revenue loss. Along with other actions already taken by the District, it wants to maximize the current positive cash flow to stabilize future finances.

Marin County Employees’ Retirement Association

The District provides retirement benefits through its participation in the Marin County Employees’ Retirement Association. The District provides benefits to employees in two groups: classic members receive a higher benefit than PEPRAs members hired in 2013 or later. The District incurs expenses each year to fund the cost of these health insurance benefits. The most recent actuarial study indicates that, as of June 30, 2018, the District has the following actuarial liability for future retirement benefit costs (for active employees only):

Classic members	\$12.472 million
PEPRA members	<u>\$0.070 million</u>
	\$12.542 million

The District has existing retirement fund assets of \$8.465 million and, for active members, is currently funded at a 67.5% rate, which is an improvement over the June 30, 2017 valuation, which indicated a funding rate of 52.3%. Although not calculated separately, information from MCERA indicates that, if all members (active and inactive) were included, the District would be funded at approximately 89.8% overall.

The amount that each participating employer pays each year is broken into two broad categories: Normal Cost (the amount of liability earned in the current year) and the amortized Unfunded Actuarial Liability (the amount needed to amortize the current liability). The District’s obligation for each of these components for the 2019/20 fiscal year, expressed as a percentage of payroll costs, is:

	Classic Members	PEPRA Members
Employer Normal Cost Rate		
(including administrative expenses)	16.71%	8.31%
Unfunded Actuarial Liability	<u>15.22%</u>	<u>15.22%</u>
Total Rate	31.93%	23.53%

For the 2019/20 fiscal year, these rates result in an annual budgeted cost of \$1,060,295.

In order to determine fund liability, actuaries must assume a certain level of future returns on assets, and one risk for retirement plans such as MCERA (and CalPERS) is that returns may not meet these assumptions. When that happens, the unfunded liability increases and employer contribution rates must be increased to cover those losses. The plan currently assumes a 7% rate of return on investments in the future.

While returns have varied over the last decade as a result of losses incurred from the “great recession,” returns for the year ended June 30, 2018 were 9.65% and 5.5% for the year ended June 30, 2019. Many factors impact investment earnings, and returns can vary significantly from one year to the next. In order to smooth out the impact of these fluctuations on contribution rates paid by employers, actuaries amortize investment losses over several years. MCERA has employed these techniques and, as these losses are fully realized over time, rates will decrease. MCERA actuaries predict contribution rates will decrease slowly by 2-3% over the next 12 years, then drop by another 9% in 2029.

The District's contribution rate is calculated as part of a pool of many employers in MCERA. Because of this, the District's contribution rate may not change significantly if the District makes a sizeable contribution to reduce its unfunded liability. MRG does not recommend the District make payments to MCERA in addition to the required contribution rates set by MCERA actuaries.

However, the District could consider options for reducing the burden of annual contribution rates in difficult fiscal years. These options include setting aside funds in District reserves or setting up an IRS Section 115 trust fund.

An increasing number of public agencies are investigating the use of an Internal Revenue Code section 115 trust to help them better manage the short-term costs and long-term liabilities associated with pensions. A 115 trust allows the agency to segregate funds for the purpose of funding essential governmental functions, which could include pension contributions. Funds placed in a Section 115 trust are irrevocably committed for the essential government function(s) specified in the applicable trust agreement (e.g., pension obligations). Therefore, the monies held in such trusts can be invested in accordance with the rules governing such special purpose accounts. For example, 115 trust funds dedicated to satisfy pension obligations can be invested in the same manner as funds in a typical pension fund, rather than as part of the agency's general fund. Thus, by setting aside funds in a 115 trust, agencies can potentially (but not necessarily) earn a higher rate of return on monies set aside for future pension obligations.

Contributions to a Section 115 trust would be in addition to the required MCERA payments, and would not directly change the MCERA contribution rates. Typically, an agency would contribute funds to the trust when funds are available in excess of MCERA payments, then withdraw those funds in future years to make MCERA payments when normal revenues are insufficient to meet the MCERA obligation. In this way, the fund helps stabilize rates over time.

If the District wishes to consider a Section 115 trust, MRG recommends seeking counsel from qualified legal and investment advisors. The District currently uses CalPERS to manage its OPEB CERBT (California Employers' Retiree Benefit Trust) and 457 fund trusts. CalPERS also offers a Section 115 trust.

The District could also consider setting aside a reserve without the use of a Section 115 trust. In this case, the reserve would function similarly to a Section 115 trust, with the District adding funds when available, then using the funds to make a MCERA contribution when general revenues were not as strong. The funds would not be restricted by law for use on the pension obligation, and the rate of return would be the same as generated by other funds held by Marin County on behalf of the District.

⇒ While a Section 115 trust (or a locally held reserve) could be beneficial for the District, it may not provide significant benefit, and the District might consider additional OPEB contributions as a priority over a Section 115 trust for pension obligations. The primary benefit of a Section 115 trust is to smooth out fluctuations in contribution rates over time; because of the various smoothing techniques employed, MCERA rates are currently predicted to be stable or decrease over time. Additionally, the District’s pension obligation is 89.8% funded overall (and 67.5% for active employees), compared to only 36% for the OPEB obligation. The District’s overall unfunded pension obligation is \$5.1 million, compared to \$6 million for the OPEB obligation. MRG recommends focusing efforts on the OPEB obligation as a priority.

Other Post-Employment Benefits (OPEB)

The District provides retiree health insurance benefits to employees who retire from the District under certain circumstances. The benefit has been reduced or eliminated for employees hired since 2009 and, as retirees age, the benefit costs will decrease and eventually the liability will be eliminated. However, in the meantime, the District incurs expenses each year to fund the cost of these health insurance benefits. The most recent actuarial study indicates that, as of July 1, 2019, the District has the following liability for future retiree health insurance costs:

Accrued liability for current and retired employees	\$9.383 million
Market value of plan assets	<u>\$3.368 million</u>
Unfunded Liability	\$6.015 million

The plan is currently funded at a 36% level, which represents a significant improvement over the July 1, 2017 valuation of only 7%. Since the 2017 valuation, the District made a one-time contribution of \$1.6 million, and insurance plan costs have decreased, resulting in an improved funding status.

The amount that should be paid each year is broken into two broad categories: the Normal Cost (the amount of liability earned in the current year) and the amortized Unfunded Actuarial Accrued Liability (the amount needed to amortize the current liability over a period of 19 years beginning in 2020/21). Together, these components make up the Actuarial Determined Contribution. The District’s current policy is to pay 100% of the Actuarial Determined Contribution each year.

As of July 1, 2019, the District’s annual payments are projected as follows:

Year	Normal Cost	UAAL Amortization	Total Minimum Payment
2019/2020	\$229,000	\$721,000	\$950,000
2020/2021	203,000	509,000	712,000
2021/2022	196,000	509,000	705,000
2022/2023	188,000	509,000	697,000
2023/2024	180,000	509,000	689,000

2024/2025	168,000	509,000	677,000
2025/2026	154,000	509,000	662,000
2026/2027	138,000	509,000	647,000
2027/2028	123,000	509,000	632,000
2028/2029	110,000	509,000	619,000

The Normal Cost decreases each year, reflecting the decrease in the number of covered employees (as the benefit phases out over time).

The District could reduce or eliminate the Unfunded Actuarial Accrued Liability, thus reducing or eliminating the annual payment (currently projected at \$509,000 per year) and making this cash available for other uses. For every \$1,000,000 paid on this liability, the District could reduce its annual payment by approximately \$90,000.

While the District’s current unfunded liability is \$6 million, this value changes with each actuarial analysis. Variables impacting the liability include investment returns and assumptions, insurance premiums, and other factors. For this reason, MRG does not recommend making a payment sufficient to fully fund the current liability of \$6 million. Should the District fully fund the current liability, and premiums go down, for example, the District could have a “surplus” in the CERBT. These funds cannot be withdrawn once deposited. Instead, MRG recommends funding the plan to the 80-90% range, similar to the District’s overall MCERA unfunded liability.

⇒ MRG recommends the District bring the overall funded ratio of its OPEB liability to approximately 80-90% by making a payment of \$4.1 to \$5 million. This would reduce the annual required contributions by approximately \$370,000 - \$450,000. (Additional discussion follows in this report.)

Currently, the District invests the funds in the CERBT with CalPERS in an investment pool that has a relatively high long-term expected rate of return, but also a relatively high expected volatility. After making a substantial reduction in the OPEB liability, this volatility may be exaggerated and impact annual payment requirements.

⇒ MRG recommends the District consider changes to the CERBT investment strategy. As part of this analysis, MRG did consult with the District’s actuary. However, before making any final decision to make substantial payment to the CERBT, the District should consult with its actuary, Bartel Associates, to discuss in more detail the impacts of reducing the OPEB liability and changes in assumed investment returns.

VII. DISTRICT RESERVES AND TARGET FUND BALANCE POLICY

Consistent with good practice, the District maintains several reserves. Each of these are discussed, below.

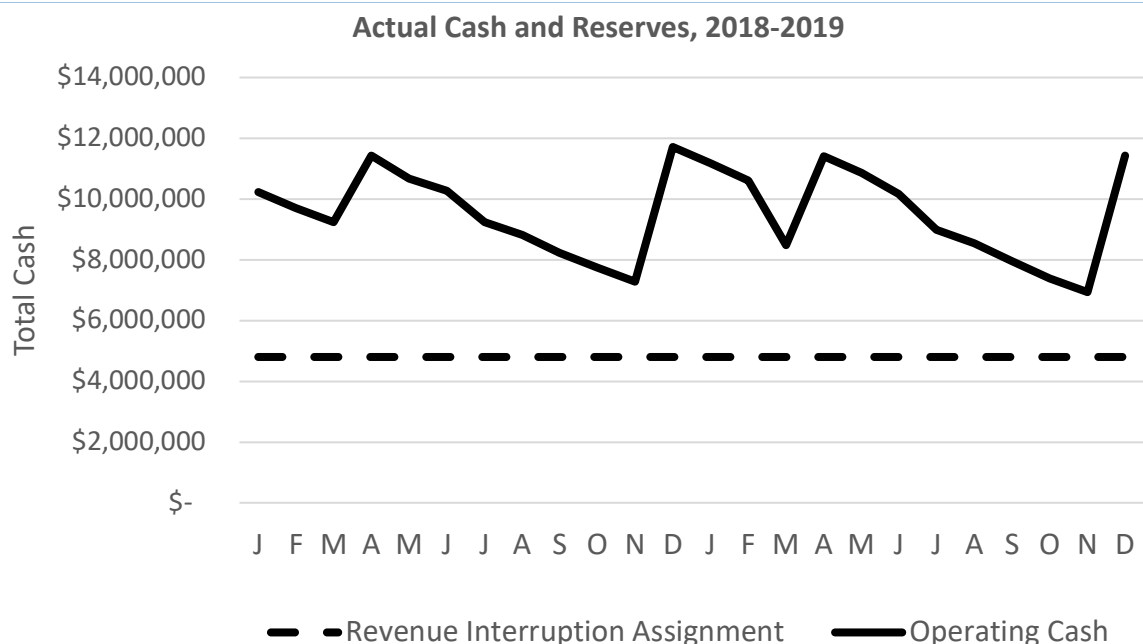
Public Health Emergency Reserve Fund Balance. The District currently has \$1,970,100 set aside for this purpose, which is in compliance with the reserve requirement. According to the 2018 NBS report, this amount is based on the financial and operational experience of similar districts that have dealt with an infestation of invasive *Aedes* mosquitoes. The District’s public health emergency reserve fund requirement meets or exceeds the target reserve level of other comparable California mosquito districts.

⇒ MRG does not recommend any changes to the Public Health Reserve Fund Balance.

Capital Replacement and Projects Target Fund Balance. The District currently has \$2.0 million set aside in this reserve. Rather than a fixed amount reserve, the District may consider using the updated Capital Asset Replacement Schedule (Exhibits B and D) as a basis for setting this reserve. For example, the District could set aside an amount equal to 25% of the total current replacement cost of assets (25% of \$4.246 million, or \$1.061 million). It is highly unlikely that a single disaster would destroy more than 25% of the District’s assets, and insurance should cover additional losses. The District’s most significant capital asset is the solar system, with a current replacement cost of \$500,000. In the event of an emergency, a reserve of \$1 million could fully replace this asset, plus \$500,000 for replacement of additional assets. Alternatively, the District could set aside a certain number of years of planned annual contributions to the Capital Asset Replacement Fund. Under Alternative 2, for example, the District could set aside three years of contributions at \$337,200, for a total reserve of \$1,011,600. This would provide sufficient funding to maintain prudent investment in capital replacements should General Fund cash flow be insufficient to make the normal annual contributions.

⇒ Redefine the Capital Replacement and Projects Target Fund Balance to equal the lesser of 25% of the current replacement cost of all capital assets or three years of annual contributions to the capital asset funding program. The resulting \$1 million reserve would be used to fund the Capital Asset Replacement Program described as Alternative 2 on page 15 of this report. The excess \$1 million would be used to reduce the District’s OPEB unfunded liability.

General Fund Minimum Fund Balance to provide working capital during the “no-income” period and General Fund Minimum Fund Balance for Interruptions in Revenue Flow. The District currently has \$9.5 million set aside in these two reserves, an amount equal to 97% of the current annual operating expenses. The amount of actual cash the District has available in its operating fund for expenses varies throughout the year.



Note: the amount shown for December 2019 cash is estimated, as the actual cash balance is not yet available from the Marin County Treasurer.

The chart, above, shows how operating cash fluctuates during the year. The Revenue Interruption Assignment serves as a cash flow baseline, and the No-Income Period Assignment provides cash for operations during the months between receipt of tax revenues (April and December). In the last two years, total cash did not dip below \$6.9 million, approximately 143% of the Revenue Interruption Assignment. The graphs, above, do not include the cash in either the Capital or Public Health Emergency Reserve (currently an additional \$4 million). The District could reduce the General Fund Minimum Fund Balance to provide working capital during the “no-income” period and General Fund Minimum Fund Balance for Interruptions in Revenue Flow without risk of depleting cash.

The District’s financial statements reflect the following budgets and actual operating revenues and expenses for the last two fiscal years.

	<u>Year End June 30, 2018</u>	<u>Year End June 30, 2019</u>
Budgeted Revenues	\$8,703,777	\$8,907,948
Actual Revenues	\$9,340,834	\$9,851,186
Difference	\$637,057	\$943,238
Budgeted Expenses	\$8,807,935	\$10,576,102
Actual Expenses	\$7,725,527	\$9,865,597
Difference	\$1,082,408	\$710,505
Change in Fund Balance, Budget	\$(104,158)	\$(1,668,154)
Change in Fund Balance, Actual	\$1,579,089	\$(73,470)

The expenditures in the 2018/19 fiscal year include the one-time payment of \$1.6 million to the CERBT trust to reduce the OPEB unfunded liability. Excluding this one-time expense,

operating results for the 2018/19 fiscal year would have resulted in an increase to the fund balance of approximately \$1.5 million.

The two fund balance assignments, for working capital during the “no income” period and for revenue interruption, are calculated based on current year budgeted amounts. As shown, prior year budgets have overstated actual cash needs, and, with reserves based on these estimates, the reserves are overstated as well. Prior year actual expenses might be a more accurate basis for determining needs for these two assignments. If the assignment values were calculated on the prior year actual operating expenses, for example, the total requirement would be \$8.3 million rather than \$9.7 million currently.

⇒ MRG recommends changing the baseline for the General Fund Minimum Fund Balance to provide working capital during the “no-income” period and the General Fund Minimum Fund Balance for Interruptions in Revenue Flow to reflect prior year actual expenses rather than the current year expense budget. This more accurately reflects actual cash flow needs.

⇒ MRG recommends changing the policy for the General Fund Minimum Fund Balance for Interruptions in Revenue Flow to include a range from 25% to 50% of prior year actual expenditures, less capital expenditures. This gives the District some flexibility in using cash for other purposes while still providing a prudent cash cushion for protection against unanticipated cash shortages.

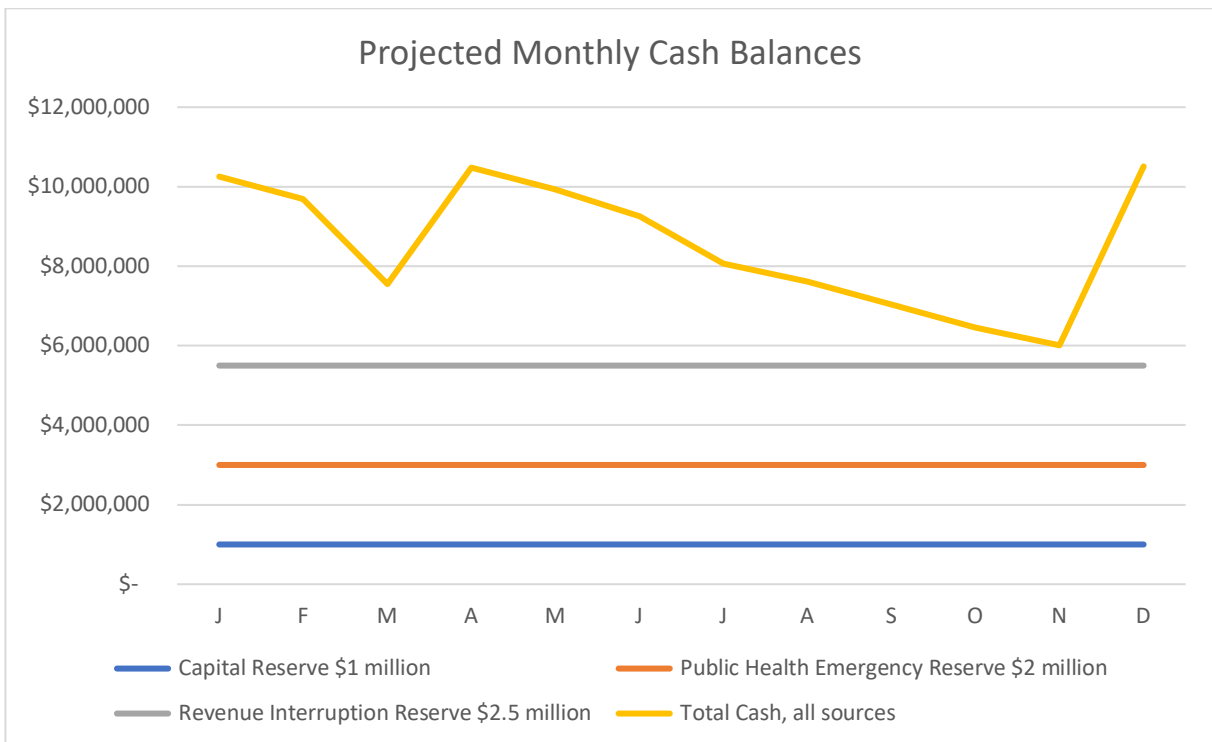
Total *current* reserves equal \$13.5 million, and actual cash on hand has ranged from \$10.9 to \$16.0 million in the last two years; the current reserves represent 133% of annual revenues. This is a significant level of reserves, and the District may want to consider a plan to substantially reduce the OPEB unfunded liability through a temporary reduction in reserves and/or use of increased cash from operating results at year end.

⇒ MRG recommends making a payment of \$4.1 to \$5 million to the CERBT, increasing the overall funding ratio for the OPEB liability to 80% - 90%. The payment could be made by taking \$1 million from the Capital Reserve and \$3.1 – \$4.0 million from current operating cash. This reduction in OPEB liability would reduce annual expenditures by \$370,000 - \$450,000, easing the burden on operating budgets in the future. The District could use cash from operating results for the next few years (which are likely to be similar to the most recent two-year period) to restore operating cash, if desired.

If the District chose to reduce the OPEB liability with a payment of \$5 million, at the top of the recommended range, the total projected available cash remains sufficient for operational needs and does not, at any time during the year, dip into to the General Fund Minimum Fund Balance for Interruptions in Revenue Flow.

The following chart reflects projected monthly operating fund cash and reserves for a typical year, assuming these changes to the District’s reserves:

- Annual expenses are reduced by \$450,000 per year to reflect the reduced annual required payment to the CERBT;
- Increased annual expenses by \$300,000 for additional staffing recently approved by the Board;
- Operating fund cash is reduced by \$4 million for the one-time payment to the CERBT;
- Reduced interest earnings by \$75,000 per year to reflect the \$4 million cash reduction;
- The Capital Replacement and Projects reserve is reduced to \$1 million;
- The Public Health Emergency Reserve remains at \$2 million; and
- The General Fund Minimum Fund Balance for Interruption in Revenue Flow is reduced to 25% of prior year actual expenditures (excluding capital purchases).



This analysis assumes that the payment to substantially reduce the OPEB liability is made at once, and is reflected in every month in the graph, above. During the course of the year, the total cash available ranges from \$6.0 to \$10.5 million, and remains in excess of all reserve balances in every month. The District could consider phasing the payment over two years to reduce the impact on cash balances.

VIII. CONCLUSION AND SUMMARY OF RECOMMENDATIONS

The District has experienced strong operating results in the last several years. However, with minimal opportunity for growth in the District’s primary revenue sources, it faces an uncertain fiscal future. The District Board has established prudent policies for reserves and fund balances to help prepare the District for fiscal uncertainties.

MRG’s analysis suggests that the District can make some adjustments to the current Target Fund Balance Policy to better utilize available cash and reduce long-term liabilities without sacrificing cash flow stability. The table below summarizes our recommendations.

Reserve or Fund	Current Strategy	Proposed Strategy
Capital Asset Reserve	\$2 million fixed reserve.	Reduce the existing reserve to \$1 million, based on 25% of current replacement cost of all capital assets. Use this \$1 million to fund a Capital Asset Replacement reserve fund strategy. The remaining \$1 million could be used to reduce the Districts OPEB unfunded liability. Update the Capital Asset Replacement Schedule as assets are removed or acquired. Every five years, update the Net Present Value and Pay-As-You-Go Analyses.
Emergency Public Health Reserve	20% of current year budget for expenditures. Currently approximately \$2.0 million.	No recommended change.
General Fund Minimum Fund Balance to provide working capital during the “no-income” period	50% of current year budgeted expenditures. Currently \$4.9 million.	For both of these fund balances, change the calculation to reflect prior year actual expenditures rather than current year budgeted expenditures.
General Fund Minimum Fund Balance for Interruptions in Revenue Flow	50% of current year budgeted expenditures, less planned capital expenditures. Currently \$4.8 million.	For the Revenue Interruption Fund Balance, change the policy to include a range from 25% to 50% of prior year actual expenditures, less capital expenditures, rather than 50%. Reduce the cash balance currently in these two fund balances by \$3.1 to \$4 million and, combined with \$1 million from the Capital Asset Reserve, substantially reduce the District’s OPEB unfunded liability.
MCERA Pension Unfunded Liability	Make contributions as required by MCERA.	No recommended change at this time. The District may consider establishing a Section 115 trust or locally held reserve in the future.

Reserve or Fund	Current Strategy	Proposed Strategy
OPEB Unfunded Liability	The District made a one-time payment of \$1.6 million in 2019. Otherwise, the strategy is to pay the annual Actuarially Determined Contribution (ADC) each year.	Using funds from the Capital Asset Reserve and General Fund Minimum Fund Balances, increase the funding ratio to 80% - 90% by making a payment of \$4.1 to \$5 million. Consider a change to the CERBT investment strategy. Consult with the District's actuary for detailed analysis before making a final decision.

District staff members were gracious, helpful and responsive during our analysis, and we appreciate the opportunity to assist the District and offer recommendations. MRG will be glad to provide assistance to the District in the future should the need arise.

Exhibit A

POLICY TITLE: Fund Balance Classifications & Target Balances

NUMBER: 5060

5060 Purpose

It shall be the policy of the District to maintain fund balances adequate to address public health emergencies, contingencies, operating cash flow, future liabilities, replacement of equipment and facilities, and the like. Additionally, this policy establishes goals and provides guidance concerning the target level of fund balance in various categories to be maintained by the District to mitigate various financial risks that can occur from unforeseen revenue fluctuations, unanticipated expenditures, and similar circumstances. This Fund Balance Policy follows the guidelines set in the Governmental Accounting Standards Board (“GASB”) Statement No. 54, Fund Balance Reporting and Governmental Fund Type. No other policy or procedure shall supersede the authority and provisions of this policy.

Definitions

Fund balance is essentially the difference between total assets, total liabilities and deferred inflows/outflows or resources, reported in each governmental fund.

GASB Statement 54 distinguishes various categories of fund balance based on the relative strength of the constraints that control the purposes for which specified amounts can be spent.

Fund Balance Classifications

Listed below are the fund balance classifications beginning with the most restricted and constrained category, and progressing stepwise to the least restricted classification. Fund balance amounts will be reported in the following categories: Non-Spendable Fund Balance, Restricted Fund Balance, Committed Fund Balance, Assigned Fund Balance, and Unassigned Fund Balance. Further explanations of each category are provided below:

A. Non-Spendable Fund Balance

The non-spendable fund balance classification includes amounts that cannot be spent because they are either (a) not in a spendable form or (b) legally or contractually required to be maintained intact. The “non-spendable” classification includes items that are not expected to be converted to cash, for example, inventory items, notes receivable and prepaid amounts. It also includes the long term amount of loans and notes receivable. These amounts are shown in the District’s annual basic financial statements issued by the independent auditor.

B. Restricted Fund Balance

This classification includes amounts that can be spent only for the specific purposes stipulated by external parties or mechanisms such as creditors, grantors, contributors, laws, regulations or enabling legislation. Examples include grants or donations.

C. Committed Fund Balance

The Committed Fund Balance classification includes amounts that can be used only for specific purposes pursuant to constraints imposed by formal action of the government's highest level of decision making authority, which is the Board of Trustees. Committed amounts cannot be used for any other purpose unless the Board removes or changes the specified use by taking the same type of action (for example a resolution) that it employed to previously commit those amounts. Committed Fund Balance amounts also incorporate contractual obligations to the extent that existing resources in the fund have been specifically committed for use in satisfying those contractual requirements.

D. Assigned Fund Balance

The Assigned Fund Balance classification includes amounts that are constrained by the government's intent that they be used for specific purposes, but that are neither restricted nor committed. Such intent must be established by (a) the Board of Trustees as the governing body or (b) a body or official to which the governing body has delegated the authority to assign amounts to be used for specific purposes.

E. Unassigned Fund Balance

The Unassigned Fund Balance classification represents residual amounts not contained in any of the above four categories. This includes the residual balance in the General Fund. Unassigned amounts may be used for any legal purpose.

5060.10 Authority to Designate Funds

The responsibility for designating funds to specific classifications shall be as follows:

Committed Fund Balance – The Board of Trustees is the District's highest level of decision-making authority, and the formal action that is required to be taken to establish, modify, or rescind a fund balance commitment is a resolution approved by the Board.

Assigned Fund Balance – The Board of Trustees has designated the District Manager and the Financial Manager as the officials authorized to assign fund balances to a specific purpose, only as approved and governed by this fund balance policy.

5060.20 Order of Expenditure of Funds

When multiple categories of fund balance are available for expenditure (e.g., a project is being funded partly by a grant, funds set aside by the Board, and unassigned fund balance), the District shall expend funds in the order beginning with using the most restricted category before drawing progressively from categories with successively less restricted fund balances that are available for the intended purpose.

5060.30 District's Fund Structure and Classifications

The fund structure includes the General Fund & Capital Replacement Fund.

- A. The General Fund is the District's main operating fund and all financial resources, except those required to be accounted for in another fund, are accounted for in the General Fund.
- B. The Capital Replacement Fund is used to account for purchases of all capital items on a cost reimbursement basis. Examples include purchase of vehicles, large or costly equipment such as computer servers. The monetary threshold for an item to be considered a capital purchase shall be established from time to time by the Board of Trustees.

5060.40 Target Fund Balances

Under GASB 54, governments have the option to formally set aside unrestricted fund balance amounts for use in emergencies, revenue shortages, or to deal with a budget imbalance. The District has the authority to set aside such amounts by resolution of the Board. These set-aside amounts may be spent only if certain specific circumstances exist. Amounts maintained in the General Fund that are intended to provide financial stability shall be reported as committed or assigned. The notes to the District's annual financial statements shall disclose the authority for establishing the arrangement, the requirement for additions to the amount, the conditions under which amounts may be spent, and the balance.

The District Board of Trustees Fund Balance Policy establishes fiscal management and budget policies. This Fund Balance Policy establishes that the District will prudently maintain sufficient reserve funds to stabilize the District's fiscal base and enable it to deal with anticipated fluctuations in revenues and expenditures, provide for unanticipated expenditures of a non-recurring nature and to pay for any unexpected increases in materials or service delivery costs within the fiscal year.

A. Public Health Emergency Reserve Fund Balance: General Fund (Committed).

California's Health & Safety Code Section 2070 provides that the Board may divide the annual budget into categories, including a reserve for public health emergencies. The District maintains several emergency response plans, one example being an arbovirus response plan. Funds held in this reserve may be used only to deal with an emergency such as an outbreak or epidemic of vectorborne disease, or to take appropriate actions in the event of the discovery of invasive mosquito species within the District's service area. Examples of expenditures that may be necessary include, hiring additional personnel to conduct specialized or enhanced mosquito surveillance and/or control, materials, laboratory testing, aviation services, mapping and specialized consultant help, and reimbursing other mosquito districts for mutual aid provided. Recognizing that increasing the District's revenue stream is a cumbersome and time-consuming process, this fund balance is committed for the express purpose of financing whatever response is deemed necessary to deal with a public health emergency or serious threat.

The District commits twenty percent (20%) of its current budgeted annual expenditures to the Public Health Emergency Reserve Fund Balance.

B. Capital Replacement & Projects: Target Fund Balance (Committed).

The District shall maintain a target fund balance to reimburse the cost of the replacement of capital items such as vehicles, expensive laboratory equipment and other capital projects. The District has prepared a Capital Asset Valuation and Replacement Cost Study that analyzes and forecasts expenditures for the next twenty years. Capital expenditures are budgeted each year and paid from the operating fund, then reimbursed to the Capital Replacement & Projects Fund by means of a journal entry. Capital expenditures are expected to be much higher in some years than others, therefore the target fund balance is intended to a). act as a buffer to smooth expenditures from year to year b). provide a prudent reserve in the event of unforeseen or catastrophic eventualities, not all of which may be fully covered by insurance.

The District commits a target balance of two million dollars (\$2 million) to the Capital Replacement Fund.

C. General Fund Minimum Fund Balance: (1) to Provide Working Capital during the "No-Income Period" (Assigned).

The great majority of the District's revenues are collected by the two counties from the tax rolls and remitted to the District twice annually, at intervals of approximately six months. In order to continue operations between these widely spaced increments of revenue, the District must keep sufficient funds on hand to provide for the purchase of materials, services and to meet payroll. Additionally, even when the monies are deposited in the District's bank accounts, the reporting of these amounts to the District is often delayed by

several months due to workflow priorities at the County Department of Finance. The District cannot spend unrecognized revenues.

Therefore the District shall maintain a minimum target fund balance of six months of anticipated annual expenditures in the General Fund to cover these planned expenditures.

D. General Fund Minimum Fund Balance: (2) In case of Interruption in Revenue Flow (Assigned).

In addition to the working capital described above that is necessary to maintain operations between revenue increments, the District shall maintain a target fund balance sufficient to sustain the District's operations in the event of an interruption in revenue flows. To achieve this objective, it shall be policy of the District to maintain an unassigned fund balance in the general fund of not less than 50% of the authorized level of expenditures, less the planned amount of capital expenditures, for the fiscal year. If the unassigned fund balance falls below this goal, the District shall develop a restoration plan to achieve and maintain the target minimum fund balance.

E. Insurance Pool Contingency Target Fund Balance (Assigned)

As part of its participation in the Vector Control Joint Powers Agency (VCJPA) the District maintains a fund balance to defray the estimated cost of paying several self-insured retention (SIR) amounts. SIRs are similar in function to an insurance deductible and must be paid by the District in the event of a claim. VCJPA has published recommended fund balance targets in the Member Contingency Fund (MCF) to deal with a worst-case scenario involving multiple large claims. These funds are kept on deposit with VCJPA and professionally invested at the direction of the VCJPA Board. Member contingency funds are invested and managed in strict accordance with governmental fund investing requirements and restrictions. Historically the rate of return has equaled or bettered other relatively secure investment vehicles such as the Local Authority Investment Funds.

It shall be the District's policy to maintain funds on deposit with VCJPA in the Member Contingency Fund in an amount approximately equal to that recommended by the VCJPA, plus or minus twenty percent of the recommended value.

As an assigned fund balance designated for a specific purpose, under section **5060.10**, the Board authorizes the Manager and/or Financial Manager to disburse funds from the VCJPA Member Contingency Fund to the extent necessary to pay the District's SIR to VCJPA in connection with an emergency situation.

Board Approval:

March 13, 2019

Exhibit B

ASSET					CURRENT COST TO REPLACE ASSET		
Inventory Number	Year purchased and/or placed in service	Description	Service life	Estimated replacement cost as of...	...year of estimate (fiscal year ending June 30)	Source of cost data	
Facilities and Building Systems							
N/A	2001	Asphalt Pavement (2-inch Overlay)	30	\$170,000	2020	MRG Estimate	
N/A	2001	Fan - Laboratory (Negative Pressure)	20	\$25,000	2016	2016 MRG Report + ENR-BCI	
N/A	2001	Flooring - Carpet (Offices)	20	\$15,000	2020	2018 Flooring Project + ENR-BCI	
N/A	2001	HVAC - Admin Building Air Handling Unit	25	\$75,000	2020	2016 MRG Report + ENR-BCI	
N/A	2001	HVAC - Boiler	25	\$50,000	2020	MRG/District Staff Estimate	
N/A	2001	Landscaping	20	\$51,000	2020	Contractor Proposal	
N/A	2001	Roof - Admin Building (Comp Shingle)	30	\$120,000	2020	MRG Estimate	
N/A	2001	Roof - Shop Building (Metal)	25	\$73,000	2020	MRG Estimate	
N/A	2001	Roof - Vehicle Storage Building (Metal)	25	\$48,000	2020	MRG Estimate	
N/A	2001	Roof - Fish and Trailer Storage Building (Metal)	25	\$21,500	2020	MRG Estimate	
N/A	2001	Storage Shed (Tuff Shed)	30	\$7,000	2020	Tuff Shed Quote	
N/A	2002	Aboveground Fuel Tank (Convault)	30	\$45,000	2020	Convault/MRG Estimate	
N/A	2007	Fish Rearing Equipment (3 tanks and filter system)	20	\$7,408	2007	Actual Cost +CPI	
N/A	2008	Fuel Monitoring System	20	\$20,208	2008	Actual Cost +CPI	
N/A	2009	Projector System - Board Room	20	\$5,756	2009	Actual Cost +CPI	
N/A	2009	Work Stations - Tech Room	25	\$26,005	2009	Actual Cost +CPI	
N/A	2009	HVAC - IT Room	20	\$9,267	2009	Actual Cost + ENR-BCI	
N/A	2009	Work Stations - F/B Managers' Offices	25	\$12,710	2009	Actual Cost + CPI	
N/A	2009	Paint - Interior (Admin Building)	15	\$50,000	2020	MRG Estimate	
N/A	2011	Flooring- Lab (Sheet Vinyl)	20	\$15,000	2020	MRG Estimate	
N/A	2011	Flooring - Kitchen/Lab Hallwy/Tech Rm (Faux Wood)	15	\$52,000	2018	2018 Flooring Project + ENR-BCI	
N/A	2012	Solar Project (Including Inverter)	25	\$500,000	2020	MRG Estimate	
N/A	2012	Solar Project (Inverter only)	15	\$100,000	2016	2016 MRG Report + ENR-BCI	
N/A	2014	Water Cooler Fill Station	20	\$8,495	2014	Actual Cost + CPI	
N/A	2017	Asphalt Pavement (Seal Coat)	5	\$19,600	2017	Actual Cost + ENR-BCI	
N/A	2018	Flooring - Hallway/Lobby (Faux Wood)	20	\$24,841	2018	Actual Cost + ENR-BCI	
N/A	2018	Flooring - Boardroom (Carpet Tile)	15	\$11,377	2018	Actual Cost + ENR-BCI	
N/A	2019	Paint - Exterior (Admin Building)	15	\$30,000	2019	Actual Cost + ENR-BCI	
N/A	2020	HVAC - Chiller	20	\$75,000	2020	Actual Cost	
Vehicles							
2/432	1996	Chevy 1 Ton Service Truck	25	\$62,000	2020	Ford/MRG Estimate	
7/444/563	1999	Ford Ranger 4x4	25	\$35,000	2020	True Car Estimate	
12/446	1999	Ford Van	20	\$33,000	2020	True Car Estimate	
1761/6A	2004	Ford F550 4x4	25	\$50,000	2020	Ford/MRG Estimate	
1768/13A	2006	2007 Ford F250 4x4	12	\$40,000	2020	True Car Estimate	

ASSET				CURRENT COST TO REPLACE ASSET			
Inventory Number	Year purchased and/or placed in service		Description	Service life	Estimated replacment cost as of...	...year of estimate (fiscal year ending June 30)	Source of cost data
1768/14A	2006		2007 Ford F250 4x4	12	\$40,000	2020	True Car Estimate
1772/15A	2006		2007 Ford F550 4x4	25	\$50,000	2020	Ford/MRG Estimate
1774/17A	2007		2007 Ford Explorer	12	\$39,000	2020	True Car Estimate
19A/1775	2008		2009 Ford F250 4x4	12	\$40,000	2020	True Car Estimate
18A/1776	2008		2009 Ford F250 4x4	12	\$40,000	2020	True Car Estimate
20A/1777	2008		Ford Explorer	12	\$39,000	2020	True Car Estimate
1779/22A	2011		2011 Ford F350 4x4	15	\$40,000	2020	True Car Estimate
1780/23A	2011		2011 Ford F250 4x2	12	\$40,000	2020	True Car Estimate
1781/24A	2011		2011 Ford F250 4x2	12	\$40,000	2020	True Car Estimate
1782/25A	2012		Chevrolet Traverse	12	\$36,000	2020	True Car Estimate
1783/26A	2012		Chevrolet 1500 4x4	12	\$35,000	2020	True Car Estimate
1784/27A	2012		Chevrolet 1500 4x4	12	\$35,000	2020	True Car Estimate
1786/29A	2013		2013 GMC Sierra 2500 4x4	12	\$40,000	2020	True Car Estimate
1787/1B	2013		2013 GMC Sierra 2500 4x4	12	\$40,000	2020	True Car Estimate
1788/2B	2013		2013 GMC Sierra 2500 4x4	12	\$40,000	2020	True Car Estimate
1789/3B	2013		2013 GMC Sierra 2500 4x4	12	\$40,000	2020	True Car Estimate
1790/4B	2014		2013 Chevrolet 2500 HD 4x4	12	\$40,000	2020	True Car Estimate
1791/5B	2014		2014 Chevrolet 2500 HD 4X4	12	\$40,000	2020	True Car Estimate
1792/6B	2015		GMC Sierra 2500 HD 4x4	12	\$40,000	2020	True Car Estimate
1793/7B	2015		GMC Sierra 2500 HD 4x4	12	\$40,000	2020	True Car Estimate
1794/8B	2015		GMC Sierra 2500 HD 4x4	12	\$40,000	2020	True Car Estimate
1795/9B	2016		2016 GMC Sierra 2500 HD 4x4	12	\$40,000	2020	True Car Estimate
1796/10B	2016		2016 GMC Sierra 2500 HD 4x4	12	\$40,000	2020	True Car Estimate
1797/11B	2016		2016 GMC Sierra 2500 HD 4x4	12	\$40,000	2020	True Car Estimate
1798/12B	2019		2019 Chevrolet Bolt	10	\$41,498	2019	Actual Cost + CPI
<u>Vehicles - Off Road/Specialty</u>							
514/44	1988		Komatsu Excavator	40	\$36,098	1988	Actual Cost + CPI
519/49	1994		Lite-foot	35	\$32,040	1994	Actual Cost + CPI
525	2000		Gator ATV	25	\$7,995	2000	Actual Cost + CPI
526/45	2000		TCM Forklift	25	\$12,363	2000	Actual Cost + CPI
530/34	2002		ARGO Conquest	20	\$30,000	2019	Argo Quote + CPI
532/48	2003		Diamondback Airboat w/trailer	20	\$47,000	2016	2016 MRG Report + CPI
1900/39	2004		Argo Conquest	20	\$30,000	2019	Argo Quote + CPI
1901/40	2004		Argo Conquest	20	\$30,000	2019	Argo Quote + CPI
1903/30	2004		Argo Avenger	20	\$30,000	2019	Argo Quote + CPI
1904/33	2004		Argo Avenger	20	\$30,000	2019	Argo Quote + CPI
1908/31	2005		Argo Conquest	20	\$30,000	2019	Argo Quote + CPI

ASSET				CURRENT COST TO REPLACE ASSET		
Inventory Number	Year purchased and/or placed in service	Description	Service life	Estimated replacement cost as of...	...year of estimate (fiscal year ending June 30)	Source of cost data
1909/32	2006	Argo Avenger	20	\$30,000	2019	Argo Quote + CPI
1910	2006	John Deere 3720 Tractor	30	\$28,115	2006	Actual Cost + CPI
1915/30A	2007	Argo Avenger	20	\$31,000	2019	Argo Quote + CPI
31A/1917	2008	Argo Avenger	20	\$31,000	2019	Argo Quote + CPI
68/2611	2008	Tilt Trailer	25	\$13,442	2008	Actual Cost + CPI
1920/46A	2010	Grizzly Boat w/trailer	25	\$12,313	2010	Actual Cost + CPI
1921/37A	2010	2009 Kawasaki 650 ATV	15	\$8,117	2010	Actual Cost + CPI
1922/38A	2010	2010 Kawasaki 650 ATV	15	\$8,732	2010	Actual Cost + CPI
1923/35A	2012	2012 Kawasaki KVF360ACF ATV	15	\$6,800	2012	Actual Cost + CPI
1924/36A	2012	2012 Kawasaki KVF360ACF ATV	15	\$6,800	2012	Actual Cost + CPI
1925	2013	Rotary Mower	20	\$15,696	2014	Actual Cost + CPI
1927/36B	2017	Honda 1000 EPS UTV	15	\$17,729	2017	Actual Cost + CPI
1929	2017	GPS for Air Boat	8	\$8,559	2017	Actual Cost + CPI
37B	2017	Kawasaki 750 ATV	15	\$10,000	2017	Actual Cost + CPI
<u>Shop and Spray Equipment</u>						
363	1998	Beecomist - Replace with Promist Dura Fogger	20	\$17,562	2019	Actual Cost + CPI
364	1998	Beecomist - Replace with Promist Dura Fogger	20	\$17,562	2019	Actual Cost + CPI
365	2000	Beecomist - Replace with Promist Dura Fogger	20	\$17,562	2019	Actual Cost + CPI
N/A	2001	Hotsy Pressure Washing System	25	\$18,000	2020	Hotsy
1601	2004	Twin Reel Intelli Sprayer	25	\$8,977	2004	Actual Cost + CPI
1612	2004	Twin Reel Intelli Sprayer w/50 gal. Tank	25	\$11,163	2004	Actual Cost + CPI
1617	2005	Aboveground Hoist	25	\$8,427	2005	Actual Cost + CPI
2201	2007	Shop Workstation	25	\$35,261	2007	Actual Cost + CPI
1635	2017	Promist Dura Fogger	20	\$17,562	2019	Actual Cost + CPI
1638	2019	Promist Dura Fogger	20	\$17,562	2019	Actual Cost + CPI
<u>Equipment - Lab</u>						
851	2001	Environmental Chamber	22	\$18,900	2020	Geneva Scientific
853	2001	Nuaire Safety Cabinet	20	\$8,900	2020	discsci.com
865	2003	Environmental Chamber	22	\$18,600	2020	Geneva Scientific
2103	2004	Environmental Chamber Model 1-36VL	22	\$18,600	2020	Geneva Scientific
2104	2005	Environmental Chamber Model 136VLC9	22	\$18,900	2020	Geneva Scientific
2105	2005	Centrifuge (refrigerated)	20	\$17,500	2020	Fisher Scientific
2116	2006	Centrifuge	20	\$12,100	2020	Fisher Scientific
2117	2006	RT-PCR System	20	\$57,200	2020	Thermo Fisher
2127	2007	Dual Mixer Mill	15	\$13,000	2020	thomassci.com
2138	2008	MagMax - Replace with KingFisher Flex System	20	\$67,700	2020	Thermo Fisher

ASSET					CURRENT COST TO REPLACE ASSET		
Inventory Number	Year purchased and/or placed in service	Description	Service life	Estimated replacment cost as of...	...year of estimate (fiscal year ending June 30)	Source of cost data	
2140	2009	Leica M125 Microscope	20	\$16,000	2020	JH Technologies	
2141	2009	Leica M125 Microscope	20	\$16,000	2020	JH Technologies	
2142	2009	Leica M125 Microscope	20	\$16,000	2020	JH Technologies	
2143	2009	Leica M80 Microscope	20	\$11,600	2020	JH Technologies	
2146	2012	Leica M125 Microscope	20	\$16,000	2020	JH Technologies	
2147	2012	Environmental Chamber	20	\$19,200	2020	Geneva Scientific	
2150	2013	Ultra-low Temperature Freezer	15	\$19,400	2020	Laboratory Equipment Company	
Equipment - Computer and Electronic							
3183	2015	Enhanced Video Security Camera System	8	\$7,095	2015	Actual Cost + CPI	
3188	2015	HP Smart Buy Server	5	\$5,500	2020	District Estimate	
NA	2016	Boardroom Audio System (24 microphones)	10	\$21,766	2017	Actual Cost + CPI	
NA	2017	Exchange Server	5	\$5,500	2020	District Estimate	

Exhibit C

Inventory Number	Year purchased and/or placed in service	Description	Reason
<u>Facilities and Building Systems</u>			
N/A	2001	Cotati Facility Buildings	Buildings excluded (see report text)
<u>Vehicles</u>			
4/442	1999	Ford Ranger 4x2	Will not be replaced
8/445/564	1999	Ford Ranger 4x2	Will not be replaced
6/449	2000	Chevrolet C3500	Will not be replaced
10/450	2001	Ford Explorer	Will not be replaced
17/455	2002	Ford F150 4x4	Will not be replaced
1A/456	2002	Ford F150 4x4	Will not be replaced
1751/19	2004	Ford F150 4x4	Will not be replaced
1752/20	2004	Ford F150 4x4	Will not be replaced
1757/2A	2004	Ford F250 4x4	Will not be replaced
1758/3A	2004	Ford F250 4x4	Will not be replaced
1759/4A	2004	Ford F250 4x2	Will not be replaced
1762/7A	2005	Ford F150 4x4	Will not be replaced
1763/8A	2005	Ford F250 4x4	Will not be replaced
1766/11A	2005	2005 Chevrolet 2500 4x2	Will not be replaced
1767/12A	2005	2005 Chevrolet 2500 4x2	Will not be replaced
1770/13	2006	2007 Ford F250 4x4	Will not be replaced
1771/15	2006	2007 Ford F250 4x4	Will not be replaced
21A/1778	2007	Chevrolet 4500 4x2	Will not be replaced
1785/28A	2012	Toyota Prius	Will not be replaced
<u>Vehicles - Off Road/Specialty</u>			
513/41	1983	Spryte 1200	Will not be replaced
524/37	1998	Kawasaki ATV	Will not be replaced
1902/42	2004	GO4 (catch basin applicator)	Will not be replaced
1905/43	2005	Kawasaki 650 ATV	Will not be replaced
1912	2006	Piston Bully	Will not be replaced
1913	2006	Ditcher	Will not be replaced
1914	2006	Flail Mower	Will not be replaced
N/A	2008	Pump for Komatsu	Will not be replaced
<u>Shop and Spray Equipment</u>			
430/183	2002	Electra Mist	Will not be replaced
431/184	2002	Electra Mist	Will not be replaced
1622	2006	Mozzi Fogger	Will not be replaced
44A/2305	2008	40' Portable Lift	Will not be replaced
<u>Equipment - Lab</u>			
844/900	1998	Nikon SM2-U Microscope	Will not be replaced
858	2001	Leica DML/HCS Microscope	Will not be replaced
2123	2006	6100 Prepstation	Will not be replaced
2131	2007	Chicken Coop	Will not be replaced
2144	2009	Panoramic Digital Microscope	Will not be replaced
<u>Equipment - Computer and Electronic</u>			
1279	1988	AS400 IBM Server	Will not be replaced
1076	2003	AS 400 Main Frame	Will not be replaced
2450	2004	Printer/Plotter for large scale maps	Will not be replaced
3152	2012	AS400 Upgrade	Will not be replaced

Exhibit D

ASSET			COST TO REPLACE AT END OF USEFUL LIFE														
Inventory Number	Year purchased and/or placed in service	Description	Service life	Inflator rate	2020 replacement cost	replaced (fiscal year ending June 30) (first)	Note	Inflated replacement cost at fiscal year end June 30									
								2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Facilities and Building Systems																	
N/A	2001	Asphalt Pavement (2-inch Overlay)	30	2.92%	\$170,000	2031											\$233,000
N/A	2001	Fan - Laboratory (Negative Pressure)	20	2.92%	\$28,000	2021		\$29,000									
N/A	2001	Flooring - Carpet (Offices)	20	2.92%	\$15,000	2021		\$15,000									
N/A	2001	HVAC - Admin Building Air Handling Unit	25	2.92%	\$75,000	2026							\$89,000				
N/A	2001	HVAC - Boiler	25	2.92%	\$50,000	2026							\$59,000				
N/A	2001	Landscaping	20	2.92%	\$51,000	2021	1	\$52,000									
N/A	2001	Roof - Admin Building (Comp Shingle)	30	2.92%	\$120,000	2031											\$165,000
N/A	2001	Roof - Shop Building (Metal)	25	2.92%	\$73,000	2026								\$87,000			
N/A	2001	Roof - Vehicle Storage Building (Metal)	25	2.92%	\$48,000	2026								\$57,000			
N/A	2001	Roof - Fish and Trailer Storage Building (Metal)	25	2.92%	\$22,000	2026								\$26,000			
N/A	2001	Storage Shed (Tuff Shed)	30	2.92%	\$7,000	2031											\$10,000
N/A	2002	Aboveground Fuel Tank (Convault)	30	2.92%	\$45,000	2032											
N/A	2007	Fish Rearing Equipment (3 tanks and filter system)	20	2.79%	\$11,000	2027							\$13,000				
N/A	2008	Fuel Monitoring System	20	2.79%	\$28,000	2028									\$35,000		
N/A	2009	Projector System - Board Room	20	2.79%	\$8,000	2029										\$10,000	
N/A	2009	Work Stations - Tech Room	25	2.79%	\$35,000	2034											
N/A	2009	HVAC - IT Room	20	2.92%	\$13,000	2029										\$17,000	
N/A	2009	Work Stations - F/B Managers' Offices	25	2.79%	\$17,000	2034											
N/A	2009	Paint - Interior (Admin Building)	15	2.92%	\$50,000	2024				\$56,000							
N/A	2011	Flooring - Lab (Sheet Vinyl)	20	2.92%	\$15,000	2031											\$21,000
N/A	2011	Flooring - Kitchen/Lab Hallwy/Tech Rm (Faux Wood)	15	2.92%	\$55,000	2026								\$65,000			
N/A	2012	Solar Project (Including Inverter)	25	2.92%	\$500,000	2037											
N/A	2012	Solar Project (Inverter only)	15	2.92%	\$112,000	2027								\$137,000			
N/A	2014	Water Cooler Fill Station	20	2.79%	\$10,000	2034											
N/A	2017	Asphalt Pavement (Seal Coat)	5	2.92%	\$21,000	2022			\$22,000						\$25,000		
N/A	2018	Flooring - Hallway/Lobby (Faux Wood)	20	2.92%	\$26,000	2038											
N/A	2018	Flooring - Boardroom (Carpet Tile)	15	2.92%	\$12,000	2033											
N/A	2019	Paint - Exterior (Admin Building)	15	2.92%	\$31,000	2034											
N/A	2020	HVAC - Chiller	20	2.92%	\$75,000	2040											
Vehicles																	
2/432	1996	Chevy 1 Ton Service Truck	25	2.79%	\$62,000	2021	2						\$71,000				
7/444/563	1999	Ford Ranger 4x4	25	2.79%	\$35,000	2024					\$39,000						
12/446	1999	Ford Van	20	2.79%	\$33,000	2021	1	\$34,000									
1761/6A	2004	Ford F550 4x4	25	2.79%	\$50,000	2029										\$64,000	
1768/13A	2006	2007 Ford F250 4x4	12	2.79%	\$40,000	2021	1	\$41,000									
1768/14A	2006	2007 Ford F250 4x4	12	2.79%	\$40,000	2021	4	\$41,000									
1772/15A	2006	2007 Ford F550 4x4	25	2.79%	\$50,000	2031											\$68,000
1774/17A	2007	2007 Ford Explorer	12	2.79%	\$39,000	2021	1,3	\$40,000									
19A/1775	2008	2009 Ford F250 4x4	12	2.79%	\$40,000	2021	4	\$41,000									
18A/1776	2008	2009 Ford F250 4x4	12	2.79%	\$40,000	2021	4	\$41,000									
20A/1777	2008	Ford Explorer	12	2.79%	\$39,000	2021	4	\$40,000									
1779/22A	2011	2011 Ford F350 4x4	15	2.79%	\$40,000	2026								\$47,000			
1780/23A	2011	2011 Ford F250 4x2	12	2.79%	\$40,000	2023				\$43,000							
1781/24A	2011	2011 Ford F250 4x2	12	2.79%	\$40,000	2023				\$43,000							
1782/25A	2012	Chevrolet Traverse	12	2.79%	\$36,000	2024							\$40,000				
1783/26A	2012	Chevrolet 1500 4x4	12	2.79%	\$35,000	2024							\$39,000				
1784/27A	2012	Chevrolet 1500 4x4	12	2.79%	\$35,000	2024							\$39,000				
1786/29A	2013	2013 GMC Sierra 2500 4x4	12	2.79%	\$40,000	2025							\$46,000				
1787/1B	2013	2013 GMC Sierra 2500 4x4	12	2.79%	\$40,000	2025							\$46,000				

ASSET				COST TO REPLACE AT END OF USEFUL LIFE																	
Inventory Number	Year purchased and/or placed in service	Description	Service life	Inflator rate	2020 replacement cost	replaced (fiscal year ending June 30) (first)	Note	Inflated replacement cost at fiscal year end June 30													
								2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031			
1788/2B	2013	2013 GMC Sierra 2500 4x4	12	2.79%	\$40,000	2025							\$46,000								
1789/3B	2013	2013 GMC Sierra 2500 4x4	12	2.79%	\$40,000	2025							\$46,000								
1790/4B	2014	2013 Chevrolet 2500 HD 4x4	12	2.79%	\$40,000	2026								\$47,000							
1791/5B	2014	2014 Chevrolet 2500 HD 4X4	12	2.79%	\$40,000	2026								\$47,000							
1792/6B	2015	GMC Sierra 2500 HD 4x4	12	2.79%	\$40,000	2027													\$48,000		
1793/7B	2015	GMC Sierra 2500 HD 4x4	12	2.79%	\$40,000	2027													\$48,000		
1794/8B	2015	GMC Sierra 2500 HD 4x4	12	2.79%	\$40,000	2027													\$48,000		
1795/9B	2016	2016 GMC Sierra 2500 HD 4x4	12	2.79%	\$40,000	2028													\$50,000		
1796/10B	2016	2016 GMC Sierra 2500 HD 4x4	12	2.79%	\$40,000	2028													\$50,000		
1797/11B	2016	2016 GMC Sierra 2500 HD 4x4	12	2.79%	\$40,000	2028													\$50,000		
1798/12B	2019	2019 Chevrolet Bolt	10	2.79%	\$43,000	2029														\$55,000	
Vehicles - Off Road/Specialty																					
514/44	1988	Komatsu Excavator	40	2.79%	\$87,000	2028														\$108,000	
519/49	1994	Lite-foot	35	2.79%	\$66,000	2029														\$85,000	
525	2000	Gator ATV	25	2.79%	\$14,000	2025								\$16,000							
526/45	2000	TCM Forklift	25	2.79%	\$21,000	2025								\$24,000							
530/34	2002	ARGO Conquest	20	2.79%	\$31,000	2022				\$33,000											
532/48	2003	Diamondback Airboat w/trailer	20	2.79%	\$52,000	2023					\$56,000										
1900/39	2004	Argo Conquest	20	2.79%	\$31,000	2024								\$35,000							
1901/40	2004	Argo Conquest	20	2.79%	\$31,000	2024								\$35,000							
1903/30	2004	Argo Avenger	20	2.79%	\$31,000	2024								\$35,000							
1904/33	2004	Argo Avenger	20	2.79%	\$31,000	2024								\$35,000							
1908/31	2005	Argo Conquest	20	2.79%	\$31,000	2025								\$36,000							
1909/32	2006	Argo Avenger	20	2.79%	\$31,000	2026									\$37,000						
1910	2006	John Deere 3720 Tractor	30	2.79%	\$41,000	2036															
1915/30A	2007	Argo Avenger	20	2.79%	\$32,000	2027													\$39,000		
31A/1917	2008	Argo Avenger	20	2.79%	\$32,000	2028													\$40,000		
68/2611	2008	Tilt Trailer	25	2.79%	\$19,000	2033															
1920/46A	2010	Grizzly Boat w/trailer	25	2.79%	\$16,000	2035															
1921/37A	2010	2009 Kawasaki 650 ATV	15	2.79%	\$11,000	2025								\$13,000							
1922/38A	2010	2010 Kawasaki 650 ATV	15	2.79%	\$11,000	2025								\$13,000							
1923/35A	2012	2012 Kawasaki KVF360ACF ATV	15	2.79%	\$8,000	2027													\$10,000		
1924/36A	2012	2012 Kawasaki KVF360ACF ATV	15	2.79%	\$8,000	2027													\$10,000		
1925	2013	Rotary Mower	20	2.79%	\$19,000	2033															
1927/36B	2017	Honda 1000 EPS UTV	15	2.79%	\$19,000	2032															
1929	2017	GPS for Air Boat	8	2.79%	\$9,000	2025								\$10,000							
37B	2017	Kawasaki 750 ATV	15	2.79%	\$11,000	2032															
Shop and Spray Equipment																					
363	1998	Beecomist - Replace with Promist Dura Fogger	20	2.79%	\$18,000	2021	4	\$19,000													
364	1998	Beecomist - Replace with Promist Dura Fogger	20	2.79%	\$18,000	2021	4	\$19,000													
365	2000	Beecomist - Replace with Promist Dura Fogger	20	2.79%	\$18,000	2021	4	\$19,000													
N/A	2001	Hotsy Pressure Washing System	25	2.79%	\$18,000	2026								\$21,000							
1601	2004	Twin Reel Intelli Sprayer	25	2.79%	\$14,000	2029													\$18,000		
1612	2004	Twin Reel Intelli Sprayer w/50 gal. Tank	25	2.79%	\$17,000	2029													\$22,000		
1617	2005	Aboveground Hoist	25	2.79%	\$13,000	2030													\$17,000		
2201	2007	Shop Workstation	25	2.79%	\$50,000	2032															
1635	2017	Promist Dura Fogger	20	2.79%	\$18,000	2037															
1638	2019	Promist Dura Fogger	20	2.79%	\$18,000	2039															

ASSET				COST TO REPLACE AT END OF USEFUL LIFE															
Inventory Number	Year purchased and/or placed in service	Description	Service life	Inflator rate	2020 replacement cost	replaced (fiscal year ending June 30) (first)	Note	Inflated replacement cost at fiscal year end June 30											
								2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
Equipment - Lab																			
851	2001	Environmental Chamber	22	2.79%	\$19,000	2023				\$21,000									
853	2001	Nuair Safety Cabinet	20	2.79%	\$9,000	2021	4	\$9,000											
865	2003	Environmental Chamber	22	2.79%	\$19,000	2025					\$22,000								
2103	2004	Environmental Chamber Model 1-36VL	22	2.79%	\$19,000	2026						\$22,000							
2104	2005	Environmental Chamber Model 136VLC9	22	2.79%	\$19,000	2027							\$23,000						
2105	2005	Centrifuge (refrigerated)	20	2.79%	\$18,000	2025					\$21,000								
2116	2006	Centrifuge	20	2.79%	\$12,000	2026						\$14,000							
2117	2006	RT-PCR System	20	2.79%	\$57,000	2026						\$67,000							
2127	2007	Dual Mixer Mill	15	2.79%	\$13,000	2022			\$14,000										
2138	2008	MagMax - Replace with KingFisher Flex System	20	2.79%	\$68,000	2028									\$85,000				
2140	2009	Leica M125 Microscope	20	2.79%	\$16,000	2029												\$20,000	
2141	2009	Leica M125 Microscope	20	2.79%	\$16,000	2029												\$20,000	
2142	2009	Leica M125 Microscope	20	2.79%	\$16,000	2029												\$20,000	
2143	2009	Leica M80 Microscope	20	2.79%	\$12,000	2029												\$15,000	
2146	2012	Leica M125 Microscope	20	2.79%	\$16,000	2032													
2147	2012	Environmental Chamber	20	2.79%	\$19,000	2032													
2150	2013	Ultra-low Temperature Freezer	15	2.79%	\$19,000	2028									\$24,000				
Equipment - Computer and Electronic																			
3183	2015	Enhanced Video Security Camera System	8	2.79%	\$8,000	2023				\$9,000									\$11,000
3188	2015	HP Smart Buy Server	5	2.79%	\$6,000	2021	4	\$6,000						\$7,000					\$8,000
NA	2016	Boardroom Audio System (24 microphones)	10	2.79%	\$24,000	2026							\$28,000						
NA	2017	Exchange Server	5	2.79%	\$6,000	2022			\$6,000						\$7,000				
					\$4,246,000			\$446,000	\$75,000	\$172,000	\$353,000	\$410,000	\$720,000	\$408,000	\$442,000	\$346,000	\$17,000	\$516,000	

Note 1 Currently planned for replacement in the 2019/2020 fiscal year.
Note 2 Although the truck will reach the end of its planned service life in 2021, staff does not plan to replace it until 2025.
Note 3 Will be replaced with an electric car.
Note 4 Asset was scheduled for replacement in the 2019/2020 or prior fiscal year but is not yet replaced.
For this analysis, these are carried forward into the 2020/2021 fiscal year.

ASSET

Inventory Number	Year purchased and/or placed in service	Description	Inflated replacement cost at fiscal year end June 30								
			2032	2033	2034	2035	2036	2037	2038	2039	2040
Facilities and Building Systems											
N/A	2001	Asphalt Pavement (2-inch Overlay)									
N/A	2001	Fan - Laboratory (Negative Pressure)									
N/A	2001	Flooring - Carpet (Offices)									
N/A	2001	HVAC - Admin Building Air Handling Unit									
N/A	2001	HVAC - Boiler									
N/A	2001	Landscaping									
N/A	2001	Roof - Admin Building (Comp Shingle)									
N/A	2001	Roof - Shop Building (Metal)									
N/A	2001	Roof - Vehicle Storage Building (Metal)									
N/A	2001	Roof - Fish and Trailer Storage Building (Metal)									
N/A	2001	Storage Shed (Tuff Shed)									
N/A	2002	Aboveground Fuel Tank (Convault)	\$64,000								
N/A	2007	Fish Rearing Equipment (3 tanks and filter system)									
N/A	2008	Fuel Monitoring System									
N/A	2009	Projector System - Board Room									
N/A	2009	Work Stations - Tech Room			\$51,000						
N/A	2009	HVAC - IT Room									
N/A	2009	Work Stations - F/B Managers' Offices			\$25,000						
N/A	2009	Paint - Interior (Admin Building)							\$86,000		
N/A	2011	Flooring- Lab (Sheet Vinyl)									
N/A	2011	Flooring - Kitchen/Lab Hallwy/Tech Rm (Faux Wood)									
N/A	2012	Solar Project (Including Inverter)					\$816,000				
N/A	2012	Solar Project (Inverter only)									
N/A	2014	Water Cooler Fill Station			\$15,000						
N/A	2017	Asphalt Pavement (Seal Coat)	\$29,000					\$33,000			
N/A	2018	Flooring - Hallway/Lobby (Faux Wood)							\$44,000		
N/A	2018	Flooring - Boardroom (Carpet Tile)		\$17,000							
N/A	2019	Paint - Exterior (Admin Building)			\$46,000						
N/A	2020	HVAC - Chiller								\$133,000	
Vehicles											
2/432	1996	Chevy 1 Ton Service Truck									
7/444/563	1999	Ford Ranger 4x4									
12/446	1999	Ford Van									
1761/6A	2004	Ford F550 4x4									
1768/13A	2006	2007 Ford F250 4x4		\$57,000							
1768/14A	2006	2007 Ford F250 4x4		\$57,000							
1772/15A	2006	2007 Ford F550 4x4									
1774/17A	2007	2007 Ford Explorer		\$56,000							
19A/1775	2008	2009 Ford F250 4x4		\$57,000							
18A/1776	2008	2009 Ford F250 4x4		\$57,000							
20A/1777	2008	Ford Explorer		\$56,000							
1779/22A	2011	2011 Ford F350 4x4									
1780/23A	2011	2011 Ford F250 4x2			\$60,000						
1781/24A	2011	2011 Ford F250 4x2			\$60,000						
1782/25A	2012	Chevrolet Traverse				\$56,000					
1783/26A	2012	Chevrolet 1500 4x4				\$54,000					
1784/27A	2012	Chevrolet 1500 4x4				\$54,000					
1786/29A	2013	2013 GMC Sierra 2500 4x4					\$64,000				
1787/1B	2013	2013 GMC Sierra 2500 4x4					\$64,000				

ASSET

Inventory Number	Year purchased and/or placed in service	Description	Inflated replacement cost at fiscal year end June 30								
			2032	2033	2034	2035	2036	2037	2038	2039	2040
1788/2B	2013	2013 GMC Sierra 2500 4x4							\$64,000		
1789/3B	2013	2013 GMC Sierra 2500 4x4							\$64,000		
1790/4B	2014	2013 Chevrolet 2500 HD 4x4							\$65,000		
1791/5B	2014	2014 Chevrolet 2500 HD 4X4							\$65,000		
1792/6B	2015	GMC Sierra 2500 HD 4x4								\$67,000	
1793/7B	2015	GMC Sierra 2500 HD 4x4								\$67,000	
1794/8B	2015	GMC Sierra 2500 HD 4x4								\$67,000	
1795/9B	2016	2016 GMC Sierra 2500 HD 4x4									\$70,000
1796/10B	2016	2016 GMC Sierra 2500 HD 4x4									\$70,000
1797/11B	2016	2016 GMC Sierra 2500 HD 4x4									\$70,000
1798/12B	2019	2019 Chevrolet Bolt								\$72,000	
Vehicles - Off Road/Specialty											
514/44	1988	Komatsu Excavator									
519/49	1994	Lite-foot									
525	2000	Gator ATV									
526/45	2000	TCM Forklift									
530/34	2002	ARGO Conquest									
532/48	2003	Diamondback Airboat w/trailer									
1900/39	2004	Argo Conquest									
1901/40	2004	Argo Conquest									
1903/30	2004	Argo Avenger									
1904/33	2004	Argo Avenger									
1908/31	2005	Argo Conquest									
1909/32	2006	Argo Avenger									
1910	2006	John Deere 3720 Tractor						\$64,000			
1915/30A	2007	Argo Avenger									
31A/1917	2008	Argo Avenger									
68/2611	2008	Tilt Trailer		\$27,000							
1920/46A	2010	Grizzly Boat w/trailer				\$24,000					
1921/37A	2010	2009 Kawasaki 650 ATV									\$20,000
1922/38A	2010	2010 Kawasaki 650 ATV									\$20,000
1923/35A	2012	2012 Kawasaki KVF360ACF ATV									
1924/36A	2012	2012 Kawasaki KVF360ACF ATV									
1925	2013	Rotary Mower		\$27,000							
1927/36B	2017	Honda 1000 EPS UTV	\$26,000								
1929	2017	GPS for Air Boat		\$12,000							
37B	2017	Kawasaki 750 ATV	\$15,000								
Shop and Spray Equipment											
363	1998	Beecomist - Replace with Promist Dura Fogger									
364	1998	Beecomist - Replace with Promist Dura Fogger									
365	2000	Beecomist - Replace with Promist Dura Fogger									
N/A	2001	Hotsy Pressure Washing System									
1601	2004	Twin Reel Intelli Sprayer									
1612	2004	Twin Reel Intelli Sprayer w/50 gal. Tank									
1617	2005	Aboveground Hoist									
2201	2007	Shop Workstation	\$70,000								
1635	2017	Promist Dura Fogger						\$29,000			
1638	2019	Promist Dura Fogger							\$30,000		

ASSET											
Inventory Number	Year purchased and/or placed in service	Description	Inflated replacement cost at fiscal year end June 30								
			2032	2033	2034	2035	2036	2037	2038	2039	2040
Equipment - Lab											
851	2001	Environmental Chamber									
853	2001	Nuair Safety Cabinet									
865	2003	Environmental Chamber									
2103	2004	Environmental Chamber Model 1-36VL									
2104	2005	Environmental Chamber Model 136VLC9									
2105	2005	Centrifuge (refrigerated)									
2116	2006	Centrifuge									
2117	2006	RT-PCR System									
2127	2007	Dual Mixer Mill						\$21,000			
2138	2008	MagMax - Replace with KingFisher Flex System									
2140	2009	Leica M125 Microscope									
2141	2009	Leica M125 Microscope									
2142	2009	Leica M125 Microscope									
2143	2009	Leica M80 Microscope									
2146	2012	Leica M125 Microscope	\$22,000								
2147	2012	Environmental Chamber	\$26,000								
2150	2013	Ultra-low Temperature Freezer									
Equipment - Computer and Electronic											
3183	2015	Enhanced Video Security Camera System								\$14,000	
3188	2015	HP Smart Buy Server					\$9,000				
NA	2016	Boardroom Audio System (24 microphones)					\$37,000				
NA	2017	Exchange Server	\$8,000					\$9,000			
			\$260,000	\$423,000	\$137,000	\$144,000	\$274,000	\$1,164,000	\$174,000	\$403,000	\$383,000

MEMORANDUM



DATE: March 11, 2020

TO: Board of Trustees

FROM: Philip Smith, Manager & Erik Hawk, Assistant Manager

SUBJECT: **Unmanned Aerial Systems (UAS) Program Update**

Staff are closely following the progress of early adopter mosquito & vector districts, some of which have established fledgling programs. The initial stages of developing a UAS (aka drone) program consist of the following necessary elements:

1. Individuals operating an unmanned aerial vehicle must study for and pass the Federal Aviation Administration's (FAA) Part 107 Remote Pilot Certificate. This written examination is very similar to major sections of the Private Pilot knowledge test.
2. The District applies for a Certificate of Waiver/Authorization (COA) from the FAA. Issuance usually takes two to three months. The District must purchase at least one UAS (drone) before submitting its application for a COA.
3. Although many UAS are now capable of autonomously flying a pre-programmed flight plan, districts normally invest in hands-on flight training, which can be obtained locally.
4. Prior to the UAS program becoming operational, staff will prepare various proposed policies (especially a UAS privacy policy governing the use of imagery) for the Board's review.

Discussion

Staff considers that UAS will augment and support mosquito surveillance and control operations as well as the District's education and outreach programs. Additionally, UAS could eventually be used to conduct small-scale aerial treatments that presently necessitate the use of amphibious all terrain vehicles or a manned helicopter, which costs \$1,550 per hour (plus ferry flight time). Based on the advice of districts with experience operating UAS, it's possible that our first significant purchase will be a general-purpose unit such as the DJI Matrice 201 v2, pictured below. Depending on the type of camera(s) and other onboard equipment, these "quadcopters" can cost between \$10,000 and \$20,000. Due to this startup cost, we may begin by purchasing a less expensive unit for evaluation and training purposes. Candidate units for this option are the DJI Phantom 4 or the Inspire 2.



DJI Matrice 210 (photograph used by permission)

Any of these units should suffice for obtaining the District's COA, accomplishing training and providing initial operating experience. Depending on the onboard camera capability, this type of UAS is also capable of surveillance for factors such as vegetation status and/or whether standing water or mosquito larvae are present in an area.

Three District staff are currently studying for the FAA Part 107 remote pilot certificate and the newly appointed Environmental Biologist will also begin to participate in this program.

Insurance

Liability and hull coverage can be provided through the Vector Control Joint Powers Agency (VCJPA), the District's insurance provider at reasonable cost. Hull insurance premiums are currently set at 4% of the unit's replacement value. It is noteworthy that two UAS at two Bay Area districts have recently been damaged beyond repair due to problems in flight. In the most recent incident, operator error compounded the initial problem. This underscores the value of flight training, which is not required for the FAA remote pilot certificate.

Aerial Applications & the Regulatory Landscape

Several districts are experimenting with applying larvicides via UAS. The flight plan and application pattern can be pre-programmed with great accuracy before the UAS takes flight. One advantage of UAS is that they can fly lower than a manned helicopter and at slower speed, potentially increasing the accuracy of the application. Most UAS now incorporate safety features such as automated

obstacle avoidance and one button push “return to base” in the event of problems encountered during flight. In order to conduct aerial applications, the vector control technician/remote pilot must pass specified tests administered by the state’s Department of Public Health that were prepared in consultation with the state Department of Pesticide Regulation. The FAA generally limits the weight of UAS to 55 lbs. and this restricts the amount of useful payload. However, in practice, battery capacity is often the limiting factor. Utilizing spare charged batteries, the UAS can be returned to home base for a rapid replacement of the battery pack, allowing the drone to be quickly redeployed.

The federal and state legal and regulatory situation is evolving; for instance, the FAA recently issued a Notice of Proposed Rulemaking that would require each UAS to broadcast a unique identifier number, similar to the way that manned aircraft emit a transponder code that is visible to air traffic controllers. It is likely that manufacturers will soon incorporate this technology into their units.

One Bay Area district is currently allowed to operate their UAS over federal lands but not below a specified minimum altitude of 150 feet above ground level due to the agency’s concerns over sensitive species. Although this flight restriction may be acceptable for observing vegetation or water, it would be entirely impractical for conducting aerial applications. To seek relief from this restriction, the district’s staff have asked the American Mosquito Control Association to address the issue with U.S. Fish & Wildlife Service.

In the coming months, staff plans to provide further updates and bring proposals and draft policy to the Board for review.

Manager's Report

- Last week I appeared before the Hon. Randall Newsome as part of the PG&E Bankruptcy case mediation hearings. General Counsel Janet Coleson and I continue to press the District's claim for \$226,236 for materials and labor provided in response to wildfires in recent years.
- We have recruited a new temporary receptionist and may bring on a second one if needed.
- On April 6, Risk Control Manager Tom Kline from the Vector Control JPA will hold the second safety training event this year for District staff. Among other topics, he will focus on safe driving and conduct behind the wheel training for seasonal staff. We will also conduct the evacuation drill that had to be postponed due to inclement weather during January's training event.
- Tracking the correction in the financial markets, the District's OPEB trust fund at CERBT now stands at \$4,163,026, down 3.6% from the January high of \$4,318,335.18. The net 10-year rate of return of the Strategy 1 allocation that the District is invested with was 6.24%. The five-year returns are listed at 6.64% and the one-year return at 14.2% (this was issued before the recent market correction).
- A second round of interviews to select a new Education Program Specialist was held on March 6. We anticipate making an offer of employment very soon to the candidate selected.
- Jeff Wickman, the MCERA Administrator, is scheduled to present an update at the Board's April meeting.
- I continue to make progress on the proposed addendum to the District's programmatic environmental impact report. Several new materials and methods, including unmanned aerial systems, will be included in the environmental analysis. A coalition of six Bay Area districts have tentatively agreed to share the cost of preparing a master template document that can be tailored subsequently to each district's particular needs.
- Having dismantled and disposed of the obsolete modular storage building at the rear of the property, staff applied for a building permit to construct a new and improved storage shed. The City of Cotati views the mezzanine storage space as a second story and has required structural engineering calculations, so we are having those prepared.
- To date, the District and the Western Council of Engineers (WCE) have held two contract negotiations sessions with four future dates on the calendar. Last week, the District provided the proposed revisions to the District Employee Policy manual.
- Several staff will attend the American Mosquito Control Annual Conference in Portland, OR next week.

- The project to replace the weed choked and thirsty lawns with lower water use gardens is off to a good start. The lawns have been removed and soil amended in preparation for installation of drip irrigation piping, to be followed by planting.
- Financial Manager Jennifer Crayne and I held a productive initial meeting with David Alvey, the new financial audit engagement partner from Maze and Associates. The onsite portion of the audit is scheduled for the week of September 14th.

Assistant Manager's Report

- In the field we have observed successive hatches of salt marsh mosquitoes in tidal and brackish habitats. *Aedes squamiger* (California salt marsh mosquito – winter species) and *Aedes dorsalis* (pale salt marsh mosquito – spring and summer species) eggs have hatched at the same time in some marshes. Both of these species have long flight ranges (e.g. 10-20 miles) and exhibit very aggressive biting pressure, as experienced in Novato last summer. The goal is to control the populations in the larval stage. The field staff have been busy conducting surveillance and larvicide treatments in relatively small and large areas. They have done an excellent job! We have performed two large scale larvicide applications via helicopter so far this year.
- The field staff have also found significant populations of *Culex tarsalis* in seasonal wetlands and tidal habitats. *Culex tarsalis* is the primary vector of West Nile virus, Western equine encephalitis and St. Louis encephalitis in the State.
- The Field Supervisors and I have been attending interagency meetings and working collaboratively with other agencies and special interest groups on aquatic habitat enhancement and restoration projects for sites that have long histories of being problematic sources of mosquito production. The goals of these projects are to increase and enhance aquatic habitats and significantly reduce or potentially eliminate mosquito production. Some examples of such projects include a treated wastewater storage/wildlife pond at the Las Gallinas Valley Sanitary District, the Sonoma Creek Enhancement Project and the Bel Marin Keys Restoration Project.
- Our Shop Facilities Coordinator, Steve Delucchi, has announced his retirement. Steve has served and been an asset to the District for 26 years. Steve managed the design and construction of the District's facilities. Steve's ingenuity and talents in fabrication have resulted in many specialized pieces of equipment that are important in our day to day operations. Steve's last day with us will be March 31, 2020. Supervisory staff and I are learning as much as we can from Steve prior to his departure.
- I am currently participating in and managing several staff recruitments including seasonal staff in the laboratory and operations departments, Vector Control Technician, Shop Facilities Coordinator and Field Supervisor. We are moving as quickly as possible to fill these positions.

- The laboratory staff have seen a rapid increase in the amount of larval mosquito samples that require identification and processing each day. They have been planning for the upcoming adult mosquito trapping season and in the field collecting ticks. The 2019 Vector Surveillance Report (attached) along with an additional report (i.e. *Ixodes pacificus/Borrelia miyamotoi* Surveillance 2016-2019) summarizing and comparing several years of surveillance data have been posted on the District's website. Kelly Liebman (Scientific Programs Manager) did an excellent job on these reports!
- Kelly Liebman provided a presentation to members of the Petaluma Wetlands Alliance regarding mosquito biology and control, mosquito-borne disease transmission, the District's operations at the Ellis Creek Water Recycling Facility (ECWRF) ponds and wetlands and the Shollenberger Park marsh. Nizza Sequeira (Public Information Officer) and Jason Sequeira (Sonoma County Field Supervisor) also attended, answered questions and Jason provided a history of mosquito source reduction work performed at the ECWRF.
- Kelly Liebman and Jason Sequeira attended a WALs (Wide Area Larviciding) Summit hosted by Valent BioSciences at the Sacramento Yolo Mosquito and Vector Control District. WALs is a method of larviciding that can be used to control mosquitoes in a variety of habitats however, the method is primarily being used to control invasive *Aedes* mosquitoes in suburban areas.
- There is currently a significant issue with rats at the Home Depot store in San Rafael. Nick Picinich (Rodent Control Specialist) is working with and advising management staff from the store on how to remedy the situation. We are also working with Marin County Environmental Health on this issue.
- Nick Picinich and I toured the Joe Rodota trail during the final stages of debris removal. We discussed the rat issue with Sonoma County staff on site. I also conveyed verbal and written correspondence to Sonoma County Regional Parks staff regarding our observations and suggestions.
- Staff and I have been working on preparation for the 2020/21 budget process. We are studying the departmental line items within the budget and looking into replacing capital items and projects for fiscal year 20/21.
- As of March 1, 2020, Eric Engh is working in his new position as Environmental Biologist. Eric has started training in the Laboratory and Operations Departments.

Marin/Sonoma Mosquito and Vector Control District



2019 VECTOR SURVEILLANCE REPORT

LABORATORY PROGRAM OVERVIEW

Arbovirus Surveillance Program

The Marin/Sonoma Mosquito and Vector Control District (the District) maintains a multifaceted surveillance program for arboviruses, including West Nile virus (WNV), St. Louis encephalitis virus (SLEV) and western equine encephalitis virus (WEEV). The District utilizes both active and passive monitoring techniques (defined below) to detect and quantify the density of mosquito populations and the intensity of virus transmission in the region. This information is used to predict areas of elevated disease risk and direct critical vector control interventions to effectively and efficiently protect human health.

Since 2014, the District has conducted enhanced surveillance efforts to detect invasive *Aedes* mosquito species. In addition to larval and adult surveillance for the invasive *Aedes aegypti* and *Aedes albopictus*, the District also investigates travel-related cases of chikungunya, dengue, and Zika viruses. All traps set around cases are checked for the presence of *Aedes* adult mosquitoes. All *Culex* adult mosquitoes collected in these areas are tested for all three viruses. There is no evidence that local *Culex* spp. can transmit these viruses. As of 2019, no invasive *Aedes* mosquitoes have been identified in Marin or Sonoma counties.

Active vs Passive Surveillance

The District utilizes both active and passive surveillance to identify potential areas of high mosquito abundance and disease transmission in Marin and Sonoma counties. Active surveillance involves collecting larval and adult mosquitoes, identifying changes in mosquito density and testing adult Culex species mosquitoes for WNV, SLEV and WEEV. The passive surveillance program relies on reports of virus activity in humans and horses, as well as citizens submitting dead birds, which are then tested for the presence of virus. The District can target active surveillance and control measures in an area if a bird, human or horse has become sick from the virus.

LABORATORY PROGRAM OVERVIEW

Tick and Tick-borne Disease Surveillance Program

Throughout the year, District laboratory staff collect ticks of different species and life stages from trails in state, regional, and local parks and recreation areas around Marin and Sonoma counties. Ticks are collected by dragging a one meter square flannel flag on the ground and in the vegetation along trails. Collected specimens are identified and separated by species, sex, and life stage to be tested for pathogens when appropriate. The three main species collected by the District are *Dermacentor occidentalis* (the Pacific Coast tick), *Dermacentor variabilis* (the American dog tick) and *Ixodes pacificus* (the western black-legged tick).

Ixodes pacificus is the common tick species in the area that can transmit the bacteria *Borrelia burgdorferi*, which causes Lyme disease. Adults and nymphs of this species are tested for this pathogen, as well as *Borrelia miyamotoi*, which is a bacterium that causes a relapsing fever-type illness. To date, no human cases of *B. miyamotoi* have been reported in California, but the bacteria has been found in *Ixodes pacificus* ticks throughout the state, including in Marin and Sonoma counties.

Dermacentor species ticks can be tested for other pathogens in conjunction with the California Department of Public Health.



District staff flagging for ticks



Adult female *Ixodes pacificus*



District staff checking flags for ticks

EXECUTIVE SUMMARY

Arbovirus Surveillance Program

In 2019, 187 mosquito pools from Marin County and 583 pools from Sonoma County were tested for WNV, SLEv and WEEv. No virus was detected in any mosquito pools in either county. A total of 14 dead birds were reported to the District, of which 11 were viable for WNV testing. All birds tested negative. There were no human or equine cases of WNV in Marin or Sonoma counties.

In 2019, local health departments informed the District of 12 travel-associated probable cases of arthropod-borne diseases in Marin County and nine (9) travel-associated probable cases in Sonoma County. Twenty-five (25) mosquito pools collected during these follow-ups were tested for chikungunya, dengue and Zika viruses, as well as WNV, SLEv and WEEv. All pools tested negative for all viruses.

WNV detection 2004 - 2019

Year	Humans	Dead Birds	Mosquito Pools	Sentinel Chickens
2004	0	72	1	0
2005	1	92	0	0
2006	1	29	5	0
2007	1	23	1	0
2008	0	12	2	0
2009	0	N/A	0	0
2010	0	N/A	0	0
2011	0	N/A	2	0
2012	0	28	3	1
2013	2	46	5	3
2014	0	43	12	3
2015	1	14	12	0
2016	0	13	2	N/A
2017	0	6	1	N/A
2018	0	0	1	N/A
2019	0	0	0	N/A

*N/A indicates that testing was not conducted

Mosquito pools by species 2019

Marin County

Species	Number of Pools
<i>Culex erythrothorax</i>	35
<i>Culex pipiens</i>	35
<i>Culex stigmatosoma</i>	14
<i>Culex tarsalis</i>	103
<i>Culex thriambus</i>	0
Total	187

Sonoma County

Species	Number of Pools
<i>Culex erythrothorax</i>	170
<i>Culex pipiens</i>	50
<i>Culex stigmatosoma</i>	103
<i>Culex tarsalis</i>	254
<i>Culex thriambus</i>	6
Total	583

Birds tested by city 2019

Marin County

City	Processed	Tested	WNV(+)
Corte Madera	1	1	0
San Anselmo	1	1	0
Novato	3	2	0
Mill Valley	1	1	0

Sonoma County

City	Processed	Tested	WNV(+)
Cotati	1	1	0
Glen Ellen	1	1	0
Santa Rosa	5	4	0
Sebastopol	1	0	0

Probable case follow-up

Disease	Marin	Sonoma
Chikungunya	1	0
Dengue	4	4
Malaria	1	0
Zika	6	5

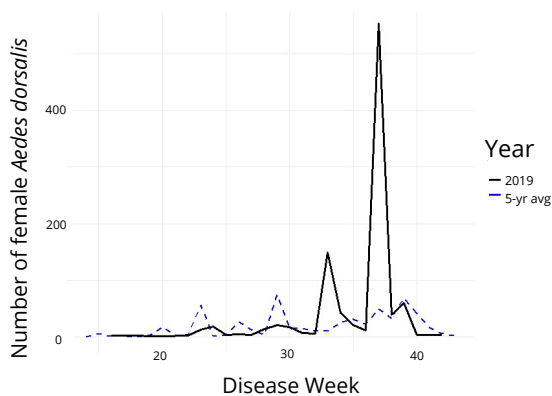
THE PALE MARSH MOSQUITO

Arbovirus Surveillance Program

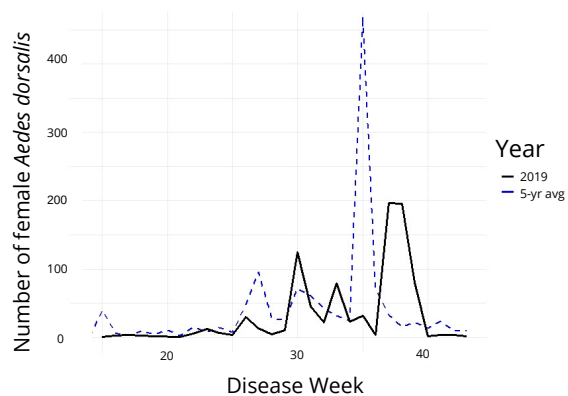
You might have noticed at the end of this summer that adult mosquitoes were fairly abundant. Beginning in April 2019, the District collected adult mosquitoes at regular weekly trap locations, and saw small shifts in the pattern of species abundance and timing to previous years.

However, a large number of one specific mosquito, *Aedes dorsalis*, caused a large uptick in adult mosquitoes in the late summer, accounting for the noticeable increase in biting females in both counties in August and September.

Female *Aedes dorsalis* Collected in Marin County By Disease Week



Female *Aedes dorsalis* Collected in Sonoma County By Disease Week



Aedes dorsalis - the pale marsh mosquito

Aedes dorsalis is a very common salt marsh mosquito in California. It can be found throughout the summer, and can impact schools, businesses, agriculture and the community! It is an aggressive daytime biter, and when populations are as heavy as they were this past summer, it can make it difficult to enjoy outdoor activities. Like all mosquito species, the District tries to control this mosquito at the larval stage, but when adults are present, you should use CDC recommended repellents, including products with DEET, picaridin, IR3535, oil of lemon eucalyptus (OLE) or para-methane-diol (PMD). For more information, visit our website (<https://www.msmosquito.org/repellents>).



EXECUTIVE SUMMARY

Tick and Tick-borne Disease Surveillance Program

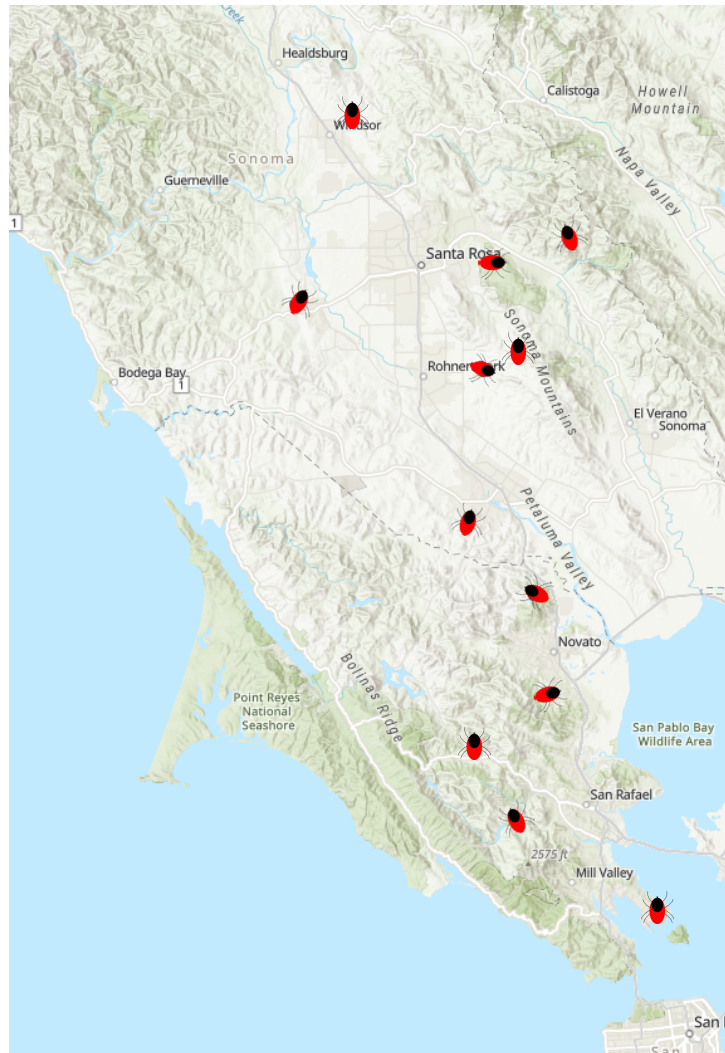
In 2019, staff from the District sampled trails in state parks, regional parks and Marin Municipal Water District (MMWD) lands. A total of 32 sampling events occurred during the season, resulting in 1163 adult *Ixodes pacificus* and 260 *Ixodes pacificus* nymphs being collected for testing. A multiplex PCR assay was used to test these samples for two bacteria: *Borrelia burgdorferi* (the causative agent of Lyme disease) and *Borrelia miyamotoi* (a related bacterium that can cause a relapsing fever-type illness).

2019 Overview



Parks Sampled in 2019

- Four (4) pools of adult ticks collected in Marin County and nine (9) pools of adult ticks in Sonoma County tested positive for *B. burgdorferi* (pg. 07)
- Five (5) nymphs collected in Marin County and eight (8) nymphs in Sonoma County tested positive for *B. burgdorferi* (pg. 08)
- Five (5) pools of adult ticks collected in Marin County, four (4) pools of adult ticks and (4) nymphs collected in Sonoma County tested positive for *B. miyamotoi* (pgs. 07-08)



2019 ADULT TICK TESTING

Tick and Tick-borne Disease Surveillance Program

Of the 1163 adult *Ixodes pacificus* ticks tested in 2019, 13 pools tested positive for *Borrelia burgdorferi*, giving an overall minimum infection prevalence (MIP)* of 1.12% for Marin and Sonoma counties. The 2010 - 2019 10-year MIP for adult ticks in these counties is 2.0%.

Marin County parks and recreation areas had four (4) *Borrelia burgdorferi* positive pools out of 515 total adult ticks tested, for an MIP of 0.78%. The 10-year MIP for adult ticks in Marin County is 0.79%. Five (5) adult tick pools tested positive for *Borrelia miyamotoi*, for a MIP of 0.97%.

Sonoma County parks and recreation areas had nine (9) *Borrelia burgdorferi* positive pools out of 648 total adult ticks tested, for a MIP of 1.39%. The 10-year MIP for adult ticks in Sonoma County is 1.83%. Four (4) adult tick pools tested positive for *Borrelia miyamotoi*, for a MIP of 0.62%.

Marin County

Park/Trail	Adults Collected [^]	Adults Tested	Pools Tested	<i>Borrelia burgdorferi</i> sl		<i>Borellia miyamotoi</i>	
				Pos. Pools	MIP	Pos. Pools	MIP
Indian Valley OSP	7	7	3	0	0.00%	0	0.00%
Pacheco Pond Trail	4	4	2	0	0.00%	0	0.00%
Waterfall Trail	3	3	1	0	0.00%	0	0.00%
MMWD	213	207	42	4	1.93%	3	1.45%
Alex Forman Trail	213	207	42	4	1.93%	3	1.45%
Old St. Hilary's OSP	0	0	0	N/A	N/A	N/A	N/A
Olompali SP	81	80	18	0	0.00%	0	0.00%
Loop Trail	22	22	6	0	0.00%	0	0.00%
Miwok Trail to Loop Trail	59	58	12	0	0.00%	0	0.00%
Roy's Redwoods OSP	238	221	46	0	0.00%	2	0.90%
Loop Trail	238	221	46	0	0.00%	2	0.90%
Overall	539	515	109	4	0.78%	5	0.97%

Sonoma County

Park/Trail	Adults Collected [^]	Adults Tested	Pools Tested	<i>Borrelia burgdorferi</i> sl		<i>Borellia miyamotoi</i>	
				Pos. Pools	MIP	Pos. Pools	MIP
Annadel SP	228	201	43	3	1.49%	1	0.50%
Cobblestone Trail	174	147	32	3	2.04%	1	0.68%
Lawndale Trail	54	54	11	0	0.00%	0	0.00%
Crane Creek RP	0	0	0	N/A	N/A	N/A	N/A
Creek Trail	0	0	0	N/A	N/A	N/A	N/A
Foothill RP	431	347	72	3	0.86%	3	0.86%
Pond B Loop Trail	429	345	70	3	0.87%	3	0.87%
Ravine Trail	2	2	2	0	0.00%	0	0.00%
Helen Putnam RP	0	0	0	0	0.00%	0	0.00%
Hood Mountain RP	75	75	16	2	2.67%	0	0.00%
Hood Mountain Trail	75	75	16	2	2.67%	0	0.00%
North Sonoma Mountain RP	13	13	4	1	7.69%	0	0.00%
Umbrella Tree Trail	13	13	4	1	7.69%	0	0.00%
Ragle Ranch RP	0	0	0	N/A	N/A	N/A	N/A
Blackberry and Thistle Trails	0	0	0	N/A	N/A	N/A	N/A
Overall	759	648	138	9	1.39%	4	0.62%

*MIP - Minimum Infection Prevalence = (number of positive tick pools/total ticks tested)*100; used when ticks are tested in pools of up to 5

[^]When more than 30 pools of adult ticks are collected from a park, additional adult ticks will be tested at the discretion of the District staff. Ticks that are collected but not tested are used for educational purposes.

2019 NYMPHAL TICK TESTING

Tick and Tick-borne Disease Surveillance Program

Of the 260 nymphal *Ixodes pacificus* ticks tested in 2019, 13 tested positive for *Borrelia burgdorferi*, giving an overall infection prevalence (IP)* of 5.00% for Marin and Sonoma counties. The 2010 - 2019 10-year MIP for nymphal ticks in these counties is 4.14%.

Marin County parks and recreation areas had five (5) *Borrelia burgdorferi* positive nymphs out of 109 total nymphal ticks tested, for an IP of 4.59%. The 10-year MIP for nymphal ticks in Marin County is 3.85%. No nymphs tested positive for *Borrelia miyamotoi*.

Sonoma County parks and recreation areas had eight (8) *Borrelia burgdorferi* positive nymphs out of 151 total nymphal ticks tested, for an IP of 5.30%. The 10-year MIP for nymphal ticks in Sonoma County is 4.38%. Four (4) nymphs tested positive for *Borrelia miyamotoi*, for an IP of 2.65%.

Marin County

Park/Trail	Nymphs Tested	<i>Borellia burgdorferi</i> sl		<i>Borellia miyamotoi</i>	
		Pos. Pools	IP	Pos. Pools	IP
Indian Valley OSP	29	1	3.45%	0	0.00%
Pacheco Pond Trail	24	1	4.17%	0	0.00%
Waterfall Trail	5	0	0.00%	0	0.00%
MMWD	34	0	0.00%	0	0.00%
Alex Forman Trail	34	0	0.00%	0	0.00%
Old St. Hilary's OSP	0	N/A	N/A	N/A	N/A
Olompali SP	19	1	5.26%	0	0.00%
Loop Trail	19	1	5.26%	0	0.00%
Miwok Trail to Loop Trail	0	0	0.00%	0	0.00%
Roy's Redwoods OSP	27	3	11.11%	0	0.00%
Loop Trail	27	3	11.11%	0	0.00%
Overall	109	5	4.59%	0	0.00%

Sonoma County

Park/Trail	Nymphs Tested	<i>Borellia burgdorferi</i> sl		<i>Borellia miyamotoi</i>	
		Pos. Pools	IP	Pos. Pools	IP
Annadel SP	59	3	5.08%	1	1.69%
Cobblestone Trail	59	3	5.08%	1	1.69%
Lawndale Trail	0	0	0.00%	0	0.00%
Crane Creek RP	0	N/A	N/A	N/A	N/A
Creek Trail	0	N/A	N/A	N/A	N/A
Foothill RP	50	1	2.00%	1	2.00%
Pond B Loop Trail	42	0	0.00%	0	0.00%
Ravine Trail	8	1	12.50%	1	12.50%
Helen Putnam RP	0	N/A	N/A	N/A	N/A
Hood Mountain RP	0	N/A	N/A	N/A	N/A
Hood Mountain Trail	0	N/A	N/A	N/A	N/A
North Sonoma Mountain RP	42	4	9.52%	2	4.76%
Umbrella Tree Trail	42	4	9.52%	2	4.76%
Ragle Ranch RP	0	N/A	N/A	N/A	N/A
Blackberry and Thistle Trails	0	N/A	N/A	N/A	N/A
Overall	151	8	5.30%	4	2.65%

*IP - Infection Prevalence = (number of positive ticks/total ticks tested)*100; used when ticks are tested individually
 #Two (2) nymphs collected at Olompali State Park were not tested. These ticks were used for educational purposes.

TICKS AND WILDFIRE

Tick and Tick-borne Disease Surveillance Program

Do wildfires kill ticks?

The short answer is no, fire does not necessarily directly kill ticks. Some research has looked at ticks placed in the soil of a controlled burn, and found that the ticks are able to survive the fire. The District has also seen evidence of this in 2019. After the Kincadee fire burned through Foothill Regional Park, lab staff conducted routine surveillance to see if any ticks were still alive and questing. One trail that was severely damaged by the fire produced 30 adult *Ixodes pacificus* ticks.

Another study looking at areas where wildfires have occurred has shown that in the year following the fire, the ticks remain abundant. However, the following years may see a sharp decline in the population. The same study saw a decrease in important vector hosts such as deer in wildfire areas.

The District plans to continue to sample trails at Foothill Regional Park in upcoming years, and hopes to help add to the growing body of information on how wildfires affect tick populations.



Three (3) adult *Ixodes pacificus* ticks collected at Foothill Regional Park in December 2019



Burned area on the trail at Foothill Regional Park in December 2019

Sources

Padgett, KA, Casher, LE, Stephens, SL and Lane, RS. 2009. *Effect of Prescribed Fire for Tick Control in California Chaparral*. Journal of Medical Entomology 46(5)
MacDonald, AJ, Hyon, DW, McDaniels, A, O'Connor, KE, Swei, A and Briggs, CJ. 2018. *Risk of vector tick exposure initially increases, then declines through time in response to wildfire in California*. Ecosphere 9(5)

TICK SAFETY TIPS

Tick and Tick-borne Disease Surveillance Program

Before entering tick habitat, take the following precautions

- Consider applying an effective tick repellent to exposed skin that has one of the following EPA-registered active ingredients: DEET, picaridin, IR3535, oil of lemon eucalyptus (OLE), or para-menthane-diol (PMD).
- Consider treating clothes/personal outdoor equipment with an acaricide containing permethrin.
- Wear light-colored clothing (making it easier to spot ticks).
- Wear long pants, long sleeves, and long socks whenever possible. This makes it more difficult for the tick to get to your skin.

While in tick habitat

- Stay on trails. Adult ticks are typically more abundant on uphill sides of trails.
- Avoid contact with nymphal habitats, including leaf litter, downed logs and tree trunks.
- Periodically check people and animals for ticks.

After exiting tick habitat

- Check people and animals for ticks, promptly removing any that might be on clothing or skin.
- Tumble dry clothes in a dryer on high heat for 10 minutes to kill ticks.
- Shower after coming indoors and carefully check for ticks.
- Properly remove any attached ticks immediately.

How to remove a tick properly

- Ideally, use tweezers to grasp the head of the tick as close to the skin as possible.
- Pull upward with steady, even pressure. DO NOT twist or jerk the tick; this can cause the mouthparts to break off and remain in the skin. If this happens, remove the mouthparts with tweezers. If you are unable to remove the mouthparts easily with clean tweezers, leave it alone and let the skin heal.
- After removing the tick, thoroughly clean the bite area and your hands with rubbing alcohol or soap and water.
- Never crush a tick with your fingers. Dispose of a live tick by putting it in alcohol, placing it in a sealed bag/container, wrapping it tightly in tape, or flushing it down the toilet.
- If redness or pain develops at the tick bite site, consult your physician.

For more information about our services and programs:
Marin/Sonoma Mosquito and Vector Control District
595 Helman Lane, Cotati, CA 94931
(707) 285-2200 www.msмосquito.org