DELTA MOSQUITO & VECTOR CONTROL DISTRICT

Dr. Mustapha Debboun
General Manager

Paul Harlien
Operations Program Manager

Mary Ellen Gomez
Administrative Assistant

Rick Alvarez
Vector Control Supervisor

1737 West Houston Avenue * Visalia, California 93291
Phone (559) 732-8606 * (877) 732-8606 * Fax (559)-732-7441
www.deltamvcd.org

Crystal Grippin
Scientific Program Manager

Erick Arriaga
Community Education & Outreach Coordinator

Bryan Ferguson
Foreman

Bryan Ruiz
Supervisor Assistant

DATE: **Thursday, May 4, 2023**

TO: **Board of Trustees, Delta Mosquito and Vector Control District (DMVCD)**

FROM: **Dr. Mustapha Debboun, General Manager**

SUBJECT: **Regular Meeting of the District's Board of Trustees**

TIME: **Monday, May 8, 2023, at 4:30 p.m.**

PLACE: **District Boardroom, 1737 West Houston Avenue, Visalia CA, 93291**

AGENDA:

1. **Roll Call**

2. **Public Forum (Limited to three minutes per speaker)**

   a) Members of the public may comment on any item not on the Agenda that is within the jurisdiction of the Board of Trustees (Board). Under state law, matters presented during public comment cannot be discussed or acted upon by the Board in this meeting.
   b) For items on the Agenda, the public is invited to make comments during the public comment period.
   c) Any person addressing the Board will be limited to a maximum of three (3) minutes. Public comments will be limited to a total of 15 minutes during the public comment period.
   d) If there are more than five (5) persons wishing to comment, then time will be divided equally between all persons wishing to speak, so that everyone has an opportunity to address the Board.
   e) Public comments may be submitted by email to comments@deltamvcd.org

ACTION 3. Consent Calendar

a) April Minutes
b) April Bills (Board Order #39-41)
c) May Payroll and Bills (Board Order #42)

4. Manager's Report

The General Manager will report on items of Delta Mosquito and Vector Control District (DMVCD) operational interest.

ACTION 5. Benefit Assessment Resolution

SCI Consulting will ask the Board of Trustees to pass a resolution of intent to levy the annual assessment and preliminary approval of related documents.

ACTION 6. Public Hearing Approval

SCI Consulting will ask the Board of Trustees to approve the official date and time for the Benefit Assessment Public Hearing (June 14, 2023, at 4:30pm)

7. Oxitec Collaboration

The General Manager will provide an update on the current collaboration effort between Oxitec and Delta Mosquito and Vector Control District.

8. Letter of Invitation to an International Public Health Researcher

The General Manager will discuss the letter of invitation to Dr. Josephine Wanjiku Ngunjiri from Nairobi, Kenya to tour our facility and learn about our Integrated Mosquito Management Practices.

9. Board of Trustees Member Comments

The Board of Trustees members will have a chance to make any additional comments regarding items within the jurisdiction of the District.

10. Future Agenda Items

The Board of Trustees members will have a chance to add future agenda. items if they choose to.

ACTION 11. Adjournment

Adjourn Meeting of the Board of Trustees to reconvene on Wednesday, June 14, 2023, at 4:30 p.m. in the Delta Mosquito and Vector Control District Boardroom, 1737 W. Houston Ave., Visalia, CA.

Note: Items designated for information are appropriate for Board action if the Board wishes to take action.

1. Roll Call

2. Public Forum

3. Consent Calendar

DELTA MOSQUITO & VECTOR CONTROL DISTRICT

Dr. Mustapha Debboun
General Manager

Hector Cardenas
Operations Program Manager

Mary Ellen Gomez
Administrative Assistant

Rick Alvarez
Vector Control Supervisor

1737 West Houston Avenue * Visalia, California 93291
Phone (559) 732-8606 * (877) 732-8606 * Fax (559)-732-7441
www.deltamvcd.org

Crystal Grippin
Scientific Program Manager

Erick Arriaga
Community Education & Outreach Coordinator

Paul Harlien
Foreman

Bryan Ruiz
Supervisor Assistant

Minutes of the Board of Trustees – Wednesday, April 12, 2023, Start: 4:30 p.m.

1. **Roll Call:**

   Present: Greg Gomez, President; Belen Gomez, Secretary; Linda Guttierrez, Larry Roberts, Kevin Caskey, Lori Berger, and Rosemary Hellwig

   Absent: None

   Staff: Dr. Mustapha Debboun, General Manager; Mary Ellen Gomez, Administrative Assistant

2. **Oath:**

   New Trustee, Dr. Lori Berger signed her oath of office for appointment to the Delta Mosquito and Vector Control District's (DMVCD) Board of Trustees. She also gave a brief biography of herself, describing her background in Plant Entomology, crop protection, and pollination.

3. **The General Manager and the Board of Trustees will recognize and present the Employee of the Quarter Certificate to Juan Pablo Ortega:**

   The General Manager introduced Juan Pablo Ortega to the Board of Trustees and presented the certificate to him on behalf of the Board of Trustees.

4. **Public Forum:**

   None

5. **Consent Calendar:**

   Following discussion, it was moved by Kevin Caskey, seconded by Larry Roberts and the Board of Trustees unanimously approved to accept the consent calendar as presented.

6. **Manager's Report:**

Dr. Debboun provided an update on DMVCD current operations and informed the Board of Trustees that March was a very busy month and the Staff worked diligently and efficiently in repairing vehicles, pesticide/laboratory equipment, and building structures. The California Department of Public Health (CDPH) Proficiency Panel for mosquito-borne disease testing was completed by the Biologist Andrea Troupin in March and the results were submitted to CDPH. The DMVCD staff and the Community Education and Outreach Coordinator, Erick Arriaga attended the College of Sequoias Agriculture Job Fair at their Tulare Campus and will attend future events in April such as Visalia Rawhide baseball games, give presentations to Exeter Garden Club, Sequoia High School, Public Cemetery Alliance, and a display booth during Tulare County Museum Jamboree at Mooney Grove Park and at Earth Day Celebration at Summer Park, Visalia. In addition, new graphics were installed on all trucks and vehicles to improve public visibility and raise awareness of our presence within DMVCD.

7. **Audit Report FY 2021/22:**

The General Manager presented the completed and final Audit Report to the Board of Trustees. Following a brief discussion, it was moved by Rosemary Hellwig, seconded by Belen Gomez to approve the 2022 Audit Report.

8. **Quarterly Expense/Revenue Reports:**

The Administrative Assistant presented the Quarterly Expense/Revenue Report to the Board of Trustees. Greg Gomez inquired if there were any significant changes, to which he was notified there were no significant changes and everything in the reports was current and good. Dr. Lori Berger asked what the Assessment amount was, and the General Manager provided her with the amount.

9. **Board Travel Calendar:**

The General Manager discussed the meetings available in the 2023/2024 fiscal year. Rosemary Hellwig stated that she and Belen Gomez attended one which was informative, and a brief discussion was ensued by other Trustees.

10. **Board of Trustee Member Comments:**

The General Manager presented a list of contact information for each Trustee to review and ensure that all their information was up to date and correct. The General Manager also thanked the Trustees for completing the harassment and ethics training. Larry Roberts stated that training was lengthy and that areas covered are slightly beyond what a Trustee may encounter. Rosemary Hellwig stated that this training was easier than the ones in years past, and Kevin Caskey also provided some feedback regarding his training.

11. **Future Agenda Items:**

The General Manager reminded the Board of Trustees that the May meeting will take place on Monday May 8th, 2023, at 4:30pm. Rosemary Hellwig reported that she will not be able

to make the May Board of Trustees Meeting.

12. Adjournment:

It was moved by Larry Roberts, seconded by Rosemary Hellwig, and the Board unanimously approved to adjourn the meeting of the DMVCD's Board of Trustees at 5:39 p.m.

Dr. Mustapha Debboun, Recording Secretary

_____

Board Order No. 39
Consent Calendar Exhibit II

VOUCHER	PAYEE	DESCRIPTION		Budget Line Item	AMOUNT
37653	BELEN GOMEZ	TRUSTEE PAYROLL - QUARTERLY			92.35
		Sub-Total Trustee Payroll			$92.35
37654	DELTA VECTOR CONTROL DIST - EFTPS	Social Security/ Medicare/ Federal Income Tax		Employee 71% - District 29%	15.30
		Total for Trustee Payroll Taxes & Benefits			*$107.65*
		Total Board Order # 39			$107.65

CLAIM #	PAYEE	DESCRIPTION		Budget Line Item	AMOUNT
37655	ZACKERY BARRAGAN	Laboratory Tech I			640.92
37656	ALEJANDRA GILL	Laboratory Tech I			724.94
37657	JUAN PABLO ORTEGA	Laboratory Tech II			1,407.19
37658	CARLOS PALACIOS	Laboratory Tech I			870.91
37659	PAUL RAPER	Vector Control Tech II			1,200.86
37660	CARLOS RODRIGUEZ	Vector Control Tech II			1,832.00
37661	ADRIAN SIFUENTES	Vector Control Tech II			1,881.69
37662	KENNITH XAYACHACK	Laboratory Tech I			640.36
37663	DELTA VECTOR CONTROL DIST - EFTPS	Social Security/ Medicare/ Federal Income Tax			2,195.14
37664	DELTA VECTOR CONTROL DIST - EFTPS	State Income Tax			136.19
37665	DELTA VECTOR CONTROL DIST - EFTPS	*CalPERS Retirement*			1,131.96
		TOTAL PAYROLL			*$12,662.16*
37666	AWARDS & SIGNS UNLIMITED	Name Plate for Bryan Ferguson and Paul Harlien		Office Supplies	111.22
37667	CITY OF VISALIA	Utilities		Utilities	248.12
37668	COMCAST	Internet		Telephone/Cellphones	342.36
37669	CRANES WASTE OIL	Oil Recycle		Vehicle Supplies	135.00
37670	JARIBU W NELSON CPA	Preparation of June 30, 2022 Audited Financial Statements- Final Bill		Professional Services	4500.00
37671	MVCAC	(2) 2022 Yearbooks MVCAC		Misc Expense	46.99
37672	RUSSEL BROYLES	Annual Backflow Test		Building/Yard	60.00
37673	SMART AND FINAL	Smart Wick, 20 oz bowls, plates		Misc Expense	48.79
37674	VALLEY PACIFIC PETROLEUM	Fuel		Fuel	396.55
37675	VERIZON	Cell Phones		Telephone/Cellphones	1159.07
		TOTAL BILLS			*$7,048.10*
		TOTAL BOARD ORDER #40			*$19,710.26*

Board Order No. 41
Consent Calendar Exhibit IV

VOUCHER	PAYEE	DESCRIPTION		Budget Line Item	AMOUNT
37676	DELTA VECTOR CONTROL DIST - EFTPS	Quarterly UI			7,812.00
		Total for Payroll			*$7,812.00*
		Total Board Order # 41			$7,812.00

Board Order No. 42
Consent Calendar Exhibit V

VOUCHER	PAYEE	DESCRIPTION		Budget Line Item	AMOUNT
37677	MUSTAPHA DEBBOUN	GENERAL MANAGER			8,100.96
37678	RICK ALVAREZ	VECTOR CONTROL SUPERVISOR			5,754.02
37679	ERICK ARRIAGA	COMMUNITY EDUCATION & OUTREACH COORDINATOR			4,716.43
37680	BRYAN FERGUSON	FOREMAN			5,590.16
37681	MARY ELLEN GOMEZ	ADMINISTRATIVE ASSISTANT			4,966.15
37682	CRYSTAL GRIPPIN	SCIENTIFIC PROGRAM MANAGER			4,535.73
37683	PAUL HARLIEN	OPERATIONS PROGRAM MANAGER			6,090.78
37684	REBECCA HARLIEN	ADMINSTRATIVE ANALYST			5,527.10
37685	MARK NAKATA	BIOLOGIST			5,807.06
37686	BRYAN RUIZ	VECTOR CONTROL TECHNICIAN III			4,857.57
37687	MARIO SANCHEZ	VECTOR CONTROL TECHNICIAN III/MECHANIC			4,586.17
37688	ANDREA TROUPIN	BIOLOGIST			5,651.97
37689	JAVIER VALDIVIAS	BIOLOGIST			6,670.30
		Sub-Total Full-Time Payroll			$72,854.40
37690	VSP	Vision Plan Premium			537.26
37691	DELTA DENTAL PLAN	Dental Plan Premium			1,368.57
37692	LINCOLN FINANCIAL GROUP	Life/STD & LTD Insurance			1,142.83
37693	DELTA VECTOR CONTROL DIST - EFTPS	CalPERS Health Insurance Premium			24,634.29
37694	DELTA VECTOR CONTROL DIST - EFTPS	Social Security/ Medicare/ Federal Income Tax		Employee 71% - District 29%	31,885.94
37695	DELTA VECTOR CONTROL DIST - EFTPS	State Income Tax		Employee 100%	5,362.48
37696	DELTA VECTOR CONTROL DIST - EFTPS	CalPERS Retirement		Employee 40% - District 60%	17,443.83
37697	DELTA VECT CONT DIST	Flex Benefit Plan		Employee 100%	1,166.62
37698	MISSION SQUARE	Deferred Retirement Trust		Employee 77% - District 23%	3,387.03
		Total for Full-Time Payroll Taxes & Benefits			*$159,783.25*
37699	ZACKARY BARRAGAN	Laboratory Tech I			1090.00
37700	DANNY CADENA	Vector Control Tech I			1093.84
37701	CHRISTIAN COTTO	Vector Control Tech I			1151.72
37702	ALYSIA DAVIS	Vector Control Tech I			1254.06
37703	JOSHUA ESQUIBEL	Vector Control Tech I			1150.17
37704	ALEJANDRA GILL	Laboratory Tech I			1282.97
37705	JAKE MALDONADO	Laboratory Tech I			1034.84
37706	MARCO MARTINEZ	Vector Control Tech I			1151.72
37707	THEODORE MCGILL	Vector Control Tech I			1034.84
37708	ELIAS MELENDEZ	Vector Control Tech I			1034.84
37709	JUAN PABLO ORTEGA	Laboratory Tech II			1883.39
37710	CARLOS PALACIOS	Laboratory Tech I			1209.99
37711	PAUL RAPER	Vector Control Tech II			1788.16
37712	CARLOS RODRIGUEZ	Vector Control Tech II			1832.00
37713	LISA SALGADO	Vector Control Tech I			1150.33
37714	ADRIAN SIFUENTES	Vector Control Tech II			1881.70
37715	RYAN SPRATT	Vector Control Tech I			1189.04
37716	KORY WILSON	Vector Control Tech I			1253.89
37717	KENNITH XAYACHACK	Laboratory Tech I			1088.92
37718	DELTA VECTOR CONTROL DIST - EFTPS	Social Security/ Medicare/ Federal Income Tax			6068.70
37719	DELTA VECTOR CONTROL DIST - EFTPS	State Income Tax			540.78
37720	DELTA VECTOR CONTROL DIST - EFTPS	CalPERS Retirement			1781.19
		Sub-Total for Payroll Taxes & Benefits			*$32,947.09*

		Total Full-Time and Seasonal Payroll and Benefits			*$192,730.34*
37721	CENTRAL VALLEY BUSINESS FORMS	Business cards for Bryan Ferguson and Paul Harlien		Office Supplies	94.01
37722	CLINES BUSINESS EQUIPMENT	Monthly Contract		Maint. Contract	56.32
37723	CRANES WASTE OIL	Used Oil Filters Picked Up		Vehicle Supplies	95.00
37724	EMD NETWORKING				3014.25
		Monthly Contract	2584.25	Maint. Contract	
		Voip Phones	430.00	Phones/Cell Phones	
37725	ENTERPRISE	Leased Vehicles		Capital-Vehicles	1,909.68
37726	FISCHER SCIENTIFIC				17,386.15
		TaqMan 10x1ml, magma lysis soln tubes	7334.45	Lab Assessment	
		Micro amp, micro plate, deep well plate, core kit, microcentrifuge, isopropanol	10,051.70	Lab Supplies	
37727	FRESNO OXYGEN				443.30
		Dry Ice for Lab Traps	409.49	Lab Assessment	
		2 3/4 knot cups, wire wheels	33.81	Shop Supplies	
37728	HARBOR FREIGHT				240.93
		Buffing wheels, pads, compound, sand paper	78.04	Building/Yard	
		Purple spray gun, tack cloth	32.71	Shop Supplies	
		2 mesh tarps	130.18	Fish Supplies	
37729	LINX UP	GPS		GPS	859.57
37730	LOZANO SMITH	Finalize court papers for the 2023 Insp. Warrant, Meeting w/ Judge Hillman regarding warrant		Professional Services	890.60
37731	MESA ENERGY	AAON unit serviced in Lab, environmental fees, PPE fees, consumables fee		Building/Yard	992.03
37732	METTLER-TOLEDO	Pipettes calibration, filter tips, DNA & RNAse off decontamination		Lab Supplies	3,453.68
37733	PRICE PAIGE & COMPANY	Completion of consulting services for audit		Professional Services	1,800.00
37734	SDI				46.49
		Coupling 2x2, bushing 2x 100, nipple short	22.57	Operational Supplies	
		Coupling 2x2, adapter	23.92	Operational Supplies	
37735	SO CAL GAS	Utilities		Utilities	393.83
37736	THE REGENTS OF UC DAVIS	Proficiency panels and controls		Lab Supplies	816.00
37737	TULARE COUNTY SOLID WASTE	10 tires recycled		Vehicle Supplies	50.00
37738	ULINE	3 IBC Spill Cont Pallets, 3- 4 drum spill cont. pallets, 1 - 2 drum spill cont. pallets		Building Improvements	6,943.78
37739	US BANK				8,842.61
		Costco- Bankers boxes	75.93	Office Supplies	
		Language Tooler GmbH- Language tool 1 year premium	59.90	Office Supplies	
		CSET- Outreach event, Senior day at the park, Booth fee and 2 lunches	137.00	Public Relations	
		Office Depot- Box storage and tote, outreach materials	46.96	Public Relations	
		Michaels- 2 Poster frames for Aedes Crew Maps	43.38	Assessment	
		Costco- 55" TV	288.09	Office Supplies	
		Hakko- 5 sets of tweezers	32.39	Lab Supplies	
		Zoro- 12 pk 2qt containers 12pk 2qt lids	115.12	Lab Assessment	
		Uline- 50 one gallon jugs, 24 tote boxes	443.64	Lab Assessment	
		Harbor Freight- gloves, funnels, glasses, pliers, ruler, ear muff, gloves	41.76	Lab Assessment	
		US Chefs Store- Sugar and yeast for traps	347.34	Lab Assessment	
		Walmart- Isopropanol	16.17	Lab Supplies	
		Home Depot- trash cans, tape, shop vac tool, tape measure, metal handle, wood, baking soda	258.69	Lab Assessment	
		Office Depot- 12 pack fine tip sharpie markers and 36 pack sharpie markers	47.71	Office Supplies	
		Lowes- salt, lids, and buckets	108.78	Fish Supplies	
		Scaled Instruments- vantage radiation shield	16.65	Lab Supplies	
		Lowes- 9v battery, AA battery, CR123 battery	38.67	Lab Supplies	
		Sacramento Koi- Vacuum port	46.98	Fish Supplies	
		Microsoft- Office	272.21	Subscription	

		RS Online- 2 Connector housing recepticle, 2 connector housing plug	57.37	Vehicle Supplies	
		Amazon- T29 (8) Argo tires	762.72	Vehicle Supplies	
		Amazon- Fittings and filters for back pack blowers and wands	36.34	Spray Supplies	
		Dream Host-	158.88	Subscription	
		Amazon- 34 Screen protectors for phones	121.40	Office Supplies	
		Amazon- air manifold, aluminum plate	102.29	Lab Supplies	
		Lowe's- 10 bags of quikrete	65.97	Building/Yard	
		Lowe's 20 bags of quickrete, fish door	131.94	Fish Supplies	
		Lowe's- wood, screws,washers, concrete mix fish door	236.98	Fish Supplies	
		Lowe's- 8 bags quikrete	52.77	Fish Supplies	
		Lowe's- Hardware for screen door on fish hatchery	19.36	Fish Supplies	
		Lowe's - Auto line, paintbrush, driveway crack filler	105.80	Building/Yard	
		Lowes- Quikrete	13.48	Fish Supplies	
		Amazon- Printer ink yellow, and printer ink multi	31.82	Office Supplies	
		Amazon- red heat shrink tubing, black shrink tubing	29.27	Lab Supplies	
		Jalisco Meat Market- Chicken and Ranchera meat for Season start luncheon	94.83	Misc. Expense	
		Office Depot- 10 Cases of copy paper	433.89	Office Supplies	
		Vallarta Market- vegetables and tortillas for season start luncheon	60.05	Misc. Expense	
		Amazon- Screen protector 3 pack and 2 phone cases	30.16	Phones/Cell phones	
		Amazon- 2 fish nets	9.02	Fish Supplies	
		Andy's Automotive Paint- T5 paint, primer, harder, reducer- tailgate repair	181.54	Vehicle Supplies	
		Google Suite- Domain	216.00	Subscription	
		Sip Trunk-	273.36	Subscription	
		Amazon- aluminum sheet	28.85	Lab Assessment	
		Amazon- Pet G Filament	126.90	Lab Assessment	
		Amazon- net, rubber bands, brush heads, business card holder, wire mesh 30	101.77	Lab Assessment	
		Resource Building Material- Sonoma Gold Rocks	242.79	Building Improvement	
		Lowe's- 2 manifold, fender washer, swivel, paint	122.76	Building Improvement	
		Ed's Self Haul- 3 bench tops	450.00	Building/Yard	
		Resource Building Material- Sonoma Gold Rocks	177.79	Building Improvement	
		Lowe's- 10 Caps for sprinklers	10.74	Building/Yard	
		Lowe's- Lumber OSB	104.37	Shop Supplies	
		Office Depot- 2 Posters for Aedes Maps	29.49	Assessment	
		Amazon- 5 piece indicator lights for dash	18.32	Vehicle Supplies	
		Lowe's- paint, hanger, paint roller, paint pan, roller nap- parking lot maintenance	73.98	Building/Yard	
		Zira- Time Keeping app	164.00	Subscription	
		Home Depot- Spray nozzle, wall plate, black wall plate, tape, pipe stake,sensor switch	182.44	Building/Yard	
		Lowe's 60 minute timer, deco plates, 4" mid ring	83.56	Building/Yard	
		Amazon- Battery connectors, 8 gage wire, battery lugs,	48.56	Shop Supplies	
		USPS- 2 First Class envelopes, Cert Exam applications	3.24	Office Supplies	
		Amazon-10 optidefense safety glasses	97.10	Safety supplies	
		Lowe's- Light timer	32.53	Building/Yard	
		3M Health and Safety- Respirator Exam Evaluations	319.00	Safety supplies	
		Tractor Supply- 2 pair of rubber boots	54.10	Safety supplies	
		Smart and Final- toilet tissue, paper towels, carpet cleaner, bowl cleaner, hand soap	213.17	Janitorial	
		Amazon- PO Books and pens	47.16	Office Supplies	
		Lowe's- Bi manifold, hose thread swivel, pvc coupling	17.29	Building/Yard	
		Lowe's- Shower curtains	28.14	Safety supplies	
		Lowe's- concrete, pipe swivel, paint	51.05	Building/Yard	
		Lowe's- Kobalt storage crate	20.59	Safety supplies	
		Amazon- Pigeon traps	49.88	Building/Yard	

		Amazon- Label maker tape	22.77	Office Supplies	
		Amazon- Bifocal safety glasses, nitrile gloves, safety goggles,	224.89	Safety supplies	
		Amazon- Legal pads, Jr legal pads	32.77	Office Supplies	
37740	VALLEY INDUSTRIAL MEDICAL GROUP	6- Employee physical exam/drug screen		Professional Services	880.00
37741	VALLEY PACIFIC FUEL	Fuel		Fuel	1,126.83
37742	VWR				551.34
		Triethylamine IL, glass beads	171.26	Lab Supplies	
		2 - 50 mL Erlenmeyer Flasks	380.08	Lab Assessment	
		Total Board Order # 42			$243,616.74

4. Manager's Report

Delta Mosquito & Vector Control District

Dr. Mustapha Debboun
Genreal Manager

Paul Harlien
Operations Program Manager

Mary Ellen Gomez
Administrative Assistant

Rick Alvarez
Vector Control Supervisor

1737 West Houston Avenue | Visalia, California 93291

Phone (559) 732-8606 | (877) 732-8606 | Fax (559) 732-7441

www.DeltaMVCD.org

Crystal Grippin
Scientific Program Manager

Erick Arriaga
Community Education & Outreach Coordinator

Bryan Ferguson
Foreman

Bryan Ruiz
Supervisor Assistant

REPORT OF THE MANAGER
April 2023

I. Water and Weather

The weather began to warm up in April. The Delta Mosquito and Vector Control District (DMVCD) Weather Station reported an average high temperature of 75.3°F with an average low of 48.6ºF and 0.35 inches of rainfall as of April 27, 2023. The National Oceanic and Atmospheric Administration 1981-2010 seasonal averages for high and low temperatures in April were 72.7ºF and 48.6ºF respectively, with average rainfall of 0.97 inches.

Water storage at Pine Flat Reservoir decreased to 434,028 acre-feet as of April 27, 2023. Pine Flat Reservoir's water inflow increased to 10,263 cubic feet per second (CFS) while its release increased to 13,202 CFS. The Lake Kaweah Reservoir storage decreased to 34,124 acre-feet. Lake Kaweah's inflow also increased to 3,904 CFS and its release decreased to 3,515 CFS as of April 27, 2023.

II. Narrative

Field operations received 83 service requests in April which consisted of a Vector Control Technician inspecting the reported property for any standing water that mosquito larvae could breed in. During this time, the technician used an integrated vector management strategy to reduce any mosquito breeding found. In addition, technicians use this opportunity to educate residents on mosquito-breeding prevention and how to protect themselves from mosquito bites.

Operations finished with fleet vehicle winter maintenance. All vehicles received a multi-point inspection which included engine, transmission, cabin filter, air conditioning, heater system, front and rear brake pads, rotors, parking brake, fluids (brake fluid, engine oil, etc.), and lights.

We purchased ornamental rocks and placed them into the flower beds (Figure 1). We built a screened in-wall in the Fish Hatchery with doors to keep the birds and pigeons from entering. (Figure 2)

Figure 1. Image of the before and after the ornamental rocks were added to the flower beds.

Figure 2 Image of the constructed screened in-wall to the Fish Hatchery.

We updated some of the safety containment units in the Pesticide Room to ensure if we have a chemical leak, we will be able to not just contain the chemical but save it so it can be used with no waste (Figure 3).

Figure 3 Image of the organization of the Pesticide Room.

The oil tank area was reorganized and cleaned of old drums and the waist oil was moved into the Pesticide Room so it can be out of the weather and stored in a safety cantonment unit (Figure 4 A and B).

Figure 4A Image of the oil tank area showing the clutter of old oil drums.

Figure 4B Image of the oil tank area after it was cleaned and decluttered.

We trained all the hired seasonals for three days and provided them with respirator fit testing.

The loading zone was repainted along with a new rectangular yellow loading zone in the parking lot to divide Urban and Rural parking areas as the employees will be parking there at different times of the day (Figure 5).

Figure 5 Image of the newly repainted loading zone in front of the pesticide room.

Old unused items, i.e., four truck toolboxes ($103), two older spray tanks that were used for herbicide treatment ($625, $250), and one pull behind disc ($351) as shown in Figure 6 were auctioned and sold for a total of $1,329.

Figure 6 Image of the old unused assets that were auctioned and sold.

We started treating the catch basins with the chemical, Sumilarv WS packets and inspecting fields and treating dairy mosquito-breeding sources.

The laboratory passed the California Department of Public Health (CDPH) Proficiency Panel for mosquito-borne disease testing. A passing result is required for the District to submit in-house mosquito-borne disease test results to the state.

Routine mosquito surveillance began the second week of April. A total of 7,243 mosquitoes were collected across 1,083 trap nights. The District-wide average of 6.7 mosquitoes per trap night for the month of April is 10.4% higher than the previous 5-year average of 6.1 and 104.3% higher than the 2022 average of 3.3 mosquitoes per trap night. The top 3 mosquito species caught in April were *Culex quinquefasciatus* at 76.9%, followed by *Cx. tarsalis* at 17.8% and *Cx. stigmatosoma* at 2.9%. Compared to April of 2022, the top 3 mosquito species caught were *Cx. quinquefasciatus* at 81.2%, followed by *Cx. tarsalis* at 12.5% and *Cx. stigmatosoma* at 4.2%

Arbovirus testing for West Nile virus (WNV), St. Louis Encephalitis virus (SLEV), and Western equine encephalitis virus (WEEV) also began in April. As of April 27, 2023, the DMVCD tested 98 of the 173 mosquito samples collected in April. Test results are pending for the remaining samples. The dead bird brain sample collected in March tested negative for WNV, SLEV, and WEEV. No samples were positive for a mosquito-borne disease. No kissing bugs have been reported to the district so far in April.

There were 26 technician and homeowner mosquitofish requests in April and distributed a total of 1,273 mosquitofish. In April of 2022, there were 10 technician and homeowner mosquitofish requests and distributed a total of 385 mosquitofish. A total of 3,030 mosquitofish fry were produced in April 2023. In April of last year, 868 mosquitofish fry were produced.

A total of 23 mosquito larvae samples were brought to the laboratory for processing. The top three species found in the samples were: *Cx. quinquefasciatus, Cx. tarsalis*, and a tie between *Cx. stigmatosoma* and *Culiseta inornata.* Susceptible *Cx. quinquefasciatus* and *Aedes aegypti* colonies were maintained for insecticide resistance testing.

Routine laboratory maintenance and repairs continued during the month of April. The annual preventative maintenance and calibration for the PCR machine was completed. Air filters were replaced on the BSL-2/3 HVAC systems. The annual maintenance for the District weather station was completed. The gutters on the trap shop and fish building were cleaned. Monthly safety checks for fire extinguishers and emergency lights were performed as well as weekly safety showers and eyewash inspections.

Laboratory staff participated in a presentation at a high school, two tours for high school groups, and a presentation for a Public Cemetery Alliance meeting. Laboratory staff also attended two virtual training sessions on using VectorSurv to submit surveillance data to the state. Additionally, laboratory staff attended the virtual Mosquito and Vector Control Association of California (MVCAC) Laboratory Technologies and Integrated Vector Management Committee meetings.

In April, the DMVCD participated and attended 5 outreach events: three Visalia

Rawhide Baseball games, a Museum Jamboree at Mooney Grove Park, City of Visalia Earth Day Celebration, and a tour for the Sequoia High School students. In addition, three presentations were given to Sequoia High School and the Exeter Independent study. We have a new DMVCD magnet that will be used at future outreach events to help engage with the residents on preventing mosquitoes and raising awareness for the District.

The newly hired seasonal employees and the full-time staff of DMVCD participated in a Pizza Luncheon to celebrate the start of the 2023 Mosquito Season.

There were 95 service requests in April:

2023 Service Request Summary

2023	Mosquito -Fish	Inspection	Mosquito	Source	Other	Total
January	0	0	5	0	0	5
February	1	0	4	0	0	5
March	3	0	7	0	1	11
April	12	0	83	0	0	95
Total	16	0	99	0	1	116

III. Vector and Disease Surveillance

Delta MVCD Summaries

Humans: No human cases of a mosquito-borne disease have been reported so far in 2023.

Birds: No dead birds have been reported in April. The one dead bird reported in March was negative for mosquito-borne diseases.

Mosquitoes: A total of 98 mosquito samples were tested of which 0 were positive for a mosquito-borne disease.

State Surveillance:

Humans: No human cases so far in 2023.

Birds: One dead bird from one county has tested positive for WNV in April. So far, 48 dead birds have been tested in 2023.

Mosquitoes: No new positive samples have been reported in April as of April 2, 2023. So far, two mosquito samples from two counties have tested positive for WNV in 2023.

IV. Expenditures & Revenues – 2022/23
TOTAL BUDGET $4,958,310.00

EXPENDITURES – July 1, 2022 – April 30,2023

Salaries	$2,402,469.40
Services & Supplies	$824,358.22
Tax Admin Fee	$39,947.00
Capital	$72,663.03
Long-Term Debt	$58,914.03
TOTAL EXPENDITURES	$3,398,351.68

REVENUE RECEIVED – July 1, 2022 – April 30, 2023

July	$1,120.28
August	$0.00
September	$19,435.29
October	$3,534.31
November	$6,595.69
December	$2,409,228.69
January	$252,528.83
February	$11,235.47
March	$29,630.06
April	Still Unavailable
TOTAL REVENUE TO DATE	$2,733,308.62

V. Timesheet Summary

Month	Available Work Hrs	Sick Hrs Used	Total Hrs Available for Work	Pct. Of Hrs Avail for Work
July	5,880	20.5	5,859.5	99.65
August	6,440	39.5	6,400.5	99.38
September	5,456	48.25	5,407.75	99.12
October	5,040	32	5,008	99.37
November	3,168	88	3,080	97.22
December	2,304	160	2,144	93.05
January	3,024	264	2,760	91.30
February	2,736	203	2,533	92.58
March	3,312	144.75	3,167.25	95.63
April	5,120	91	5,029	98.22

The District has a vacation policy that requires 24-hour notice to ensure the operational integrity of the workforce. Sick leave for doctor, dentist, and/ or family medical necessity also requires advance notice-in so much as it is possible. Illness is unplanned and therefore unscheduled. Attendance records for the current year are shown in the table.

** April expenditures and revenue are not available as of 5/3/2023*

5. Benefit Assessment Resolution

RESOLUTION NO. _____

**RESOLUTION OF THE BOARD OF TRUSTEES
OF THE DELTA MOSQUITO AND VECTOR CONTROL DISTRICT
INTENTION TO CONTINUE ASSESSMENTS FOR FISCAL YEAR 2023-24 PRELIMINARILY APPROVING
THE ENGINEER'S REPORT, AND PROVIDING FOR NOTICE OF HEARING
FOR THE DELTA MOSQUITO AND VECTOR CONTROL DISTRICT,
MOSQUITO, VECTOR AND DISEASE CONTROL ASSESSMENT**

WHEREAS, on July 28, 2021 by Resolution No. 2021-07, the Board of Trustees of the Delta Mosquito and Vector Control District (the "Board") authorized the levy of assessments for the Mosquito, Vector and Disease Control Assessment (the "Assessment") pursuant to the provisions of the Health and Safety Code section 2080 et seq. and Article XIIID of the California Constitution; and

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

WHEREAS, the purpose of the Assessment is for mosquito control services which include a system of public projects, programs, public improvements, and services intended to provide for the surveillance, prevention, abatement and control of mosquitoes throughout its boundaries (collectively "Services").

WHEREAS, the Delta Mosquito and Vector Control District ("the District") is authorized, pursuant to the authority provided in Health and Safety Code Section 2082 and Article XIIID of the California Constitution, to levy assessments for mosquito, vector and disease control services; and

WHEREAS, the Assessment was authorized by an assessment ballot proceeding conducted in 2021 and approved by 57.03% of the weighted ballots returned by property owners, and such assessments were levied by the Board by Resolution No. 2021-07 passed on July 28, 2021; and

WHEREAS, an annual adjustment to the Assessment rate equal to the change in the Consumer Price Index for Western Region's Pacific Division Consumer Price Index for All Urban Consumers (CPI-U), not to exceed 3% per year was also authorized by the assessment ballot proceeding conducted in 2021;

NOW, THEREFORE, BE IT RESOLVED by the Board of Trustees of the Delta Mosquito and Vector Control District that:

1. SCI Consulting Group, the Engineer of Work, has prepared an engineer's report in accordance with Article XIIID of the California Constitution and Section 2082, et seq., of the Health and Safety Code (the "Report"). The Report has been made, filed with the secretary of the board and duly considered by the Board and is hereby deemed sufficient and preliminarily approved. The Report shall stand as the Engineer's Report for all subsequent proceedings under and pursuant to the foregoing resolution.

2. It is the intention of this Board to continue and to collect assessments for the Mosquito, Vector and Disease Control Assessment for fiscal year 2023-24 for the proposed projects and services set forth in the Report. Within the Delta Mosquito and Vector Control District, the proposed projects and services are generally described as mosquito, vector and disease control services and projects such as source reduction, biological control, larvicide applications, adulticide applications, disease monitoring, public education, reporting, accountability, research and interagency cooperative activities, as well as capital costs, and maintenance and operation expenses (the "Services").

3. The authorized maximum assessment to be levied in future fiscal years after the fiscal year 2021-22 shall be adjusted based on the Consumer Price Index for Western Region's Pacific Division Consumer Price Index for All Urban Consumers (CPI-U), not to exceed 3% per year.

4. The estimated fiscal year 2023-24 cost of providing the Services is $1,102,698, This cost results in a proposed assessment rate for fiscal year 2023-24 of THIRTEEN DOLLARS AND TWENTY-SIX CENTS ($13.26) per single-family equivalent benefit unit for Zone A, and SIX DOLLARS AND SIXTY-THREE CENTS ($6.63) per single-family equivalent benefit unit for Zone B. Reference is hereby made to the Report for a full and detailed description of the proposed assessments upon assessable lots and parcels of land.

5. The Assessment may be levied annually and may be adjusted up to the maximum annual CPI adjustment without any additional assessment ballot proceeding. The change in the CPI in 2022 was 5.81% therefore, the maximum authorized assessment rate per single-family equivalent benefit unit for Fiscal Year 2023-24 is $13.26 For Zone A and $6.63 for Zone B. The rates to be levied for the fiscal year 2023-24 are the same as the Maximum Authorized Rate.

6. Notice is hereby given that on June 14, 2023, at the hour of 4:30 p.m. at Delta Mosquito and Vector Control District offices, located at 1737 W. Houston Ave Visalia, CA 93291; the Board will hold a public hearing to consider the ordering the continuation of the Services, and the levy of the assessments for the fiscal year 2023-24.

7. The clerk of the board or designee shall cause a notice of the hearing to be given by publishing a notice, at least ten (10) days prior to the date of the hearing above specified, in a newspaper circulated in the District.

PASSED and ADOPTED by the Board of Trustees of the Delta Mosquito and Vector Control District, at its regular meeting on May 8, 2023, by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

_____
Board President

ATTEST:

_____
Secretary

FY 2023-24

ENGINEER'S REPORT

Delta Mosquito And Vector Control District

Improved Mosquito, Vector And Disease Testing And Control Assessment

May 2023
Final Report

Engineer of Work:

SCIConsultingGroup
Public Finance Consulting Services

4745 Mangels Boulevard
Fairfield, California 94534
707.430.4300
www.sci-cg.com

(This page intentionally left blank)

Delta Mosquito and Vector Control District

Board of Trustees

Greg Gomez	City of Farmersville	Board President
Belen Gomez	City of Woodlake	Board Secretary
Lori Berger	City of Visalia	Board Member
Kevin Caskey	County of Tulare	Board Member
Rosemary Hellwig	City of Exeter	Board Member
Larry Roberts	City of Dinuba	Board Member
Linda Guttierrez	County of Tulare	Board Member

District Manager/Medical & Veterinary Entomologist

Dr. Mustapha Debboun

Engineer of Work

SCI Consulting Group

Table of Contents

Introduction **1**

Overview and History of the Delta Mosquito and Vector Control District 1
Overview of Mosquito & Vector Control District Program's Benefit to Property 2
Engineer's Report and Continuation of Assessment 5

General Description of the Mosquito & Vector Control Program and Services **7**

About the Vector Control Program 7
Overview of Vector Control 7
Description of Vector Control Program 7
Vectors and Vector-Borne Diseases in the District Service Area 9
Integrated Vector Management 10
Control of Mosquitoes 14
Service Requests 16
Summary of Expanded Services funded by this Assessment 16

Estimate of Costs and Budget **18**

Method of Assessment **20**

Discussion of Benefit 20
Mosquito and Vector Control Is a Special Benefit to Properties 21
Benefit Factors 22
Benefit Finding 30
General vs. Special Benefit 30
Calculating General Benefit 32
Zones of Benefit 35
Method of Assessment 37
Assessment Apportionment 39
Duration of Assessment 44
Appeals and Interpretation 44

Assessment **45**

Assessment Roll **48**

Assessment Diagram **49**

LIST OF FIGURES

Figure 2 – Cost Estimate – FY 2023-24 18
Figure 3 – Residential Assessment Factors 41
Figure 4 – Commercial/Industrial Benefit Assessment Factors 42
Figure 5 – Summary Cost Estimate – FY 2023-24 Budget 45

Introduction

Overview and History of the Delta Mosquito and Vector Control District

The Delta Mosquito and Vector Control District (the "District") was established in 1922 to address chronic Malaria, as well as elevated pest mosquito populations, in northern Tulare County. The District's responsibilities were expanded in the mid 1960's to include control of other disease-carrying insects and rodents (called "vectors"). In 1972, the District's name was changed from the "Delta Mosquito Abatement District" to the "Delta Vector Control District." In April 2021, the District changed its name to include Mosquito in the title. The current official name is "Delta Mosquito and Vector Control District," (referred to as the "District" or "Delta MVCD" throughout this report) to reflect all the services provided by the District.

The District serves northern Tulare County, covering an area of 712 square miles. The District provides its services to properties accommodating approximately 240,000 residents and is the only public agency providing year-round mosquito and vector control and vector-borne disease protection and prevention services in this area of Tulare County.

The Delta Mosquito and Vector Control District is governed by a Board of Trustees (the "Board") with one trustee appointed by each of the five incorporated cities located within the District (Dinuba, Exeter, Farmersville, Visalia, and Woodlake); and two trustees appointed by the County Board of Supervisors. The Board meetings are held at 4:30 pm on the second Wednesday of every month, and the public is invited to attend.

The District provides mosquito control; surveillance of flies, ticks, and other vectors; and disease control services within its boundaries. The District's services are available to all properties within its jurisdiction. The purpose of the Delta Mosquito and Vector Control District is to reduce the risk of vector-borne disease and mosquito nuisance to property and the inhabitants of property within the District. The District's core services are summarized as follows:

- Early detection of public health threats through comprehensive vector surveillance
- Reducing vectors or exposure to vectors that transmit vector-borne diseases
- Appropriate, timely response to requests to prevent/control vector-borne diseases on property
- Public education about mosquitoes and other vectors, the diseases they carry, and how residents can help control them on their property

The Delta Mosquito and Vector Control District employs an integrated mosquito and vector control strategy which particularly emphasizes surveillance and testing to determine thresholds for treatment, and prioritizes and narrowly focuses response approaches in support of a strategic, comprehensive mosquito and vector control program. The District has had considerable success with this strategy to reduce mosquito and vector populations, especially in its response to the threat of West Nile virus and other public health issues.

The District is currently funded primarily by ad valorem property taxes in the amount of approximately $3 million per year. From 2010 to 2019, the District received funding from a property-owner approved assessment of approximately $1 million per year which supported comprehensive mosquito and vector control services as well as the development of the District's laboratory. This assessment expired in 2019 after the development costs of the laboratory had been paid off, leaving a structural budget shortfall in funding for the portion dedicated to comprehensive mosquito and vector control services.

Moreover, in recent years, there has been a significant increase in local population of the invasive yellow fever mosquito, *Aedes aegypti* in Tulare County. This mosquito can transmit dengue fever, chikungunya, Zika fever, Mayaro, yellow fever viruses, and other disease agents, and is particularly very expensive to control. To control the *Aedes aegypti* population, focused monitoring, testing, and treatment are required.

Hence, in 2021, the District conducted an assessment to replace the funding from the assessment that expired in 2019 and to address increased costs associated with addressing the invasive *Aedes aegypti*. With an additional funding source, the District is able to continue providing and improving year-round control of invasive mosquitoes, such as the *Aedes aegypti,* and the diseases they carry. As well as be better prepared for the future potential introduction of any other invasive mosquito species or emerging disease which may threaten the District residents.

Overview of Mosquito & Vector Control District Program's Benefit to Property

The District currently provides a "baseline" level of mosquito, vector and disease control services in the Service Area that would not have been sufficient under the current budget structure if the assessment was not approved. The existing funding source was diminishing over time and has been significantly reduced as a result of the expiration of the previous assessment in 2019, while the demand to address vectors, including emerging vectors such as *Aedes aegypti*, was increasing. Absent additional funding from a benefit assessment, a reduced, diminishing level of service would be the new "baseline" level of service and may include a very low level of surveillance, testing, monitoring and control of mosquitoes, resulting in higher mosquito populations and the potential for outbreak of vector-borne diseases.

The future services to be provided include intensive surveillance, disease prevention, and control of mosquitoes for properties within the Assessment Area such as mosquito, vector and disease prevention services, projects and programs include, but are not limited to, source reduction, biological control, larvicide and adulticide treatments, disease monitoring, public education, reporting, accountability, research and interagency cooperative activities, as well as capital costs, maintenance, and operation expenses as further described later, which are above the baseline level of services.

The Assessment Area is narrowly drawn to include only properties that could request and/or receive direct and more frequent service, that are located within the scope of the mosquito and vector surveillance area, that are located within flying or traveling distance of potential mosquito-breeding sources monitored by the District, and that would benefit from a reduction in the amount of mosquitoes reaching and impacting the property as a result of the enhanced mosquito surveillance and control. The Assessment Diagram included at the end of this report shows the boundaries of the Assessment Area.

This Engineer's Report ("Report") defines the Benefit Assessment, which would enhance the existing services provided in the Service Area, and provides funding for these improved mosquito, vector and disease control services for property throughout the Service Area, as well as related costs for equipment, capital improvements and services, and facilities necessary and incidental to mosquito, vector and disease control programs.

As used within this Report and the Benefit Assessment ballot proceeding, the following terms are defined:

> *"Vector" means any animal capable of transmitting the causative agent of human disease or capable of producing human discomfort or injury, including, but not limited to, mosquitoes, flies, mites, ticks, other arthropods, and rodents and other vertebrates (Health and Safety Code Section 2002(k)).*
> *"Vector Control" means any system of public improvements or services that is intended to provide for the surveillance, prevention, abatement, and control of vectors as defined in subdivision (k) of Section 2002 of the Health and Safety Code and a pest as defined in Section 5006 of the Food and Agricultural Code (Government Code Section 53750(m)).*

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

> 2001. (a) The Legislature finds and declares all of the following:
> *(1) California's climate and topography support a wide diversity of biological organisms.*

(2) Most of these organisms are beneficial, but some are vectors of human disease pathogens or directly cause other human diseases such as hypersensitivity, envenomization, and secondary infections.
(3) Some of these diseases, such as mosquitoborne viral encephalitis, can be fatal, especially in children and older individuals.
(4) California's connections to the wider national and international economies increase the transport of vectors and pathogens.
(5) Invasions of the United States by vectors such as the Asian tiger mosquito and by pathogens such as the West Nile virus underscore the vulnerability of humans to uncontrolled vectors and pathogens.
(b) The Legislature further finds and declares:
(1) Individual protection against the vectorborne diseases is only partially effective.
(2) Adequate protection of human health against vectorborne diseases is best achieved by organized public programs.
(3) The protection of Californians and their communities against the discomforts and economic effects of vectorborne diseases is an essential public service that is vital to public health, safety, and welfare.
(4) Since 1915, mosquito abatement and vector control districts have protected Californians and their communities against the threats of vectorborne diseases.
(c) In enacting this chapter, it is the intent of the Legislature to create and continue a broad statutory authority for a class of special districts with the power to conduct effective programs for the surveillance, prevention, abatement, and control of mosquitoes and other vectors.
d) It is also the intent of the Legislature that mosquito abatement and vector control districts cooperate with other public agencies to protect the public health, safety, and welfare. Further, the Legislature encourages local communities and local officials to adapt the powers and procedures provided by this chapter to meet the diversity of their own local circumstances and responsibilities.

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

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

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

Engineer's Report and Continuation of Assessment

To allow property owners to ultimately decide whether additional funding should be provided for the District's mosquito abatement services, the Board, on May 26th, 2021, authorized the initiation of proceedings for a benefit assessment to provide local funding for improved mosquito and disease surveillance and control services and related costs. The assessment was named the Mosquito and Disease Control Assessment (the "Assessment District"). In May through July of 2021, the District conducted an assessment ballot proceeding pursuant to the requirements of Article XIIID of the California Constitution ("The Taxpayer's Right to Vote on Taxes Act") and the Government Code. During this ballot proceeding, owners of property in the Assessment District were provided with a notice and ballot for the special assessment. A 45-day period was provided for balloting and a public hearing was conducted on July 21st, 2021. This hearing was continued to July 28th, 2021, to allow adequate time for the tabulation of ballots.

It was determined after the conclusion of the public hearing that 57.03% of the weighted ballots returned were in support of the assessment. Since the assessment ballots submitted in opposition to the assessments did not exceed the assessment ballots submitted in favor of the assessments (with each ballot weighted by the proportional financial obligation of the property for which ballot was submitted), the District gained the authority to approve the levy of the assessments for fiscal year 2021-22 and to continue to levy them in future years. The authority granted by the ballot proceeding includes an annual adjustment in the maximum authorized assessment rate equal to the annual change in the Consumer Price Index for Western Region's Pacific Division Consumer Price Index for All Urban Consumers (CPI-U), not to exceed 3% per year. In the event that the annual change in the CPI exceeds 3%, any percentage change in excess of 3% can be cumulatively reserved and can be added to the annual change in the CPI for years in which the CPI change is less than 3%. Board took action, by Resolution No. 2021-07 and passed on July 28, 2021, to approve the levy of the assessments.

In each subsequent year for which the assessments will be continued, the Board must preliminarily approve an updated Engineer's Report for the upcoming fiscal year at a noticed public hearing. The Engineer's Report should include a budget for the upcoming fiscal year's costs and services and an updated assessment roll listing all parcels and their assessments for the upcoming fiscal year.

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

If the Board approves this Engineer's Report and the continuation of the assessments it establishes for fiscal year 2023-24, the assessments will be submitted to the County Auditor for inclusion on the property tax rolls for fiscal year 2023-24.

General Description of the Mosquito & Vector Control Program and Services

About the Vector Control Program

The Delta Mosquito and Vector Control District is an independent special district (not part of any county or city) that controls and monitors mosquitoes and other vectors. The District protects the usefulness, desirability and livability of property, as well as the inhabitants within its jurisdiction, through the abatement of such vectors. In addition, the District regularly tests for diseases carried by mosquitoes and educates property owners and the occupants of property in the District about how to protect themselves from vector-borne diseases.

Over the course of time, a simple common-sense approach to mosquito control has evolved into a science-based program charged with protecting the public health from vector-borne disease via a comprehensive, integrated, highly technical program that gives consideration to the principles of ecology without damage to the environment. The use of methods, which minimally impact wildlife, non-targets, and beneficial plant and animal species are involved to provide a program that is effective and lasting.

Overview of Vector Control

A vector is defined by the State of California as "any animal capable of transmitting the causative agent of human disease or capable of producing human discomfort or injury, including, but not limited to, mosquitoes, flies, other insects, ticks, mites, and rats, but not including any domesticated animal…" [California Health and Safety Code Section 2002(k)].

Description of Vector Control Program

- Response to mosquito problems as well as other pestiferous or disease-carrying organisms on property in the District.
- Control of mosquito larvae on residential property, agricultural sources, ditches, dairy pits, drain lines, vaults, seasonally flooded ponds, horse troughs, wastewater treatment plants, under buildings, freshwater marshes, creeks, catch basins, and other sources on property in the District.
- Survey and data analysis of mosquito larvae populations to assess public health risks and allocate control efforts on property in the District.

- Monitoring of mosquito and other hematophagous dipteran populations using carbon dioxide-baited traps, resting boxes, New Jersey light traps, gravid traps, Biogents Sentinel (BG) traps, ovitraps, and other surveillance methods on property in the District.
- Monitoring for diseases carried and transmitted by mosquitoes on property in the District, such as Encephalitis, Malaria, Dog Heartworm, and West Nile virus.
- Testing of dead birds and mosquitoes for arboviruses and other diseases, and other disease surveillance methods to detect vector-borne diseases on property in the District.
- Testing of new adulticide and insecticide materials and investigation of their efficacy.
- Cooperation with the local health department, the State Department of Public Health, State Universities, and other agencies to survey and identify arthropod-borne diseases such as Lyme disease found in National and State Parks, trails and other recreational areas frequented by the public.
- Monitoring and/or advice for controlling other nuisance and potentially hazardous organisms and vectors such as ticks, kissing bugs, mites, and fleas on property in the District.
- Educate residents about the risks of diseases carried by mosquitoes, ticks, and other disease vectors, and how to better protect themselves and their pets.
- Educational programs on vectors and disease abatement at school, community, and civic group meetings in the District.
- Distribution of printed material and brochures that describe what residents, employees and property owners can do to keep their homes and property free of mosquitoes and other vectors.

The District protects the public from vector-borne diseases, and mosquito nuisance while protecting the environment, through a coordinated set of activities collectively known as the Integrated Vector Management Program (IVMP). For all vector species, public education is a primary control strategy. In addition, the District determines the abundance of vectors and the risk of vector-borne disease or discomfort through evaluation of public service requests and field and laboratory surveillance activities. If the populations exceed or are anticipated to exceed predetermined criteria, District staff employs the most efficient, effective, and environmentally sensitive means of control for the situation. Where feasible, water management or other physical control activities are instituted to reduce vector production. In some circumstances, the District also uses biological control such as the distribution of mosquitofish. When these approaches are not effective or are otherwise inappropriate, pesticides are used to treat specific pest-producing or pest-harboring areas.

Vectors and Vector-Borne Diseases in the District Service Area

The District undertakes activities through its Integrated Vector Management Program to control the following vectors of disease and / or discomfort within the District:

Mosquitoes

Certain species of mosquitoes found in Tulare County can transmit West Nile virus, Western Equine Encephalomyelitis, St. Louis Encephalitis, Malaria, and potentially other emerging diseases. A few species of mosquitoes are also capable of transmitting Dog Heartworm. Although some species of mosquitoes have not been shown to transmit mosquito-borne diseases, all mosquito species can cause human discomfort when the female mosquito bites to obtain blood. Reactions range from irritation in the area of the bite to severe allergic reactions or secondary infections resulting from scratching the irritated area. Additionally, an abundance of mosquitoes can cause economic losses, and loss of use or enjoyment of recreational, agricultural, or industrial areas.

Of the world's 3,000 mosquito species, more than 50 are found in California, and 24 have been identified in Tulare County. Continuous surveillance and special control efforts are aimed at the most troublesome species: *Aedes sierrensis, Aedes nigromaculis, Aedes vexans, Aedes aegypti, Anopheles freeborni, Anopheles punctipennis, Culex quinquefasciatus, Culex tarsalis,* and *Culex stigmatosoma.*

Other Animals of Importance

Although certain animal species such as bats, ground squirrels, chipmunks, ticks, opossums, wood rats, roof rats, house mice and their associated vectors will not be regularly controlled, these animals play important roles in the transmission of Plague, Rickettsiosis, Anaplasmosis, Ehrlichiosis, Murine Typhus, Hantavirus, and Lyme Disease, and may be surveyed for other diseases. The District routinely provides education and consulting services to the public about disease risk associated with these host species and vectors, along with appropriate measures to protect human health. In extreme cases where the transmission of disease is likely, as with other District activities, control efforts may be employed. Control of these animals will be done in consultation with the California Department of Health Services, Tulare County Department of Environmental Health, local animal control, Tulare County Agricultural Commissioner's Offices, and other State and local agencies.

Most of the animals mentioned earlier are extremely mobile and cause the greatest hazard or discomfort away from their sources. Each of their potential vectors, primarily fleas and ticks have a unique life cycle and most occupy a variety of habitats. To effectively control these vectors, an integrated vector management program must be employed. District policy is to identify those species that are currently vectors, recommend techniques for their prevention and control, and anticipate, and minimize any new interactions between vectors and humans.

Integrated Vector Management

The Integrated Vector Management Program of the Delta Mosquito and Vector Control District is a long-standing, ongoing program of surveillance and control of mosquitoes and other vectors of human disease and discomfort. The program consists of six types of activities:

1. **SURVEILLANCE** for vector populations, vector habitats, disease pathogens, and public distress associated with vectors; this includes trapping and laboratory analysis of vectors to evaluate populations and disease threats, direct visual inspection of known or suspected vector habitats, the use of all-terrain vehicles, maintenance of paths, and public surveys;
2. **PUBLIC EDUCATION** to encourage and assist reduction or prevention of vector habitats on private and public property;
3. **PHYSICAL CONTROL**. Management of vector habitat, especially through elimination of water-breeding sources, water control and maintenance or improvement of channels, tide gates, levees, and other water control facilities, etc;
4. **VEGETATION MANAGEMENT** to improve surveillance or reduce vector populations, usually through education and cooperation of property owners;
5. **BIOLOGICAL CONTROL**. Rearing, stocking, and provision to the public of the "mosquitofish" *Gambusia affinis*; application of the bacteria *Bacillus thuringiensis, Bacillus sphaericus*, and use of other predators or pathogens of vectors;
6. **CHEMICAL CONTROL**. Application of non-persistent selective insecticides to reduce populations of larval or adult mosquitoes and other invertebrate threats to public health.

The District's activities address mosquitoes and other arthropods – but both share general principles and policies including identification of vector problems; responsive actions to control existing populations of vectors, prevent new sources of vectors from developing, and manage habitat to minimize vector production; education of land-owners and others on measures to minimize vector production or interaction with vectors; and provision and administration of funding and institutional support necessary to accomplish these goals.

To accomplish effective and environmentally sound vector management, the manipulation and control of vectors must be based on careful surveillance of their abundance, habitat (potential abundance), pathogen load, and/or potential contact with people; the establishment of treatment criteria (thresholds); and appropriate selection from a wide range of control methods. This dynamic combination of surveillance, treatment criteria, and use of multiple control activities in a coordinated program is generally known as Integrated Pest Management (IPM) (Glass 1975, Davis et al 1979, Borror et al. 1981, Durso 1996, Robinson 1996).

The District's Vector Management Program, like any other IPM program, by definition involves procedures for minimizing potential environmental impacts. The District's Project uses IPM principles by first determining the species and abundance of vectors through evaluation of public service requests and field surveys of immature and adult mosquito populations; and then, if the populations exceed predetermined criteria, using the most efficient, effective, and environmentally sensitive means of control. For all vector species, and their host, public education is an important control strategy. In some situations, water management or other physical control activities (known as "source reduction" or "permanent control") can be instituted to reduce vector sources. The District also uses biological control such as the placing of mosquitofish in some aquatic settings. When these approaches are not effective or are otherwise inappropriate, pesticides are used to treat specific pest-producing or pest-harboring areas.

To maximize familiarity by the operational staff with specific vector sources in the Assessment Area, the District is divided into zones (currently six). Each zone is assigned a trained Vector Control Technician, whose responsibilities include inspection and treatment of known vector sources, finding and controlling new sources, minor physical control, and responding to service requests from the public. Each zone is further divided in the suburban or urban areas to help with service requests and control.

Vector control activities are conducted at a wide variety of sites throughout the District's Assessment Area. These sites can be roughly divided into those where activities may have an effect on the natural environment either directly or indirectly (through drainage), and sites where the potential environmental impacts are negligible "Non-Environmental Sites." Examples of "Environmental Sites" in the Project area include Lakes and Ponds, Rivers and Streams, Vernal Pools and other Seasonal Wetlands, Storm Water Detention Basins, Flood Control Channels, Street Drains and Gutters, Wash Drains, Irrigated Pastures, or Agricultural Ditches. Examples of "Non-Environmental Sites" include Animal Troughs, Artificial Containers, Tire Piles, Fountains, Ornamental Fish Ponds, Swimming Pools, Animal Waste Detention Ponds, and Non-Natural Harborage (such as wood piles, residential and commercial landscape, trash receptacles, etc.).

Surveillance and Site Access

In addition to nuisance, disruption of human activities, and rendering our environment uninhabitable, certain insects and animals may transmit a number of diseases. The mosquito-borne diseases of most concern in Tulare County are West Nile virus (WNV), Western Equine Encephalomyelitis (WEE) virus, and St. Louis Encephalitis (SLE) virus, Dengue, Chikungunya, and Zika viruses.

The District has identified mosquito and other potential vector sources scattered throughout the District. All properties within the District are within mosquito-flying range of one or more mosquito sources, and/or the normal travel range of one or more other vectors. Furthermore, the District's geographic area has long suffered from mosquitoes and other vectors and includes a large number of sources.

Mosquito populations are surveyed using a variety of field methods and traps. Surveillance is conducted in a manner based upon an equal spread of resources throughout the District boundaries, focusing on areas of likely sources. Treatment strategies are based upon the results of the surveillance program, and are specifically designed for an individual area. Small volume mosquito "dippers" and direct observation are used to evaluate larval populations, and service requests from the public. The BG traps, resting boxes, gravid traps, ovitraps, and carbon dioxide-baited traps are used to evaluate adult populations. The surveillance traps are located and spread throughout the District in a balanced approach such that the traps measure mosquito levels throughout the District.

Mosquito-borne diseases are surveyed using adult mosquitoes, and dead birds.

Adult mosquitoes are collected and tested for infection of WNV, SLE, WEE, Dengue, Chikungunya, and Zika viruses. Specimens are collected utilizing a variety of surveillance traps or mechanisms, with small battery-powered traps baited with carbon dioxide in the form of dry ice, or a sugar-yeast -water which specifically targets host seeking females or an organically infused liquid designed to replicate the preferred breeding habitat of certain species. Intermittently, mosquitoes are aspirated directly from resting boxes and natural resting sites. Although most traps must be placed in vegetated areas with little light competition, care is taken to ensure that placement of traps does not significantly damage any vegetation.

Surveillance is also conducted to determine vector habitat (e.g., standing water) and the effectiveness of control operations. Inspections will be conducted using techniques with insignificant impacts on the environment. Staff routinely uses pre-existing accesses such as roadways, open areas, walkways, and trails. Vegetation management (i.e., pruning trees, clearing brush, and herbicide application) is conducted where overgrowth impedes safe access. All of these actions only result in a temporary/localized physical change to the environment with regeneration/regrowth occurring within a span of six to nine months.

To access various sites throughout the District for both surveillance and control, District staff utilizes specialized equipment such as light trucks, all-terrain vehicles, drones, and boats. District policies on use of these equipments are designed to avoid environmental impact.

In addition, the District's jurisdictional powers allow for testing for the presence of Plague and Murine Typhus by collecting ground squirrels, wild rodents, opossums, and fleas. (Currently the District does not anticipate it will provide this service due to a lack of manpower and certified specialists to perform the work.) Testing for the presence of Hantavirus Pulmonary Syndrome could be conducted by collecting wild rodents. Small animals could be trapped using live traps baited with food. The traps would be set in late afternoon and would be collected within 24 hours. The animals would be anesthetized and blood, tissue, and flea samples would be obtained. Threatened and endangered species and other legally protected animals that might become trapped would be released immediately and would not be used in these tests.

Disposable supplies contaminated while collecting bird blood and tissue would be stored in appropriate biohazard containers in the District's laboratory and disposed of in accordance with all applicable laws. Reusable items would be cleaned and sterilized before being used again. The disposal of animal carcasses would be in compliance with all Federal, State, and local laws and regulations.

Education and Outreach

The primary goal of the District's activities is to prevent vectors from reaching public nuisance or disease thresholds by managing their habitat while protecting habitat values for their predators and other beneficial organisms. Vector prevention is accomplished through public education, including site-specific recommendations on water and land use, and by physical control (discussed in a later section).

The District's education program teaches the people within the District how to recognize, prevent, and suppress vector breeding and harborage on their properties. This part of the District's Services is accomplished through the distribution of brochures, fact sheets, and newsletters, participation in local fairs and events, presentations to community organizations, contact with Technicians during the response to service requests, and public service announcements and news releases. Education also includes a school program to teach future adults in the District to be responsible by eliminating vector breeding sources, and to educate their parents or guardians about District services and how they can reduce vector-human interaction on property within the District.

Control of Mosquitoes

When a mosquito source produces mosquitoes above District treatment thresholds, the Technician will generally work with the landowner or responsible agency to reduce the habitat value of the site for mosquitoes ("physical control"). If this is ineffective, the Technician will determine the best method of further treatment, including biological control and/or chemical control. The District's objective is to provide each property a District-wide level of consistent mosquito and vector control such that all properties will benefit from equivalent reduced levels of mosquitoes and other vectors. Surveillance and monitoring are provided on a District-wide basis. Although the District cannot predict or anticipate where and when control measures will be applied, because the type and location of control is dependent on the surveillance and monitoring results, control thresholds and objectives are comparable throughout the District.

Physical Control

The District physically manipulates and manages mosquito habitat and breeding areas ("sources") within the District to reduce mosquito production. This may include removal of containers and debris, removing standing water from unmaintained swimming pools and spas, removal of vegetation or sediment, interrupting water flow, rotating stored water, pumping and/or filling sources, improving drainage and water circulation systems, breaching or repairing levees, and installing, improving, or removing culverts, and other water control structures in wetlands.

Biological Control

The mosquitofish, *Gambusia affinis*, is the District's primary biocontrol agent used against mosquitoes. Mosquitofish are not native to California, but have been widely established in the state since the early 1920's, and now inhabit most natural and constructed water bodies. The District rears mosquitofish on its fish hatchery facility. District technicians place mosquitofish in natural and man-made settings within the District where either previous surveillance has demonstrated a consistently high production of mosquitoes, or where current surveillance indicates that mosquito populations will likely exceed chemical control thresholds without prompt action. Mosquitofish are also used to control mosquito production in artificial containers such as ornamental fishponds, aquatic plant barrels, animal troughs, and abandoned swimming pools within the District. Only residents living within the District can request mosquitofish for this purpose.

Chemical Control

Since many mosquito sources cannot be adequately controlled with physical control measures or mosquitofish, the District also uses biological materials and/or chemical insecticides approved by the U.S. Environmental Protection Agency, the California Department of Pesticide Regulation, and other environmental agencies to control mosquito production where observed mosquito production exceeds District thresholds. When field inspections indicate the presence of vector populations which meet District criteria for chemical control (including abundance, density, species composition, proximity to human settlements, water temperature, presence of predators, levels of disease activity, and others), the District's California-certified Vector Control Technicians apply these materials to the site in strict accordance with the label instructions. When possible, the District uses selective larvicides; if a large number of adult mosquitoes are present and public health is threatened, the District may apply selective, low persistence aerosol adulticides to reduce the number of adult mosquitoes.

Mosquito Larvicides: Depending on time of year, water temperature, organic content, mosquito species present, larval density, and other variables, pesticide applications may be repeated at any site at recurrence intervals ranging from annually to weekly. Larvicides routinely used by the District include BVA-2 Oil, Methoprene (Altosid), Bti (*Bacillus thuringiensis israelensis*), Bs (*Bacillus sphaericus*) and Agnique (used sparingly).

a. BVA-2 Oil is a petroleum distillate with low phytotoxicity and fast environmental breakdown that forms a thin film on water and kills larvae and pupae through suffocation. It is typically applied by hand, ATV, or truck at application rates of 1-5 gallons per acre.
b. Methoprene, or Altosid, is a synthetic juvenile hormone designed to disrupt the transformation of a juvenile mosquito into an adult. It is applied either in response to observed high populations of mosquito larvae at a site, or as a sustained-release product that can persist for up to four months or less depending on formulation. Application can be by hand, ATV, or aircraft.
c. *Bacillus thuringiensis israelensis* (Bti) is a bacterium that is ingested by larval mosquitoes and disrupts their gut lining, leading to death before pupation. The Bti is applied by the District as a liquid or bonded to inert substrate (typically corncob granules) to assist penetration of vegetation. Persistence is low in the environment, and efficacy depends on careful timing of application relative to the larval instar. Therefore, use of Bti requires frequent inspections of larval sources during periods of larval production, and may require frequent applications of material. Application can be by hand, ATV, or aircraft.
d. Agnique is the trade name for a surface film larvicide, comprised of ethoxylated alcohol. It is used as an alternative to Golden Bear 1111. Application is made by hand.

e. *Bacillus sphaericus* is a biological larvicide that the District uses and its mode of action is similar to that of Bti, but *B*. *sphaericus* may be used more than *Bti* in some sites because of its greater effectiveness in water with high organic content. Application can be by hand, ATV, or aircraft.

Mosquito Adulticides: In addition to chemical control of mosquito larvae, the District also makes aerosol applications of pesticides for control of adult mosquitoes within the District if specific criteria are met, including species composition, population density (as measured by landing count or other quantitative method), proximity to human populations, and/or human disease risk. As with larvicides, adulticides are applied in strict compliance with label requirements.

Service Requests

The District responds to all service requests initiated from persons residing or employed within its boundaries. Any property owner, business or resident may contact the District to request a vector control related service or inspection, and a District field technician will respond promptly to evaluate the property, assess the situation, and perform appropriate surveillance and/or control services. The District responds to all service requests in a timely manner, regardless of location, within its boundaries.

Summary of Expanded Services funded by this Assessment

If this assessment is approved, the District will provide enhanced, expanded and improved services and improvements, to be funded by the Assessment, which is or will be above the current baseline level of service.

These enhanced services and improvements above the baseline services include a significant increase from the baseline services described earlier, as well as:

- Increased monitoring of mosquito and other hematophagous arthropod populations using carbon dioxide-baited traps, resting boxes, New Jersey light traps, gravid traps, ovitraps, and other surveillance methods, by increasing the number and locations of these traps and methods on property throughout the District.
- Continue providing free mosquito-eating fish to property owners for backyard ponds and other water features.
- Controlling mosquito-breeding sources with environmentally sound products wherever mosquito larvae or pupae are found, with special focus on invasive mosquito vectors such as *Aedes aegypti*.
- Testing for diseases that can be carried by invasive *Aedes aegypti* mosquito.
- Responding rapidly to service requests concerning mosquitoes, insects, and other vectors.

- Conducting environmentally safe adult mosquito control when necessary to protect public health.
- Providing community education and outreach on how to prevent and protect residents from mosquito bites, mosquito-borne diseases, and other vector-borne diseases.

Estimate of Costs and Budget

Figure 1 – Cost Estimate – FY 2023-24

Delta Mosquito and Vector Control District
Mosquito, Vector and Disease Control Assessment
Estimate of Cost - Fiscal Year 2023-24

	Preliminary Budget
Mosquito & Vector Control Services and Related Expenditures	
Personnel	$490,141
Equipment Operational Cost	$33,635
Surveillance and Control	$268,092
Spot WALs treatment	$320,830
Total Mosquito Control Services and Related Expenditures	$1,112,698
Incidental Costs[1]	
Allowance for Uncollectable Assessments	$37,541
Levy Administration, County Collection Fee, and Other Incidentals	$92,449
Total Incidental Costs	$129,990
Total Benefit of Services and Related Expenses	$1,242,688
Less Contributions from other Sources (i.e. current budget)[2]	
Existing Revenue	($2,345,386)
Total Contributions from other Sources	($2,345,386)
Total Mosquito, Vector and Disease Control Services and Incidentals (Net Amount to be Assessed)	($1,102,698)

Budget Allocation to Property

Zones of Benefit	Total SFE Units3	Assessment per SFE[4]	Total Assessment[5]
Zone A	83,092.69	$13.26	$1,101,892
Zone B	127.325	$6.33	$806
	83,220		$1,102,698

Notes:
1. Incidental Costs include allowance for uncollectable assessments from assessments on public agency parcels, and county collection charges.
2. As determined in the following section, at least 5% of the cost of the Services must be funded from other sources, other than the Assessments, to cover any general benefits from the Services. Therefore, out of the total cost of the Services of $3,448,384, the District must contribute at least $172,404 from sources other than the Assessments. The District will contribute $2,345,386 from non-assessment revenue, which more than covers any general benefits from the Services. The District contribution also offsets the minimal amount of baseline services that are currently provided in the Assessment Area. The total costs of the new services and improvements is the sum of the total assessment amount plus the general benefit contribution.
3. SFE Units means Single Family Equivalent benefit units. See method of assessment in the following Section for further definition.
4. The assessment rate per SFE is the total amount of assessment per Single Family Equivalent benefit unit.
5. Funds raised by the assessment shall be used only for the purposes stated within this Report. Any balance remaining at the end of the fiscal year, June 30, must be carried over to the next fiscal year.
Note: For the sake of brevity within this report, the budget above represents only a top-line summary of the District's forecasted budget for the fiscal year 2023-24. The detailed and comprehensive District budget is available upon request and provides actual costs for prior years, and both forecasted and actual costs for the current fiscal year.

Method of Assessment

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

The Mosquito, Vector and Disease Control Service Area consists of the assessor parcels in the Delta Mosquito and Vector Control District, as defined within the area of the boundary diagram included within this Engineer's Report and coincident with the Service Area. (See the Assessment Roll for a list of all the parcels included in the Improved Mosquito, Vector and Disease Testing and Control Assessment.)

The method used for apportioning the assessment is based upon the proportional special benefits to be derived by the properties in the Assessment Area over and above general benefits conferred on real property in the assessment area or to the public at large. Special benefit is calculated for each parcel in the Assessment Area.

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

Discussion of Benefit

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

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

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

The below benefit factors, when applied to property in the Assessment Area, confer special benefits to property and ultimately improve the safety, utility, functionality and usability of property in the Assessment Area. These are special benefits to property in the Assessment Area in much the same way that storm drainage, sewer service, water service, sidewalks and paved streets enhance the utility and functionality of each parcel of property served by these improvements, providing them with more utility of use and making them safer and more usable for occupants.

It should also be noted that Proposition 218 includes a requirement that existing assessments in effect upon its effective date were required to be confirmed by either a majority vote of registered voters in the assessment area, or by weighted majority property owner approval using the new ballot proceeding requirements. However, certain assessments were excluded from these voter approval requirements.

The Legislature also made a specific determination after Proposition 218 was enacted that vector control services constitute a proper subject for special assessment. Health and Safety Code section 2082, which was signed into law in 2002, provides that a district may levy special assessments consistent with the requirements of Article XIIID of the California Constitution to finance vector control projects and programs.

Mosquito and Vector Control Is a Special Benefit to Properties

As described later, this Engineer's Report concludes that mosquito and vector control is a special benefit that provides direct advantages to property in the Assessment Area. For example the assessment will provide funds for 1) surveillance throughout the Assessment Area to measure and track the levels and sources of mosquitoes impacting property in the area and the people who live and work on the property; 2) mosquito and mosquito source control, treatment and abatement throughout the Assessment Area such that all property in the area benefits from a comparable reduction of mosquito levels; 3) monitoring throughout the Assessment Area to evaluate the effectiveness of no worries treatment and control and ensure that all properties are receiving the equivalent level of mosquito reduction benefits; and 4) service requests which result in District staff directly visiting, inspecting and treating property.

The services to be provided by the District would be provided throughout the Assessment Area, that is, the benefit received in the Assessment Area would be in the entire District Service Area. All properties would receive benefits from the comprehensive mosquito, vector and disease monitoring, control and prevention services.

Moreover, the Services funded by the Assessment would reduce the level of mosquitoes and vectors arriving at and negatively impacting properties within the Assessment Area.

The following section, Benefit Factors, describes how the Services would specially benefit properties in the Assessment Area. These benefits are particular and distinct from their effect on property in general or the public at large.

Benefit Factors

To allocate the assessments, the Engineer identified the types of special benefit arising from the Services and that would be provided to property within the Assessment Area. These types of special benefit are as follows:

Reduced mosquito and vector populations on property and as a result, enhanced desirability, utility, usability and functionality of property in the Assessment Area

The assessment will provide new and enhanced services for the control and abatement of nuisance and disease-carrying mosquitoes, particularly the invasive yellow fever mosquito, *Aedes aegypti,* and other vectors. These Services will materially reduce the number of vectors on properties throughout the Assessment Area. The lower mosquito and vector populations on property in the Assessment Area are a direct advantage to property that will serve to increase the desirability and "usability" of property. Clearly, properties are more desirable and usable in areas with lower mosquito populations and with a reduced risk of vector-borne disease. This is a special benefit to residential, commercial, agricultural, industrial and other types of properties because all such properties will directly benefit from reduced mosquito and vector populations and properties with lower vector populations are more usable, functional and desirable.

Excessive mosquitoes and other vectors in the area can materially diminish the utility and usability of property. For example, prior to the commencement of mosquito control and abatement services, properties in many areas in the State were considered to be nearly uninhabitable during the times of year when the mosquito populations were high.[1] The prevention or reduction of such diminished utility and usability of property caused by mosquitoes is a clear and direct advantage and special benefit to property in the Assessment Area.

[1] Prior to the commencement of modern mosquito control services, areas in the State of California such as the San Mateo Peninsula, Napa County and areas in Marin and Sonoma Counties had such high mosquito populations that they were considered to be nearly unlivable during certain times of the year and were largely used for part-time vacation cottages that were occupied primarily during the months when the natural mosquito populations were lower.

The State Legislature made the following finding on this issue:

> *"Excess numbers of mosquitoes and other vectors spread diseases of humans, livestock, and wildlife, reduce enjoyment of outdoor living spaces, both public and private, reduce property values, hinder outdoor work, reduce livestock productivity; and mosquitoes and other vectors can disperse or be transported long distances from their sources and are, therefore, a health risk and a public nuisance; and professional mosquito and vector control based on scientific research has made great advances in reducing mosquito and vector populations and the diseases they transmit."* [2]

Mosquitoes and other vectors emerge from sources throughout the Assessment Area, and due to their ability to fly, mosquitoes from known sources can reach all properties in the Assessment Area. These sources include standing water in rural areas, such as marshes, pools, wetlands, ponds, drainage ditches, drainage systems, tree holes, dairy pits, irrigation ditches, and other removable sources such as old tires and containers. The sources of mosquitoes also include numerous locations throughout the urban areas in the Assessment Area. These breeding sources include underground drainage systems, containers, unattended swimming pools, plant trays, bird baths, pet dishes, leaks in water pipes, tree holes, flower cups in cemeteries, over-watered landscaping and lawns and many other sources. By controlling mosquitoes at known and new sources, the Services will materially reduce mosquito populations on property throughout the Assessment Area.

A known increasing source of mosquitoes is unattended swimming pools.

Increased safety of property in the Assessment Area

The Assessment will result in new year-round proactive Services to control and abate mosquitoes and other vectors that otherwise would occupy properties throughout the Assessment Area. Mosquitoes and other vectors are transmitters of diseases, so the reduction of mosquito and other vector populations makes property in the Assessment Area safer for use and enjoyment. In absence of the assessment, these Services would not be provided, or provided on a very limited basis, so the Services funded by the assessment make properties in the Assessment Area safer, which is a distinct special benefit to property in the Assessment Area.[3] This is not a general benefit to property in the Assessment Area or the public at large because the Services are tangible mosquito, vector and disease control services that will be provided directly to the properties in the Assessment Area, and the Services are over and above the baseline services that could be provided by the Delta Mosquito and Vector Control District without the assessment.

[2] Assembly Concurrent Resolution 52, chaptered April 1, 2003.

[3] By reducing the risk of disease and increasing the safety of property, the Services will materially increase the usefulness and desirability of certain properties in the Assessment Area.

This finding was confirmed in 2003 by the State Legislature:

> *"Mosquitoes and other vectors, including but not limited to, ticks, Africanized honey bees, rats, fleas, and flies, continue to be a source of human suffering, illness, death, and a public nuisance in California and around the world. Adequately funded mosquito and vector control, monitoring and public awareness programs are the best way to prevent outbreaks of West Nile Virus and other diseases borne by mosquitoes and other vectors."*[4]

Also, the Legislature, in Health and Safety Code Section 2001, finds that:

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

Reductions in the risk of new diseases and infections on property in the Assessment Area

Mosquitoes have proven to be the major contributor to the transmission of mosquito-borne diseases such as West Nile virus, among others. A highly mobile population combined with migratory bird patterns can introduce new mosquito-borne diseases into previously unexposed areas. With the presence of *Aedes aegypti* in the District, the spread of Dengue, Chikungunya, Zika, or Yellow fever is a major concern.

> *"Vector-borne diseases (including a number that are mosquito-borne) are a major public health problem internationally. In the United States, dengue and malaria are frequently brought back from tropical and subtropical countries by travelers or migrant laborers, and autochthonous transmission of malaria and dengue occasionally occurs. In 1998, 90 confirmed cases of dengue and 1,611 cases of malaria were reported in the USA and dengue transmission has occurred in Texas."*[5]
>
> *"During 2004, 40 states and the District of Columbia (DC) have reported 2,313 cases of human WNV illness to CDC through ArboNET. Of these, 737 (32%) cases were reported in California, 390 (17%) in Arizona, and 276 (12%) in Colorado. A total of 1,339 (59%) of the 2,282 cases for which such data were available occurred in males; the median age of patients was 52 years (range: 1 month--99 years). Date of illness onset ranged from April 23 to November 4; a total of 79 cases were fatal."* [6] *(According to the Centers for Disease Control and Prevention on January 19, 2004, a total of 2,470 human cases and 88 human fatalities from WNV have been confirmed).*

[4] Assembly Concurrent Resolution 52, chaptered April 1, 2003.
[5] Rose, Robert. (2001). Pesticides and Public Health: Integrated Methods of Mosquito Management. Emerging Infectious Diseases. Vol. 7(1); 17-23.
[6] Center for Disease Control (2004). West Nile Virus Activity --- United States, November 9--16, 2004.Morbidity and Mortality Weekly Report. 53(45); 1071-1072.

More recently, Florida and Texas experienced an outbreak of the mosquito-borne Zika virus (ZIKV) in 2016 that was attributed to incoming passenger traffic from regions with ZIKV transmission:

> *The high volume of traffic entering Florida from ZIKV-affected regions, especially the Caribbean, is likely to have provided a substantial supply of ZIKV-infected individuals. Because Florida is unlikely to sustain long-term ZIKV transmission, the potential for future ZIKV outbreaks in this region is dependent upon activity elsewhere. Therefore, we expect that outbreaks in Florida will cycle with ZIKV transmission dynamics in the Americas."*[7]

Some vector populations are highly mobile and may introduce new vector-borne diseases into previously unexposed areas:

> *"Distribution of vector-borne diseases is determined by complex demographic, environmental and social factors. Global travel and trade, unplanned urbanization and environmental challenges such as climate change can impact on pathogen transmission, making transmission season longer or more intense or causing diseases to emerge in countries where they were previously unknown."*[8]

Vectors, including ticks, have proven to be a major contributor to the spread of vector-borne diseases such as Lyme disease, among others.

> *"In 2017, state and local health departments reported a record number of cases of tickborne disease to CDC. Cases of Lyme disease, anaplasmosis/ehrlichiosis, spotted fever rickettsiosis (including Rocky Mountain spotted fever), babesiosis, tularemia, and Powassan virus disease all increased—from 48,610 cases in 2016 to 59,349 cases in 2017. These 2017 data capture only a fraction of the number of people with tickborne illnesses. Under-reporting of all tickborne diseases is common, so the number of people actually infected is much higher.*
>
> *This increase follows an accelerating trend of tickborne diseases reported in the United States. Between 2004 and 2016, the number of reported cases of tickborne disease doubled, and researchers discovered seven new tickborne pathogens that infect people.* [9]

A study of the effect of aerial spraying conducted by the Sacramento-Yolo Mosquito and Vector Control District (SYMVCD) to control a West Nile virus disease outbreak found that the SYMVCD's mosquito control efforts materially decreased the risk of new diseases in the treated areas:

> *After spraying, infection rates decreased from 8.2 (95% CI 3.1–18.0) to 4.3 (95% CI 0.3–20.3) per 1,000 females in the spray area and increased from 2.0 (95% CI 0.1–9.7) to 8.7*

---

[7] Grubaugh, Nathan D. et al. (2017), Genomic epidemiology reveals multiple introductions of Zika virus into the United States. Nature. Vol 546(7658); 401-405.
[8] Vector-borne Diseases. World Health Organization. October 2017. https://www.who.int/news-room/fact-sheets/detail/vector-borne-diseases
[9] Record Number Of Tickborne Diseases Reported in U.S. in 2017 | Cdc Online Newsroom | Cdc https://www.cdc.gov/media/releases/2018/s1114-record-number-tickborne-diseases.html

(95% CI 3.3–18.9) per 1,000 females in the untreated area. Furthermore, no additional positive pools were detected in the northern treatment area during the remainder of the year, whereas positive pools were detected in the untreated area until the end of September (D.-E.A Elnaiem, unpub. Data). These independent lines of evidence corroborate our conclusion that actions taken by SYMVCD were effective in disrupting the WNV transmission cycle and reducing human illness and potential deaths associated with WNV.[10]

The Services funded by the assessments will help prevent, on a year-round basis, the presence of vector-borne diseases on property in the Assessment Area. This is another tangible and direct special benefit to property in the Assessment Area that would not be received, or received only minimally, in the absence of the assessments.

Protection of economic activity on property in the Assessment Area

As demonstrated by the SARS outbreak in China and outbreaks of Avian Flu, outbreaks of pathogens can materially and negatively impact economic activity in the affected area. Such outbreaks and other public health threats can have a drastic negative effect on tourism, business and residential activities in the affected area. The assessments will help prevent the likelihood of such outbreaks in the Assessment Area.

Mosquitoes hinder, annoy and harm residents, guests, visitors, farm workers, and employees. A vector-borne disease outbreak and other related public health threats would have a drastic negative effect on agricultural, business, and residential activities in the Assessment Area.

The economic impact of vector-borne diseases is well documented. According to a study prepared for the Centers for Disease Control and Prevention, economic losses due to the transmission of WNV in Louisiana was estimated to cost over $20 million over approximately one year:

The estimated cost of the Louisiana epidemic was $20.1 million from June 2002 to February 2003, including a $10.9 million cost of illness ($4.4 million medical and $6.5 million nonmedical costs) and a $9.2 million cost of public health response. These data indicate a substantial short-term cost of the WNV disease epidemic in Louisiana. [11]

[10] Carney, Ryan. (2008), Efficiency of Aerial Spraying of Mosquito Adulticide in Reducing the Incidence of West Nile Virus, California, 2005. Emerging Infectious Diseases, Vol 14(5).
[11] Zohrabian A, Meltzer MI, Ratard R, Billah K, Molinari NA, Roy K, et al. West Nile Virus economic impact, Louisiana, 2002. Emerging Infectious Disease, 2004 Oct. Available from http://www.cdc.gov/ncidod/EID/vol10no10/03-0925.htm.

The economic impact of vector-borne diseases is well documented. There are several published studies which have looked at the economic impact of the WNV in the United States as well as California. From 1999 to 2012, the WNV has cost the United States an estimated $800 million in hospitalizations and lost productivity.[12] According to a study prepared for the Centers for Disease Control and Prevention, economic losses due to the outbreak of WNV in Sacramento County, California was estimated to cost $2.98 million in 2005:

> *In 2005, an outbreak of West Nile virus (WNV) disease occurred in Sacramento County, California; 163 human cases were reported. In response to WNV surveillance indicating increased WNV activity, the Sacramento-Yolo Mosquito and Vector Control District conducted an emergency aerial spray. We determined the economic impact of the outbreak, including the vector control event and the medical cost to treat WNV disease. WNV disease in Sacramento County cost ≈$2.28 million for medical treatment and patients' productivity loss for both West Nile fever and West Nile neuroinvasive disease. Vector control cost ≈$701,790, including spray procedures and overtime hours. The total economic impact of WNV was $2.98 million. A cost-benefit analysis indicated that only 15 cases of West Nile neuroinvasive disease would need to be prevented to make the emergency spray cost-effective.* [13]

A study prepared for the Centers for Disease Control and Prevention, quotes that economic losses due to the transmission of WNV in the US was estimated to cost over $778 million from 1999 to 2012:

> *There are no published data on the economic burden for specific West Nile virus (WNV) clinical syndromes (i.e., fever, meningitis, encephalitis, and acute flaccid paralysis [AFP]). We estimated initial hospital and lost-productivity costs from 80 patients hospitalized with WNV disease in Colorado during 2003; 38 of these patients were followed for 5 years to determine long-term medical and lost-productivity costs. Initial costs were highest for patients with AFP (median $25,117; range $5,385–$283,381) and encephalitis (median $20,105; range $3,965–$324,167). Long-term costs were highest for patients with AFP (median $22,628; range $624–$439,945) and meningitis (median $10,556; range $0–$260,748). Extrapolating from this small cohort to national surveillance data, we estimated the total cumulative costs of reported WNV hospitalized cases from 1999 to 2012 to be $778 million (95% confidence interval $673 million–$1.01 billion). These estimates can be used in assessing the cost-effectiveness of interventions to prevent WNV disease.* [14]

---

[12] Frellick, Marcia. West Nile Cost United States Nearly $800 Million in 14 years. Medscape. 2014.

[13] Barber LM, Schleier JJ III, Peterson RKD. Economic cost analysis of West Nile Virus outbreak, Sacramento County, California, USA, 2005. Emerg Infect Dis 2010 16(3).

[14] Initial and Long-Term Costs of Patients Hospitalized with West Nile Virus Disease. Arboviral Diseases Branch, Centers for Disease Control and Prevention, Fort Collins, Colorado; Prion and Health Office, Centers for Disease Control and Prevention, Atlanta, Georgia; Division of Preparedness and Emerging Infections, Centers for Disease Control and Prevention, Atlanta, Georgia. J. Erin Staples, Manjunath Shankar, James J. Sejvar, Martin I. Meltzer, and Marc Fischer. J. Erin Staples, Arboviral Diseases Branch, Centers for Disease Control and Prevention, 3150 Rampart Road, Fort Collins, CO 80521. E-mail: AUV1@cdc.gov.

Moreover, a study conducted in 1996-97 of La Crosse Encephalitis (LACE), a human illness caused by a mosquito-transmitted virus, found a lifetime cost per human case at $48,000 to $3,000,000 and found that the disease significantly impacted lifespans of those who were infected. Following is a quote from the study which references the importance and value of active vector control services of the type that would be funded by the assessments:

> *The socioeconomic burden resulting from LACE is substantial, which highlights the importance of the illness in western North Carolina, as well as the need for active surveillance, reporting, and prevention programs for the infection.* [15]

The Services to be funded by the assessments will help prevent the likelihood of such outbreaks on property in the Assessment Area, and will reduce the harm to economic activity on property caused by existing mosquito populations and other vectors. This is another direct advantage in the Assessment Area that would not be received, or received minimally, in absence of the assessments.

Protection of the Assessment Area's tourism and business industries

The tourism and business industries in the Assessment Area will benefit from reduced levels of harmful or nuisance mosquitoes and other vectors. Conversely, any outbreaks of endemic vector-borne pathogens such as West Nile virus, Dengue, Chikungunya, and Zika viruses could also materially negatively affect these industries. Diseases transmitted by mosquitoes and other vectors can adversely impact business and recreational functions.

> *A study prepared for the United States Department of Agriculture in 2003 found that over 1,400 horses died from West Nile Virus in Colorado and Nebraska and that these fatal disease cases created over $1.2 million in costs and lost revenues. In addition, horse owners in these two states spent over $2.75 million to vaccinate their horses for this disease. The study states that "Clearly, WNV has had a marked impact on the Colorado and Nebraska equine industry."* [16]

> *Pesticides for mosquito control impart economic benefits to agriculture in general. Anecdotal reports from farmers and ranchers indicate that cattle, if left unprotected, can be exsanguinated by mosquitoes, especially in Florida and other southeast coastal areas. Dairy cattle produce less milk when bitten frequently by mosquitoes* [17]

---

[15] Utz, J. Todd, Apperson, Charles S., Maccormack, J. Newton, Salyers, Martha, Dietz, E. Jacquelin, Mcpherson, J. Todd, Economic And Social Impacts Of La Crosse Encephalitis In Western North Carolina, Am J Trop Med Hyg 2003 69: 509-518.

[16] S. Geiser, A. Seitzinger, P. Salazar, J. Traub-Dargatz, P. Morley, M. Salman, D. Wilmot, D. Steffen, W. Cunningham, Economic Impact of West Nile Virus on the Colorado and Nebraska Equine Industries: 2002, April 2003, Available from http://www.aphis.usda.gov/vs/ceah/cnahs/nahms/equine/wnv2002_CO_NB.pdf.

[17] Jennings, Allen. (2001). USDA Letter to EPA on Fenthion IRED.United States Department of Agriculture, Office of Pest Management Policy. March 8, 2001.

The assessments will serve to protect the businesses and industries in the Assessment Area. This is a direct advantage and special benefit to property in the Assessment Area.

Reduced risk of nuisance and liability on property in the Assessment Area

In addition to health related factors, uncontrolled mosquito and vector populations create a nuisance for residents, employees, customers, tourists, farm workers and guests in the Assessment Area. Properties in the Assessment Area benefit from the reduced nuisance factor that will be created by the Services. Agricultural and rangeland properties also benefit from the reduced nuisance factor and harm to livestock and employees from lower mosquito and vector populations.

Agricultural, range, golf course, cemetery, open space and other such lands in the Assessment Area contain large areas of mosquito and vector habitats and are therefore a significant source of mosquito and vector populations. In addition, residential and business properties in the Assessment Area can also contain significant sources.[18] It is conceivable that sources of mosquitoes could be held liable for the transmission of diseases or other harm. For example, in August 2004, the City of Los Angeles approved new fines of up to $1,000 per day for property owners who do not remove standing water sources of mosquitoes on their property.

The Services to be provided by the District will reduce the mosquito and vector related nuisance and health liability to properties in the Assessment Area. The reduction of that risk of liability constitutes a special benefit to property in the Assessment Area and this special benefit would not be received, or only received minimally, in absence of the Services funded by the assessments.

Improved marketability of property

As described previously, the Services will specially benefit properties in the Assessment Area by making them more useable, livable and functional. The Services also make properties in the Assessment Area more desirable, and more desirable properties also benefit from improved marketability. This is another tangible special benefit to certain property in the Assessment Area which will not be enjoyed in absence of the Services.[19]

[18] Sources of mosquitoes on residential, business, agricultural, range and other types of properties include removable sources such as containers that hold standing water.

[19] If one were to compare two hypothetical properties with similar characteristics, the property with lower mosquito infestation and reduced risk of vector-borne disease will clearly be more desirable, marketable and usable.

Benefit Finding

In summary, the special benefits described in this Report and provision of Services to the Assessment Area ("enhanced level of service") would directly benefit and protect the real properties in the Assessment Area in excess of the assessments for these properties. Therefore, the Assessment Engineer finds that the cumulative special benefits to property from the Services are reasonably equal to or greater than the assessment of $13.26 per benefit unit or Single Family Equivalent ("SFE") for Zone A, and $6.33 per SFE for Zone B. (Figure 3 – Cost Estimate). These rates per SFE generate revenues of $1,102,698 which is the amount needed to fund the District's budget total of $3,448,084 less the District contribution of $2,345,386. Further, the Engineer has judged that the special benefit to each parcel reasonably exceeds the sum of all dedicated taxes and assessments imposed on each parcel.

General vs. Special Benefit

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

In other words:

Total Benefit	=	General Benefit	+	Special Benefit

There is no widely accepted or statutory formula for general benefit from vector control services. General benefits are benefits from improvements or services that are not special in nature, are not "particular and distinct" and are not "over and above" benefits received by other properties. General benefits are conferred to properties located "in the district," but outside the narrowly-drawn Assessment Area and to "the public at large." General benefits provide "an indirect, derivative advantage" and are not necessarily proximate to the improvements and services funded by the assessments.

A formula to estimate the general benefit is listed below:

General Benefit	=	**Benefit to Real Property Outside the Assessment Area**	+	**Benefit to Real Property Inside the Assessment Area that is Indirect and Derivative**	+	**Benefit to the Public at Large**

Special benefit, on the other hand, is defined in the state constitution as "a particular and distinct benefit over and above general benefits conferred on real property located in the district or to the public at large." A special benefit is conferred to a property if it "receives a direct advantage from the improvement (e.g., proximity to a park)." In this assessment, the overwhelming proportion of the benefits conferred to property is special, since the advantages from the mosquito, vector and disease protection funded by the Assessments are directly received by the properties in the Assessment Area and are only minimally received by property outside the Assessment Area or the public at large.

Proposition 218 twice uses the phrase "over and above" general benefits in describing special benefit. (Art. XIIID, sections 2(i) & 4(f).) Significantly, without this assessment, only the existing, minimal, diminishing and inconsistent baseline services would be provided. The majority of the Services to be funded by the assessment therefore would be a special benefit because the Services would particularly and distinctly benefit and protect the Assessment Area over and above the minimal baseline benefits and service. However, some of the Services could benefit the public at large and properties outside the Assessment Area. In this report, the general benefit is conservatively estimated and described, and then budgeted so that it is funded by sources other than the assessment.

The Assessments described in this Engineer's Report fund mosquito, vector and disease control services directly provided to property in the Assessment Area. Moreover, as noted in this Report, the Services directly reduce mosquito and vector populations on all property in the Assessment Area. Therefore, in this report, the general benefit is conservatively estimated and described, and then budgeted so that it is funded by sources other than the assessment.

Calculating General Benefit

Without the new assessment the District would be unable to continue to provide same level of Services. The District has determined that all parcels in the Assessment Area would receive a shared direct advantage and special benefit from the Services. The Services would directly and particularly serve and benefit each parcel, and would not be a mere indirect, derivative advantage. As explained earlier, Proposition 218 relies on the concept of "over and above" in distinguishing special benefits from general benefits. As applied to an assessment proceeding the baseline general benefits are minimal and that the majority of the vector control services, which provide direct advantage to property in the Assessment Area, are over and above the baseline and therefore are special.

Nevertheless, the Services may provide a degree of general benefit, in addition to the predominant special benefit. This section provides a conservative measure of the general benefits from the Assessments.

Benefit to Property Outside the District Service Area

Properties within the Assessment Area receive almost all of the special benefits from the Services because the Services funded by the Assessments will be provided directly to protect property within the Assessment Area from mosquitoes, vectors and vector-borne diseases. However, properties adjacent to, but just outside of, the boundaries may receive some benefit from the Services in the form of reduced mosquito populations on property outside the Assessment Area. Since this benefit is conferred to properties outside the District boundaries, it contributes to the overall general benefit calculation and will not be funded by the assessment.

A measure of this general benefit is the proportion of Services that would affect properties outside of the Assessment Area. Each year, the District will provide some of its Services in areas near the boundaries of the Assessment Area. By abating mosquito populations near the borders of the Assessment Area, the Services could provide benefits in the form of reduced mosquito populations and reduced risk of disease transmission to properties outside the Assessment Area. If mosquitoes were not controlled inside the Assessment Area, more of them would fly from the Assessment Area. Therefore, control of mosquitoes within the Assessment Area provides some benefit to properties outside the Assessment Area but within the normal travel range of vectors, in the form of reduced mosquito populations and reduced vector-borne disease transmission. This is a measure of the general benefits to property outside the Assessment Area because this is a benefit from the Services that is not specially conferred upon property in the assessment area.

The mosquito potential outside the Assessment Area is based on studies of mosquito dispersion concentrations. Based upon a 2003 study in Santa Cruz County average concentration of mosquitoes from the Assessment Area on properties within two miles of the Assessment Area is calculated to be 6%.[20] This relative vector population reduction factor within the destination range is combined with the number of parcels outside the Assessment Area and within the destination range to measure this general benefit. This is calculated as follows:

CRITERIA:

THERE ARE 18,695 PARCELS WITHIN TWO MILES OF, BUT OUTSIDE OF THE ASSESSMENT AREA, THAT MAY RECEIVE SOME MOSQUITO, VECTOR AND DISEASE PROTECTION BENEFIT

6 % PORTION OF RELATIVE BENEFIT THAT IS RECEIVED (FROM STUDY)

THERE ARE 80,943 PARCELS IN THE ASSESSMENT AREA

CALCULATIONS:

TOTAL BENEFIT = 18,695 PARCELS X 6% = 1,122 PARCEL EQUIVALENTS

Therefore, for the overall benefit provided by the Services and Improvements to the Assessment District, it is determined that 1.39% of the benefits would be recognized by the parcels within two miles of the Assessment District boundaries. Recognizing that this calculation is an approximation, this benefit will be rounded up to 1.5%.

Benefit to Property *Inside* the Assessment Area that is *Indirect and Derivative*

The "indirect and derivative" benefit to property within the Assessment Area is particularly difficult to calculate. As explained earlier, all benefit within the Assessment Area is special because the mosquito, vector and disease control services in the Assessment Area would provide direct service and protection that is clearly "over and above" and "particular and distinct" when compared with the minimal level of services under current conditions. Further, the properties are within the Assessment Area boundaries and this Engineer's Report demonstrates the direct benefits received by individual properties from mosquito, vector and disease testing and control services.

[20] Tietze, Noor S., Stephenson, Mike F., Sidhom, Nader T. and Binding, Paul L., "Mark-Recapture of *Culex Erythrothorax* in Santa Cruz County, California", Journal of the American Mosquito Control Association, 19(2):134-138, 2003.

The Engineer has drawn the Assessment Area to include parcels that will directly receive the Services. (There are a small number of parcels within the District Boundary that do not receive special benefit such as certain right of way parcels, etc.) All parcels within the District boundaries will directly benefit from the surveillance, monitoring and treatment that will be provided on an equivalent basis throughout the Assessment Area in order to maintain the same improved level of protection against mosquitoes and reduced mosquito populations throughout the area. The surveillance and monitoring sites would be spread on a balanced basis throughout the area. Mosquito and vector control and treatment would be provided as needed throughout the area based on the surveillance and monitoring results. The shared special benefit - reduced mosquito and vector levels and reduced presence of vector-borne diseases - would be received on an equivalent basis by all parcels in the Assessment Area.

Furthermore, all parcels in the Assessment Area would directly benefit from the ability to request service from the District and to have a District field technician promptly respond directly to the parcel and address the owner's or resident's service need. The fact that a benefit is conferred throughout the assessment area does not make the benefit general rather than special, so long as the assessment area is narrowly drawn and limited to the parcels directly receiving shared special benefits from the service. This concept is particularly applicable in situations involving a landowner-approved assessment-funded extension of a local government service to benefit lands previously not receiving that particular service or receiving only minimal services.

Hence, other than the small general benefit to properties outside the Assessment Area (discussed earlier) and to the public at large (discussed later), all of the benefits of the Services to the parcels within the Assessment Area are special benefits, and it is not possible or appropriate to separate any indirect or derivative general benefits from the total benefits conferred on parcels in the Assessment Area.

Benefit to the Public at Large

With the type and scope of Services to be provided to the Assessment Area, it is very difficult to calculate and quantify the scope of the general benefit conferred on the public at large. Because the Services directly serve and benefit all of the property in the Assessment Area, any general benefit conferred on the public at large would be small. Nevertheless, there would be some indirect general benefit to the public at large.

The public at large uses the public highways, streets and sidewalks, and when traveling in and through the Assessment Area they will benefit from the Services. A fair and appropriate measure of the general benefit to the public at large therefore is the amount of highway, street and sidewalk area within the Assessment Area relative to the overall land area. An analysis of maps of the Assessment Area shows that approximately 3.5% of the land area in the Assessment Area is covered by highways, streets and sidewalks. This 3.5% therefore is a fair and appropriate measure of the general benefit to the public at large within the Assessment Area.

Summary of General Benefits

Using a sum of the measures of general benefit for the public at large and land outside the Assessment Area, we find that approximately 5.00% of the benefits conferred by the Improved Mosquito, Vector and Disease Testing and Control Assessment may be general in nature and should be funded by sources other than the assessment.

General Benefit Calculation

1.50% (Outside the Assessment Area)
+ 0.00% (Inside the Assessment Area – Indirect and Derivative)
+ 3.50% (Public at Large)

= 5.00% (Total General Benefit)

The estimated cost of the Services is $3,448,084. Of this total budget amount, the District must contribute at least $172,404 (5%) from sources other than the Mosquito, Vector and Disease Control Assessment. The District will contribute $2,345,386 from sources other than the Improved Mosquito and Disease Testing and Control Assessment. which totals over 68% of the total budget. This contribution more than offsets any general benefits from the Improved Mosquito, Vector and Disease Testing and Control Assessment Services.

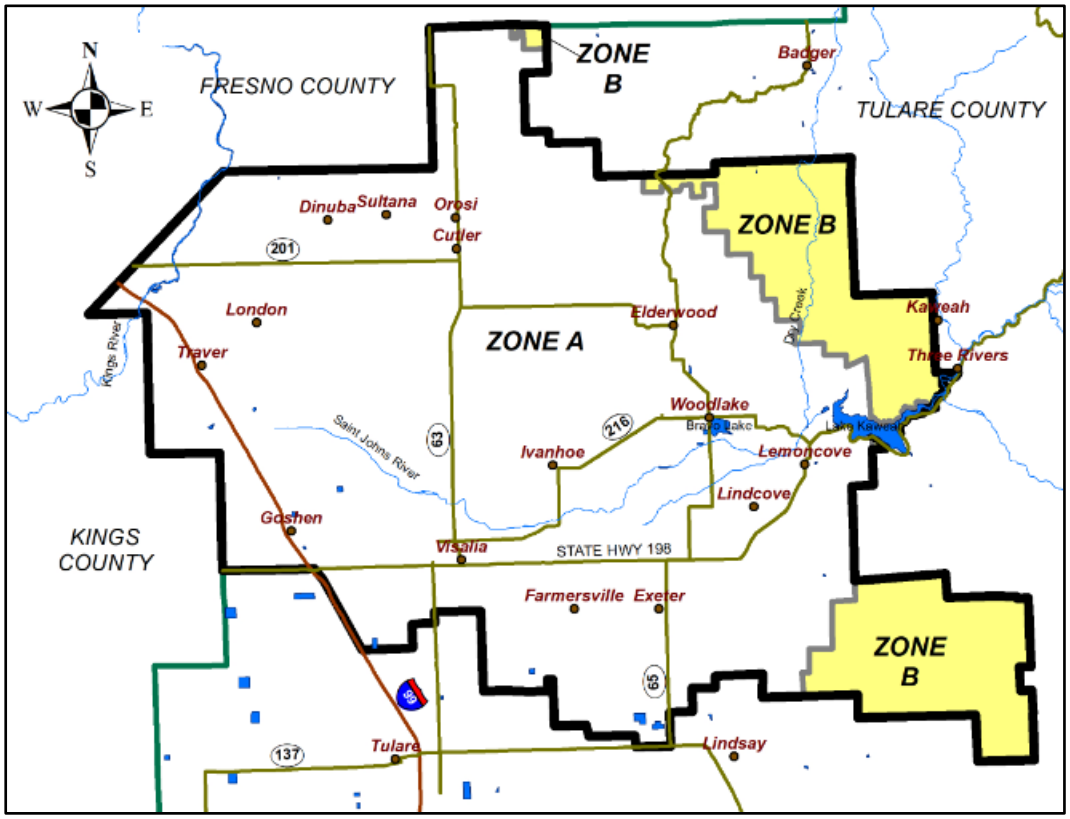
Zones of Benefit

The District's mosquito, vector, and disease control programs, projects, services and improvements that will be funded by the Improved Mosquito and Disease Testing and Control Assessment will be provided in all areas within the District boundaries.

Since the Services and Improvements will be provided throughout the District and will result in reduced vector populations and the other special benefits for property in the District, the boundaries of the Assessment Area have been drawn to match the boundaries of the District. Moreover, within the Assessment Area, certain areas will receive different levels of special benefits. These areas, which are named “Zones of Benefit,” are described as follows.

The majority of the properties in the Assessment District will receive equal levels of Services and Improvements and therefore equal levels of benefits. The areas that will receive the full level of Services and Improvements were carefully drawn to be within Zone A. Relative to Zone A, there are some areas in the eastern part of the District that are remotely located and sparsely populated, and have been identified to receive reduced level of Services and Improvements and corresponding benefits relative to other parcels in the District. These areas are hereinafter referred to as Zone of Benefit B or Zone B and are depicted on the Assessment Diagram included with this Report. All other parcels within the District boundaries are within Zone of Benefit A or Zone A.

The Zones of Benefit are shown in the following graphic:



The boundaries of the two Zones of Benefit have been carefully drawn. Zone of Benefit A includes the properties in the District that would receive the full level of Services and Improvements and the full level of benefits. Such parcels are in areas with a material population of people, pets and livestock on the property.

Zone of Benefit B contains the properties in the far eastern portions of the District that receive a reduced level of Services and Improvements and corresponding benefits relative to other parcels in the District because these properties are generally in more remote, mountainous or inaccessible areas, and they support less population. In other words, the boundaries of the two Zones of Benefit within the Assessment Area have been narrowly and specifically drawn to include properties that will especially benefit from the mosquito and vector control services at two different levels.

Using District estimates for the amount of Services and Improvements provided to these parcels located in Zone of Benefit B (Zone B) relative to the level of Services and Improvements in Zone of Benefit A (Zone A), we find that parcels in Zone B receive approximately one-half of the average level of Services and Improvements and benefits provided to other parcels in the District (Zone A). Therefore, parcels in Zone B receive 50% of the assessment rate per benefit unit. Zone B will be subject to reduced assessments, commensurate with the different benefit level.

Method of Assessment

As previously discussed, the assessment will fund comprehensive, year-round mosquito and vector control and disease surveillance and control Services that will clearly confer special benefits to properties in the Assessment Area. These benefits can partially be measured by the property owners, guests, employees, tenants, pets and animals who will enjoy a more habitable, safer and more desirable place to live, work or visit. As noted, these benefits ultimately flow to the underlying property.

Therefore, the apportionment of benefit is partially based on people who potentially live on, work at, or otherwise use the property. This methodology of determining benefit to property through the extent of use by people is a commonly used method of apportionment of benefits from assessments.

Moreover, assessments have a long history of use in California and are in large part based on the principle that any benefits from a service or improvement funded by assessments that is enjoyed by tenants and other non-property owners ultimately is conferred to the underlying property.

With regard to benefits and source locations, the Assessment Engineer determined that since mosquitoes readily fly from their breeding sources to all properties in their flight range and since mosquitoes are actually attracted to properties occupied by people or animals, the benefits from mosquito and vector control extend beyond the source locations to all properties that would be a “destination” for mosquitoes and other vectors. In other words, the control and abatement of mosquito and vector populations ultimately confers benefits to all properties that are a destination of mosquitoes and vectors, rather than just those that are sources of mosquitoes.

Although some primary mosquito sources may be located outside of residential areas, residential properties can and do generate their own, often significant, populations of mosquitoes and vector organisms. For example, storm water catch basins in residential areas in the Assessment Area are a common source of mosquitoes. Moreover, there are many other common residential sources of mosquitoes, such as plant trays, bird baths, pet dishes and other miscellaneous backyard containers, neglected swimming pools, leaking water pipes and tree holes. Clearly, there is a potential for mosquito sources on virtually all property. More importantly, all properties in the Assessment Area are within the destination range of mosquitoes and most properties are actually within the destination range of multiple mosquito source locations.

Because the Services will be provided throughout the Assessment Area with the same level of control objective, mosquitoes can rapidly and readily fly from their breeding locations to other properties over a large area, and there are current or potential breeding sources throughout the Assessment Area, the Assessment Engineer determined that all similar properties in the Assessment Area have generally equivalent mosquito "destination" potential and, therefore, receive equivalent levels of benefit (except as noted earlier for Zone B).

In the process of determining the appropriate method of assessment, the Engineer considered various alternatives. For example, a fixed assessment amount per parcel for all residential improved property was considered but was determined to be inappropriate because agricultural lands, commercial property and other property also receive benefits from the assessments. Likewise, an assessment exclusively for agricultural land was considered but deemed inappropriate because other types of property, such as residential and commercial, also receive the special benefit factors described previously.

A fixed or flat assessment was deemed to be inappropriate because larger residential, commercial and industrial properties receive a higher degree of benefit than other similarly used properties that are significantly smaller. (For properties used for commercial purposes, there is clearly a higher benefit provided to a property that covers several acres in comparison to a smaller commercial property that is on a 0.20 acre site. The larger property generally has a larger coverage area and higher usage by employees, customers, tourists and guests that would benefit from reduced mosquito and vector populations, as well as the reduced threat from diseases carried by mosquitoes and other vectors. This benefit ultimately flows to the property.) Larger commercial, industrial and apartment parcels, therefore, receive an increased benefit from the assessments.

In conclusion, the Assessment Engineer determined that the appropriate method of assessment apportionment should be based on the type and use of property, the relative size of the property, its relative population, and usage potential and its destination potential for mosquitoes. This method is further described later.

Assessment Apportionment

The special benefits derived from the Improved Mosquito, Vector and Disease Testing and Control Assessment are conferred on property and are not based on a specific property owner's occupancy of property or the property owner's demographic status, such as age or number of dependents. However, it is ultimately people who do or could use the property and who enjoy the special benefits described earlier. The opportunity to use and enjoy property within the Assessment Area without the excessive nuisance, diminished "livability" or the potential health hazards brought by mosquitoes and the diseases they carry is a special benefit to properties in the Assessment Area. This benefit can be in part measured by the number of people who potentially live on, work at, visit or otherwise use the property, because people ultimately determine the value of the benefits by choosing to live, work and/or recreate in the area, and by choosing to purchase property in the area.[21]

In order to apportion the cost of the Services to property, each property in the Assessment Area is assigned a relative special benefit factor. This process involves determining the relative benefit received by each property in relation to a single-family home, or, in other words, on the basis of Single Family Equivalents (SFE). This SFE methodology is commonly used to distribute assessments in proportion to estimated special benefit. For the purposes of this Engineer's Report, all properties are designated an SFE value, which is each property's relative benefit in relation to a "benchmark" parcel in the Assessment Area. The "benchmark" property is the single family detached dwelling on a parcel of less than one acre. This benchmark parcel is assigned one Single Family Equivalent benefit unit or one SFE.

The special benefit conferred upon a specific parcel is derived as a sum function of the applicable special benefit type, such as improved safety on a parcel (i.e., disease risk reduction) and a parcel-specific attributes (such as the number of residents living on the parcel) which supports that special benefit. Calculated special benefit increases accordingly with an increase in the product of special benefit type and supportive parcel-specific attribute.

The calculation of the special benefit for parcels in the Assessment Area from the Services is summarized in the following equation:

$$\textbf{Special Benefit}_{\text{(per parcel)}} = \sum_{\text{parcel)}} \int \textbf{(Special Benefits, Property Specific Attributes}^{1}\textbf{)}_{\text{(per}}$$

[1.] Such as use, property type, and size.

[21] Benefits conferred upon property are related to the average number of people who could potentially live on, work at or otherwise could use a property, not how the property is currently used by the present owner.

Residential Properties

Certain residential properties in the Assessment Area that contain a single residential dwelling unit and are on a lot of less than or equal to one acre are assigned one Single Family Equivalent or 1.0 SFE. Traditional houses, zero-lot line houses, town homes, and secured mobile homes on a separate parcel (not in a mobile home park) are included in this category of single-family residential property.

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

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

Properties with more than one residential unit are designated as multi-family residential properties. These properties, along with condominiums, benefit from the Services in proportion to the number of dwelling units that occupy each property, the average number of people who reside in each property, and the average size of each property in relation to a single-family home in the Assessment Area. This Report analyzed the District's population density factors from the US Census updated through 2019 (which is the most recent data available at the present time) as well as average dwelling unit size for each property type. After determining the Population Density Factor and Square Footage Factor for each property type, an SFE rate is generated for each residential property structure, as indicated in Figure 4 below.

An SFE factor of 0.82 is applied to condominium parcels. The 0.44 per dwelling unit for multi-family residential properties applies to such properties with two to four units (duplex, triplex, fourplex). Properties in excess of five (5) units typically offer on-site management, monitoring and other control services that tend to offset some of the benefits provided by the District's Improved Mosquito, Vector and Disease Testing and Control Assessment. Therefore, the benefit for properties in excess of five (5) units is determined to be 0.38 SFE per unit for the first 20 units and 0.10 SFE per each additional unit in excess of 20 dwelling units.

Figure 2 – Residential Assessment Factors

Type of Residential Property	Pop. Density Equivalent	SqFt Factor	SFE Factor
Single Family Residential	1.00	1.00	**1.00**
Condominium	1.07	0.76	**0.82**
Duplex, Triplex, Fourplex	0.84	0.52	**0.44**
Multi-Family Residential (5+ Units)	0.77	0.49	**0.38**
Mobile Home on Separate Lot	0.86	0.75	**0.65**

Source: 2019 Census, Tulare County, and property dwelling size information from the Tulare County Assessor's Office.

Commercial and Industrial Properties

Commercial and industrial properties are generally open and operated for more limited times, relative to residential properties. Therefore, the relative hours of operation can be used as a measure of benefits, since employee density also provides a measure of the relative benefit to property. Since commercial and industrial properties are typically open and occupied by employees approximately one-half the time of residential properties, it is reasonable to assume that commercial land uses receive one-half of the special benefit on a land area basis relative to single family residential property.

The average size of a single-family home with 1.0 SFE factor in the Assessment Area is 0.25 acres. Therefore, a commercial property with 0.25 acres receives one-half the relative benefit, or a 0.50 SFE factor.

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

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

Commercial and industrial properties in excess of 5 acres generally involve uses that are more land intensive relative to building areas and number of employees (lower coverage ratios). As a result, the benefit factors for commercial and industrial property land area in excess of 5 acres is determined to be the SFE rate per fifth acre for the first 5 acres and the relevant SFE rate per each additional acre over 5 acres. Institutional properties that are used for residential, commercial or industrial purposes are also assessed at the appropriate residential, commercial or industrial rate. Properties with commercial/office and residential mixed uses (i.e., commercial uses on the bottom floor and apartments on the upper floors) may be assessed for both uses for the parcel.

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

Agricultural, Vineyards, Dry Rangeland, Cemetery and Golf Course Properties

Utilizing research and agricultural employment reports from UC Davis, the California Employment Development Department and other sources, this Report calculated an average usage density of 0.05 people per acre for agriculture property, 0.01 for rangelands and timber, 1.2 for cemeteries, and 3.0 for golf courses. Since these properties typically are a source of mosquitoes and vectors and/or are typically closest to other sources of mosquitoes and other vectors, it is reasonable to determine that the benefit to these properties is twice the usage density ratio of commercial and industrial properties. The SFE factors per 0.25 acres of land area, after adjustment for the usage density, are shown in the following Figure 5.

Figure 3 – Commercial/Industrial Benefit Assessment Factors

Type of Commercial/Industrial Land Use	Average Employees Per Acre [1]	SFE Units per Fraction Acre [2]	SFE Units per Acre After 5
Commercial	24	0.500	0.500
Office	68	1.420	1.420
Shopping Center	24	0.500	0.500
Industrial	24	0.500	0.500
Self Storage or Parking Lot	1	0.021	
Wineries [3]	12	0.250	
Golf Course	3	0.033	
Cemeteries	1.20	0.050	
Agriculture / Vineyards	0.05	0.00210	
Timberland / Dry Rangeland	0.01	0.00042	

1. Source: San Diego Association of Governments Traffic Generators Study, University of California, Davis and other studies and sources.

2. The SFE factors for commercial and industrial parcels indicated above are applied to each quarter acre of land area or portion thereof. Additional acres over five for commercial, office, shopping center and industrial parcels are calculated per acre or portion thereof. (Therefore, the minimum assessment for any assessable parcel in these categories is the SFE Units listed herein.)

Vacant Properties

The benefit to vacant properties is determined to be proportional to the corresponding benefits for similar type developed properties. However, vacant properties are assessed at a lower rate due to the lack of active benefits, as measured by use by residents, employees, customers, and guests. A measure of the benefits accruing to the underlying land is the average value of land in relation to improvements for developed property. An analysis of the assessed valuation data from the Tulare County found that 34% of the assessed value of improved property is classified as land value. Since vacant properties have very low to zero population/use densities until they are developed, a 50% benefit discount is applied to the valuation factor of 0.34 to account for the current low use density and potential for harm or nuisance to the property owner or his or her residents, employees, customers and guests. The combination of these measures results in a 0.20 factor. It is reasonable to assume, therefore, that approximately 20% of the benefits are related to the underlying land and 80% are related to the day-to-day use of the property. Using this ratio, the SFE factor for vacant parcels is 0.20 per parcel.

It must be noted that in future years, the SFE factors for properties in the Service Area will be reviewed and updated to reflect changes in land use – i.e., vacant land that has been developed, residential land that has been rezoned to commercial – for assessment calculation purposes.

Other Properties

Article XIIID stipulates that publicly owned properties must be assessed unless those properties are reasonably determined to receive no special benefit from the assessment.

All properties that are specially benefited are assessed. Publicly owned property that is used for purposes similar to private residential, commercial, industrial, agricultural or institutional uses is benefited and assessed at the same rate as such privately owned property.

Miscellaneous, small and other parcels such as roads, right-of-way parcels, and common areas typically do not generate significant numbers of employees, residents, customers or guests and have limited economic value. These miscellaneous parcels receive minimal benefit from the Services and are assessed an SFE benefit factor of 0.

Duration of Assessment

The assessment ballot proceeding authorized the Assessment to be levied for fiscal year 2021-22 and every year thereafter, so long as mosquitoes and other vectors remain in existence and the Delta Mosquito and Vector Control District requires funding from the Assessment for its Services in the Assessment Area. As noted previously, the Assessment can be levied annually after the Delta Mosquito and Vector Control District Board of Trustees approves an annually updated Engineer's Report, budget for the Assessment, Services to be provided, and other specifics of the Assessment. In addition, Board of Trustees must hold an annual public hearing to continue the Assessment.

Appeals and Interpretation

Any property owner who feels that the Assessment levied on the subject property is in error as a result of incorrect information being used to apply the foregoing method of assessment, may file a written appeal with the Manager of the Delta Mosquito and Vector Control District or his or her designee. Any such appeal is limited to correction of an assessment during the then current fiscal year or, if before July 1, the upcoming fiscal year. Upon the filing of any such appeal, the District Manager or his or her designee will promptly review the appeal and any information provided by the property owner. If the District Manager or his or her designee finds that the assessment should be modified, the appropriate changes shall be made to the Assessment Roll. If any such changes are approved after the Assessment Roll has been filed with Tulare County for collection, the District Manager or his or her designee is authorized to refund to the property owner the amount of any approved reduction. Any dispute over the decision of the District Manager, or his or her designee, shall be referred to the District Board of Trustees. The decision of the District Board of Trustees shall be final.

Assessment

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

NOW THEREFORE, The undersigned, by virtue of the power vested in me under Article XIIID of the California Constitution, the Government Code, the Health and Safety Code, and the order of Delta Mosquito, Vector, and Disease Control District Board of Trustees, I hereby make the following determination of an assessment to cover the portion of the estimated cost of the Services, and the costs and expenses incidental thereto to be paid by the Mosquito, Vector and Disease Control Assessment.

The District's Mosquito, Vector, and Disease Control Program has evaluated and estimated the costs of extending and providing the Services to the Assessment Area. The estimated costs are summarized in Figure 3 and detailed in Figure 6 below.

The amount to be paid for the Services and the expenses incidental thereto, to be paid by the Delta Mosquito, Vector, and Disease Control Program for the fiscal year 2023-24 is generally as follows:

Figure 4 – Summary Cost Estimate – FY 2023-24 Budget

Total Mosquito Control Services and Related Expenditures	$1,112,698
Total Incidental Costs	$129,990
Total Contributions from other Sources	($2,345,386)
Total Mosquito, Vector and Disease Control Services and Incidentals	($1,102,698)
Budget Allocation to Property	$1,102,698

An Assessment Diagram is hereto attached and made a part hereof showing the exterior boundaries of the Assessment Area. The distinctive number of each parcel or lot of land in the Assessment Area is its Assessor Parcel Number appearing on the Assessment Roll.

I do hereby determine and apportion the net amount of the cost and expenses of the Services, including the costs and expenses incidental thereto, upon the parcels and lots of land within the Improved Mosquito, Vector and Disease Testing and Control Assessment, in accordance with the special benefits to be received by each parcel or lot, from the Services, and more particularly set forth in this Engineer's Report.

The assessment determination is made upon the parcels or lots of land within the Assessment Area in proportion to the special benefits to be received by the parcels or lots of land, from the Services.

The assessment is subject to an annual adjustment tied to the Western Region's Pacific Division Consumer Price Index for All Urban Consumers (CPI-U), as of December of each succeeding year ("CPI"), with a maximum annual adjustment not to exceed 3%. Any change in the CPI in excess of 3% shall be cumulatively reserved as the "Unused CPI" and shall be used to increase the maximum authorized assessment rate in years in which the CPI is less than 3%. The maximum authorized assessment rate is equal to the maximum assessment rate in the first fiscal year the assessment was levied adjusted annually by the minimum of 1) 3% or 2) the change in the CPI plus any Unused CPI as described earlier.

The assessment may be levied annually and may be adjusted by up to the maximum annual CPI adjustment without any additional assessment ballot proceeding. In the event that in future years the assessments are levied at a rate less than the maximum authorized assessment rate, the assessment rate in a subsequent year may be increased up to the maximum authorized assessment rate without any additional assessment ballot proceeding.

Each parcel or lot of land is described in the Assessment Roll by reference to its parcel number as shown on the Assessor's Maps of Tulare County for the fiscal year 2023-24. For a more particular description of the property, reference is hereby made to the deeds and maps on file and of record in the office of the County Assessor of Tulare County.

I hereby place opposite the Assessor Parcel Number for each parcel or lot within the Assessment Roll, the amount of the assessment for fiscal year 2023-24 for each parcel or lot of land within the Delta Mosquito, Vector and Disease Control Assessment Area.[22]

[22] Each parcel has a uniquely calculated assessment based on the estimated level of special benefit to the property as determined in accordance with this Engineer's Report.

Dated: May 3, 2023

Engineer of Work

By:_____

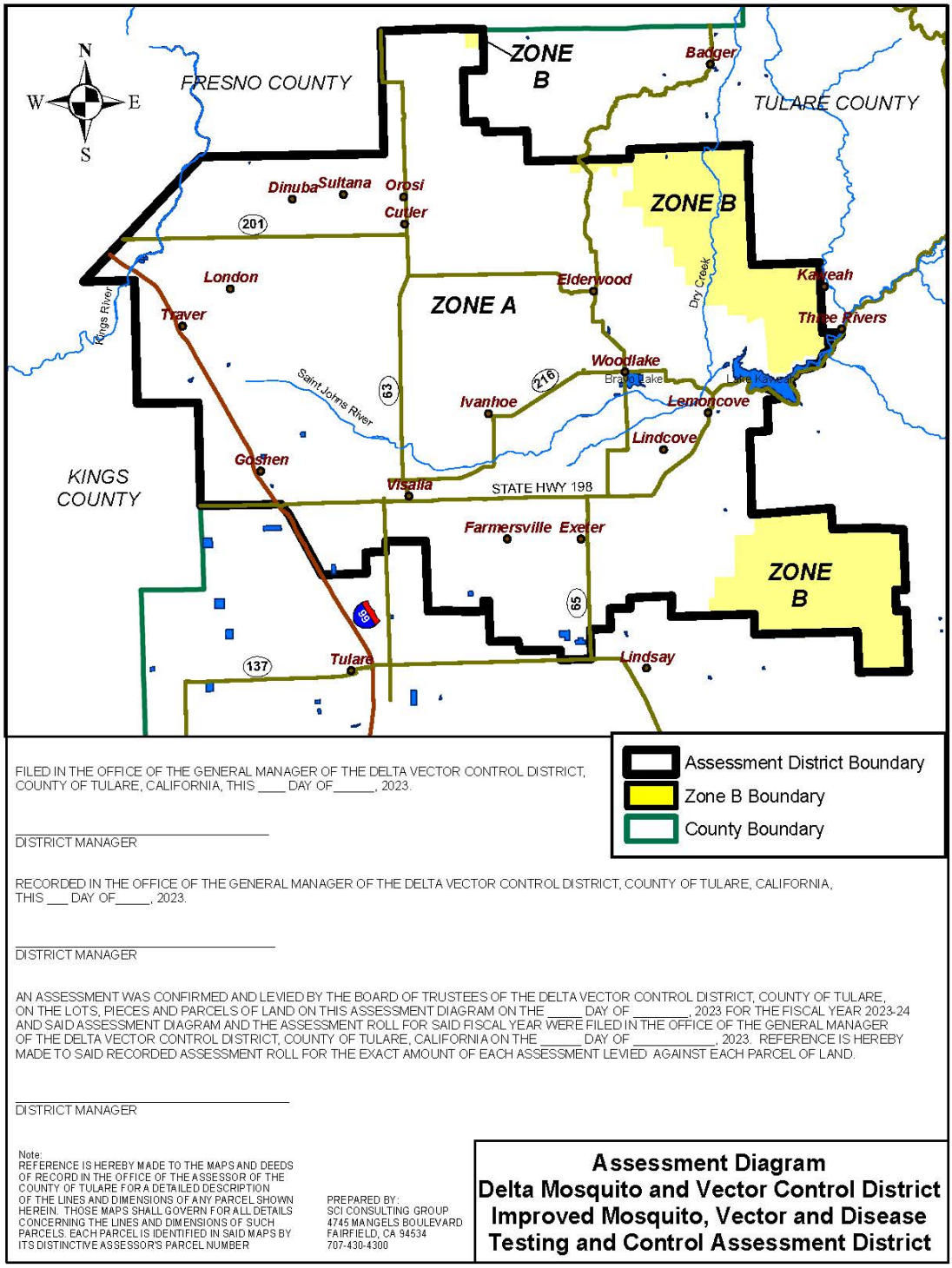
John W. Bliss, License No. C052091

Assessment Roll

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

Assessment Diagram

The boundaries of the Mosquito, Vector and Disease Control Assessment are displayed on the following Assessment Diagram.



6. Public Hearing Approval

7. Oxitec Collaboration

8. Letter of Invitation to an International Public Health Researcher

DELTA MOSQUITO & VECTOR CONTROL DISTRICT

Dr. Mustapha Debboun
General Manager

Paul Harlien
Operations Program Manager

Mary Ellen Gomez
Administrative Assistant

Rick Alvarez
Vector Control Supervisor

1737 West Houston Avenue * Visalia, California 93291
Phone (559) 732-8606 * (877) 732-8606 * Fax (559)-732-7441
www.deltamvcd.org

Crystal Grippin
Scientific Program Manager

Erick Arriaga
Community Education & Outreach Coordinator

Bryan Ferguson
Foreman

Bryan Ruiz
Supervisor Assistant

April 18, 2023

Dr. Josephine Wanjiku Ngunjiri
Department of Biological Sciences
University of Embu
Nairobi, Kenya

Dear Dr. Wanjiku Ngunjiri,

It gives me great pleasure to extend to you my sincere invitation to tour our laboratory and other facilities of the Delta Mosquito and Vector Control District in Visalia, California during the month of August 2023.

My staff and I will be happy to show you and share with you our equipment and best integrated mosquito management practices, i.e., surveillance, control (chemical and biological), community education and outreach, and other relevant operations. This will give both of us an opportunity to learn from each other and develop a collaborative effort between the University of Embu and Delta Mosquito and Vector Control District

.

I look forward to meeting and seeing you during your visit in August 2023.

Sincerely,

Mustapha Debboun, M.S., Ph.D., BCE, ESA Fellow
Medical and Veterinary Entomologist
General Manager
Delta Mosquito & Vector Control District
E-mail: mdebboun@deltamvcd.org; mobile: 210-260-9632

9. Board of Trustees Member Comments

10. Future Agenda Items

11. Adjournment