



MOSQUITO AND VECTOR MANAGEMENT DISTRICT
OF SANTA BARBARA COUNTY

AGENDA
SPECIAL MEETING
August 20, 2026 at 1:00 PM

Santa Barbara City College Wake Campus, Room 21
300 N. Turnpike Road, Santa Barbara, CA 93111

President

Danica Taber, City of Goleta (through 1/1/28)

Vice President

Joseph Franken, City of Carpinteria (through 1/31/27)

Secretary

Russell Dahlquist, Santa Barbara County (through 12/31/26)

Trustee

Barbara Silver, Santa Barbara County (through 10/10/26)

Trustee

Robert Williams, Santa Barbara County (through 12/31/26)

Trustee

Dr. Teri Jory, City of Santa Barbara (through 1/4/27)

Trustee

Dr. Steven Gaulin, Santa Barbara County (through 12/31/27)

PARTICIPATION OPTIONS:

- **Attend in Person:** Attend in person at Santa Barbara Community College Wake Campus, Room 21, 300 N. Turnpike Road, Santa Barbara, CA 93111
- **Virtual Attendance:** Join the Zoom webinar by clicking on the following link:
<https://us02web.zoom.us/j/87189282592> (Meeting ID: 871 8928 2592; Passcode: 421711)
- **Attend Via Phone:** Dial in For Audio Only: 1- 669-900-6833 or 1-408-638-0968, (ID: 871 8928 2592#)

HOW TO PROVIDE PUBLIC COMMENT:

- **In Person:** Provide in-person public comment at the meeting (SBCC Wake Campus, Room 21, 300 N. Turnpike Road, SB 93111).
- **On Zoom/Virtual:** Use the “raise your hand” feature to notify staff that you would like to make a public comment during designated public comment times. Once it is your turn to provide a public comment, staff will unmute your microphone and you will be given a designated amount of time to comment. At the end of your comment, staff will once again mute you.
- **Written Comment:** Submit a written comment by 8:00 AM on the day of the meeting (as either a general public comment or on a specific agenda item) by either submitting your comment via (1) email to info@mvmdistrict.org, or (2) in a writing mailed to the District, attention Board Secretary. Please reference the agenda item to which your comment pertains. Although written comments become part of the record, they will not be read aloud at the meeting.

Please note that the District will make every effort to make the meeting accessible virtually; however, if the above virtual attendance/viewing or public comment options is unavailable due to technological issues, you are invited to take advantage of one of the other participation options outlined above. Additional options may be made available at the meeting.

Any materials which are distributed less than 72 hours prior to this meeting to all, or a majority of all, Trustees in connection with any agenda item (other than closed sessions) will be available for public inspection at the time of

such distribution at the District's office located at 2450 Lillie Avenue, Summerland, CA 93067. Such records may also be posted on the District's website at www.mvmdistrict.org

1. ROLL CALL

2. CONFIRMATION OF AGENDA

3. ANNOUNCEMENTS REGARDING DISTRICT BUSINESS

- A.** Reminder SB 827 fiscal responsibility training.

Trustees are required to take fiscal and financial training as required by SB 827. Additionally, SB 1234 Ethics and SB 1825 Sexual Harassment and Discrimination Prevention trainings are required every two years.

- B.** Remaining Board Meeting Dates for 2026. Start time is 1:00 PM.

1. Thursday, September 10	2. Thursday, October 8	3. Thursday, November 12
4. Thursday, December 10		

4. CORRESPONDENCE

- A.** Email from resident re: Vector Control Technician Royce and the District's service. (Page 5)

- 5. PUBLIC COMMENT** Time reserved for the public to address the Board of Trustees relative to matters of District business not on the agenda. Comment time regarding specific agenda items will be available during consideration of the particular agenda items.

6. CLOSED SESSION PURSUANT TO GOVERNMENT CODE SECTION 54957

- A.** Public comment on closed session agenda items.

- B.** Temporary adjournment to closed session.

- C.** PUBLIC EMPLOYMENT – EVALUATION OF PERFORMANCE (Govt. Code section 54957)

- i. Title: District legal counsel

- D.** Reconvene to open session for closed session report.

7. CONSENT CALENDAR

The following items can be approved by a single action of the Board. Items requiring additional discussion may be withdrawn from the listing and addressed in separate actions. If you wish to speak on a consent calendar item, please do so during the public comment period provided at the beginning of this item.

- A.** Approval of the Minutes of the July 9, 2026 Board Meeting (Page 6)

- B.** Approval of the July 2026 Disease Surveillance Reports (Page 9)

- C.** Approval of the July 2026 District Operations Reports (Page 12)

- D.** Accounts receivable contracts' status (Line item 5909 - Misc. Revenue) (Page 13)

8. INFORMATIONAL ITEMS/UPDATES

The Board will discuss and may take action on the following items:

- A. Updates on the Australian backyard mosquito, *Aedes notoscriptus*, in the City of Santa Barbara and the yellow fever mosquito, *Aedes aegypti*, in Carpinteria.
- B. Report by Board President Danica Taber on the California Special District Association Leadership Academy Conference held on May 11 – 14, 2026 in San Diego, CA. (Page 14)
- C. Receive and file July 2026 Financial Statements for County Fund FD-4160 (Page 18) and July 2026 Disbursement Report (Page 21)

9. DISCUSSION/ACTION ITEMS

The Board will discuss and may take action on the following items.

- A. Receive, File, and Open the Voluntary 30-Day Public Comment Period for the Special Coastal Procedures to the District's Integrated Mosquito Vector and Management Plan ("IMVMP"). (Page 26) *The administrative draft of the Special Coastal Procedures to the Integrated Mosquito and Vector Management Plan is now available for voluntary 30-day public review and comment.*
- B. Provide update on Operations Manager Biologist hiring process and amend make-up of existing Ad Hoc Recruitment and Hiring Committee for an Operations Manager Biologist by adding Trustee Jory as a member of the committee.
- C. Discuss upcoming annual performance review for GM Cabrera.

GM Cabrera accepted the position of General Manager on August 8, 2019 and his contract was approved by the Board of Trustees on September 12, 2019. He started employment with the District on October 8, 2018. Reviews are conducted on an annual basis and the last review was approved on January 8, 2026.

- D. Consider and approve opening a CA CLASS (Cooperative Liquid Asset Securities System) account. Considerations include:
 - Investment option: CA CLASS Prime or CA CLASS Enhanced Cash
 - Funding amount

Bob Shull, Senior Director of Investment Services for California CLASS, presented information about the program at the July 9, 2026 Board meeting. Information about the program can also be found at: www.californiaclass.com

- E. Consider and approve the District's revised Conflict of Interest Code. (Page 170)

The Political Reform Act requires every local government agency to review its conflict of interest code biennially. A conflict of interest code tells public officials, governmental employees, and consultants what financial interests they must disclose on their Statement of Economic Interests (Form 700). Our current code was last amended in July 2020. The COI must be revised because it is more than 5 years old and because we are reinstating the Operations Manager Biologist position. The OMB has financial responsibilities with the District and reinstating it alters the District's current organizational structure. The revised COI must be received by the County of Santa Barbara Clerk of the Board of Supervisors by October 1. A copy of the current CIC, approved in 2020, is provided for reference.

- F.** Consider and Approve (1) the extension of the District's current mosquito and vector management practices under the existing Memorandums of Understanding and their associated Mosquito Management Plans (the "MOUs") for (i) Santa Barbara Airport ("SBA"), (i) Wynmark, and (iii) Goleta Sanitary District ("GSD") until the Board approves the Integrated Mosquito and Vector Management Plan ("IMVMP"); and (2) the notice of exemption ("NOE") for the MOUs and direct staff to file the NOE. (Page 179)
- G.** Consider and approve Administrative Assistant Jessica Sprigg's attendance at the California Special District Association board secretary/clerk conference to be held in Santa Barbara at the Hilton Beachfront Resort, Nov. 3-5. Early bird registration \$825 fee ends Oct. 2. (see handout for conference details)

The conference is billed as providing attendees with a solid foundation of essential skills and insights to confidently navigate their duties and offering returning participants the opportunity to dive deeper into specialized breakout sessions that reflect the latest developments and trends in the field.

10. GENERAL MANAGER'S REPORT (Page 228)

11. REQUESTS FOR FUTURE AGENDA ITEMS

12. TRUSTEE ANNOUNCEMENTS

13. ADJOURNMENT (Next scheduled meeting: Thursday, September 10 at 1:00 PM.)

Persons with disabilities who require any disability-related modification or accommodation, including auxiliary aids or services, in order to participate in the meeting are asked to contact the District's General Manager at least three (3) days prior to the meeting by telephone at (805) 969-5050 or by email at gm@mvmddistrict.org.

From: Royce Sharp
Sent: Wednesday, July 22, 2026 8:17 AM
To:
Subject: FW:

From: Linda
Sent: Tuesday, July 21, 2026 9:40 AM
To: Royce Sharp
Subject: 3 ORR

Hi, Royce,
Sorry I missed you yesterday - I had forgotten that Monday was the 20th . Thank you very much for the traps.
I so appreciate your conscientiousness in looking over the ext/int of my house & all of your great info. I have used the steel wool & Lysol. I have not seen any more mice or droppings - I think this problem has been solved. I am waiting for a callback from - thank you for the tip.
Thank you again for your outstanding help & expertise - I enjoyed meeting you! The county is in excellent hands with you & your co-workers.
Huge thanks again,
Linda

MOSQUITO AND VECTOR MANAGEMENT DISTRICT
of Santa Barbara County
MINUTES OF REGULAR MEETING OF TRUSTEES
July 9th, 2026

The regular meeting of the Board of Trustees of the Mosquito and Vector Management District of Santa Barbara County was held at 1:00 PM, on Thursday, July 9th, 2026 via teleconference and in person at the Santa Barbara City College Wake Center Campus, Room 21.

1. **ROLL CALL**

TRUSTEES PRESENT:

President Danica Taber
Vice-President Joseph Franken
Secretary Russell Dahlquist
Trustee Barbara Silver
Trustee Steven Gaulin

TRUSTEES ABSENT:

Trustee Robert Williams
Trustee Teri Jory

IN ATTENDANCE:

Brian Cabrera, General Manager
Jessica Sprigg, Administrative Assistant
Carrie Troup, CPA
Bob Shull, California CLASS
John Bliss, SCI Consulting (remotely)
Heather Jamison, SCI Consulting (remotely)

2. **CONFIRMATION OF AGENDA**

-No changes requested. GM Cabrera noted that in Item 3A, the reference to Item 6G should actually be 6D.

3. **ANNOUNCEMENTS REGARDING DISTRICT BUSINESS**

A. Remaining Board Meeting Dates for 2026. Start time is 1:00 PM.

1. August, TBD in agenda item 6G.	3. Thursday, October 8	5. Thursday, December 10
2. Thursday, September 10	4. Thursday, November 12	---

4. **CORRESPONDENCE**

-None.

5. **PUBLIC COMMENT**

Time reserved for the public to address the Board of Trustees relative to matters of District business not on the agenda. Comment time regarding specific agenda items will be available during consideration of the particular agenda items.

-None.

6. **DISCUSSION/ACTION ITEMS**

The Board will discuss and may take action on the following items:

- A. Presentation and discussion on the California CLASS program (Cooperative Liquid Asset Securities System). Bob Shull, Senior Director of Investment Services for California CLASS, will be in attendance to present information about the program and to answer questions.

-Following a brief overview of the California CLASS program, the Board directed staff to agendize the item for further review and possible action at the August meeting.

- B. Public hearing to consider resolution approving Engineer's Report and ordering the continuation of assessments for fiscal year 2026-2027.

-Public hearing opened at 1:24. SCI Consulting Group President John Bliss discussed the history and timeline of the annual benefit assessment process. Public hearing closed at 1:57.

- C. Consider and approve Resolution 26-06: "A Resolution of the Board of Trustees of the Mosquito and Vector Management District of Santa Barbara County Approving the Engineer's Report, and Ordering the Continuation of Assessments for Fiscal Year 2026-27 for Service Zones No. 1 and No. 2 Mosquito and Disease Control Assessments."

- a. Staff report recommending the continuation of assessments for fiscal year 2026-27.

Ryan Aston, Senior Consultant with SCI Consulting Group, will be present to address any questions or comments regarding the assessments.

-Vice-President Franken made a motion to adopt Resolution 26-06 and read by title only.

Motion seconded by Secretary Dahlquist and passed 5-0-0 by roll call vote.

- D. Reschedule the August 2026 Board regular meeting as a special meeting. GM Cabrera will be out of the office from July 27 – August 10th. A suggested rescheduled date is Thursday, August 20.

-The August meeting was rescheduled for August 20th at 1PM.

- E. Receive and file June 2026 Financial Statements for County Fund FD-4160

-Vice-President Franken made a motion to receive and file the financial statements. Motion seconded by Secretary Dahlquist and passed unanimously.

- F. Receive and file June 2026 Disbursement Report

-Vice-President Franken made a motion to receive and file the disbursement report. Motion seconded by Secretary Dahlquist and passed unanimously.

7. CONSENT CALENDAR

The following items can be approved by a single action of the Board. Items requiring additional discussion may be withdrawn from the listing and addressed in separate actions. If you wish to speak on a consent calendar item, please do so during the public comment period provided at the beginning of this item.

- a. Approval of the Minutes of the June 11, 2026 Board Special Meeting
- b. Approval of the June 2026 Disease Surveillance Report
- c. Approval of the June 2026 District Operations Report
- d. Accounts receivable contracts' status (Line item 5909 - Misc. Revenue)

-Secretary Dahlquist made a motion to approve the Items of General Consent. Motion seconded by Vice-President Franken and passed unanimously.

8. INFORMATIONAL ITEMS/UPDATES

The Board will discuss and may take action on the following items:

- A. Update on the discovery of the Australian backyard mosquito, *Aedes notoscriptus*, in the Westside neighborhood of the City of Santa Barbara.

-The Ascendant app was utilized to send text messages to residents in the vicinity of where the detections of Aedes notoscriptus occurred. Mailers were also sent to the area and technicians have been going door to door speaking to residents and inspecting neighborhood breeding sources. Many residents have volunteered to have traps placed in their yards.

9. **GENERAL MANAGER’S REPORT**

-GM Cabrera discussed the Google analytics of the District website views, Trustee Silver taking the place of Trustee Dahlquist on the IMVMP ad hoc committee, and the upcoming AMCA webinar about Wolbachia.

10. **REQUESTS FOR FUTURE AGENDA ITEMS**

-Pending future agenda items include use of Wolbachia to control mosquitoes, report from President Taber about attendance at Special District Leadership Academy, and participation in the California CLASS program. Trustee Silver requested a future item about ticks and the diseases that they vector.

11. **TRUSTEE ANNOUNCEMENTS**

-None.

12. **ADJOURNMENT**

As there was no further business to be brought before the Board, the meeting was adjourned.

I certify that the above minutes substantially reflect the actions of the Board:

APPROVED:

Danica Taber
Board President

Russell Dahlquist
Board Secretary



MOSQUITO and VECTOR MANAGEMENT DISTRICT of SANTA BARBARA COUNTY

DISEASE SURVEILLANCE REPORT

July 2026

Santa Barbara County Vector-borne Disease Surveillance

The West Nile Virus Dead Bird Hotline received three reports of dead birds in the County, and one of them tested negative for West Nile Virus (WNV). Another was a seagull which was not picked up because it is not an accepted species for testing. A house finch also was not accepted because it was infested with ants.

Santa Barbara County Trapping

Location	Date	Number of Mosquitoes	Type of Trap	# of Traps	Mosquitoes per Trap Night	Pools Submitted	WSW* Virus Test Result
West Micheltorena St, Santa Barbara	6/15-7/7	5***	BGS2	1	0.2	0	--
West Micheltorena St, Santa Barbara	7/7-7/13	16***	BGS2	2	1.3	0	--
UCSB/SBAir Bluffs	7/14-7/15	1411	EVS	11	128.3	15	Negative
UCSB/SBAir Bluffs	7/20-7/21	634	EVS	11	57.6	9	Negative
Church Lane, Carpinteria	7/15-7/22	2	BGS2	1	0.3	0	--
West Micheltorena, Santa Barbara	7/13-7/20	14***	BGS2	1	2	0	--
Lake Los Carneros, Goleta	7/23-7/24	136	EVS	12	11.3	2	Negative
Church Lane, Carpinteria	7/22-7/28	3	BGS2	3	0.2	0	---
Zoo/Bird Refuge, Santa Barbara	7/28-7/29	9	EVS	6	1.5	2	Negative
North West Mesa, Santa Barbara	7/28-7/29	4	EVS	2	2	0	--

BGS2=Biogents Sentinel 2; BGP=Biogents Pro; EVS=enkephalitis surveillance trap (CO²)

*WSW=West Nile (WNV), St. Louis Encephalitis (SLE), AND Western Equine Encephalitis (WEE)

**Color indicates the virus-transmitting ability of some or all of the mosquito species caught in the traps:

Purple = high (example: *Aedes aegypti*, *Culex tarsalis*); Aqua = moderate; Tan = low.

For specific trap collection data, please email a request to: info@mvmdistrict.org.

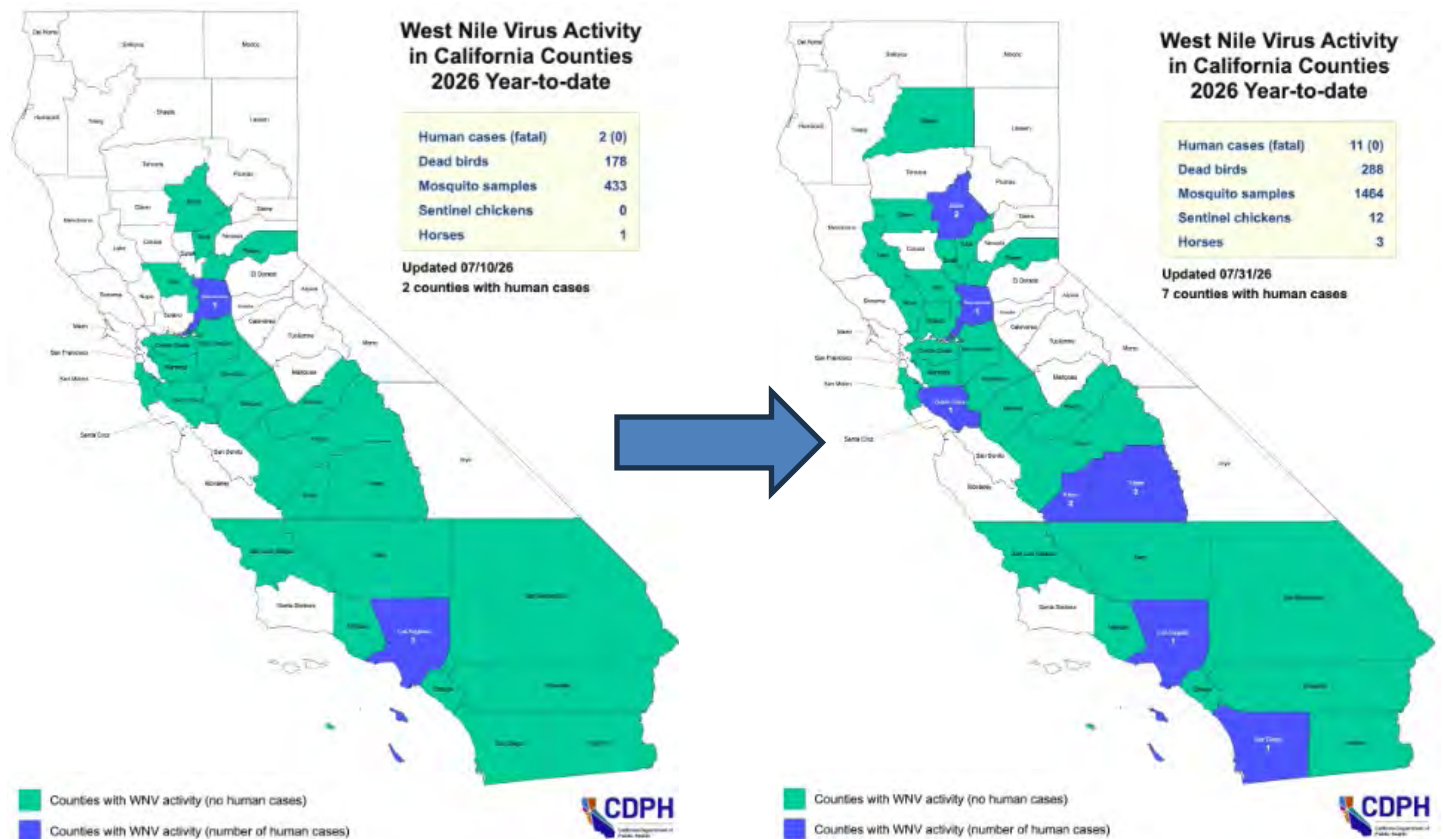
*** 1 female *Aedes notoscriptus*

California Vector-borne Disease Surveillance

2025 & 2026 YTD West Nile Virus Comparisons		
	2025	2026
Total No. Dead Bird Reports	5,195	5,762
No. Positive Counties	25	31
No. Human Cases	6	11
No. Positive Dead Birds / No. Tested	58 / 998	288 / 1,256
No. Positive Mosquito Pools / No. Tested	815 / 24,439	1,464 / 31,943
No. Seroconversions / No. Tested	0 / 1,766	12 / 2,213

National note: Arizona has reported 72 human cases of WNV this year

California Vector-borne Disease Surveillance

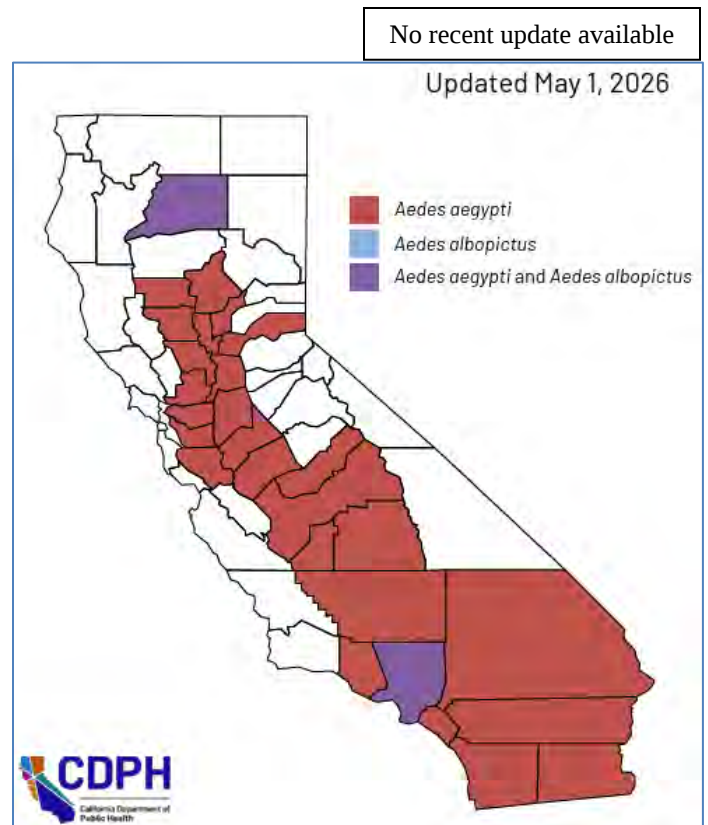


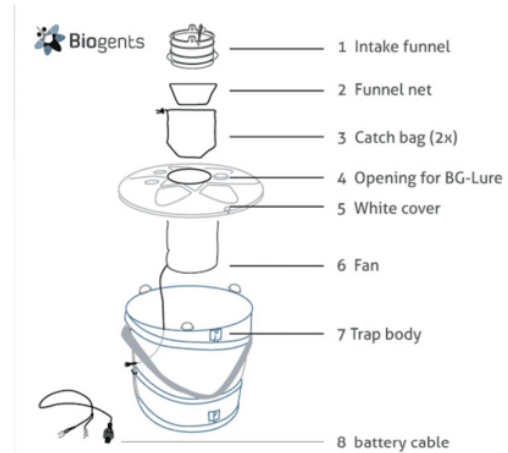
Update on Invasive *Aedes* Mosquito in California

On July 14, the District received photos of an *Aedes aegypti* from a resident of Carpinteria. ID was confirmed in the lab. Residents in the area have been notified, and many have allowed us to place *Aedes*-specialized traps on their property.

Invasive *Aedes notoscriptus*, the Australian backyard mosquito, was identified from a residence in Santa Barbara's Westside neighborhood on March 12. The District has collected a total of 49 female and 9 male adult *Aedes notoscriptus*. In mid-July, staff also discovered more than 24 larvae from two In2Care stations that were placed in the neighborhood.

In 2025, the CA Dept. of Public Health reports **6** locally-transmitted cases of dengue virus in California. *Aedes aegypti* mosquitoes, capable of vectoring dengue, Zika, and chikungunya viruses, are common in the Greater Los Angeles area. One mosquito sample collected in Greater L.A. has also tested positive for dengue virus. This is the first official record ever of dengue virus identified from a mosquito collected in California. In 2024, there were 18 locally-transmitted dengue cases. As of August 1, there have been 23 travel-related human dengue cases (2 in Santa Barbara County), two chikungunya cases, and no cases of Zika virus in California this year. *Aedes aegypti* is found in 28 California counties and *Aedes albopictus* is found in two.





Biogents Sentinel 2 Invasive Aedes Mosquito Traps (BGS2)



The Biogents Sentinel 2 (BGS2) trap is specialized for catching invasive, human-biting, container-breeding *Aedes* mosquitoes. The District is using these traps for surveillance of the Australian backyard mosquito (*Aedes notoscriptus*) and the yellow fever mosquito (*Aedes aegypti*). The BG-Lure cartridge attracts these mosquitoes by smelling like human skin. Mosquitoes fly over the trap opening and get sucked into a net by a small fan. The lure can also attract our native Southern house mosquito (*Culex quinquefasciatus*). A carbon dioxide source and a light can be added to attract other mosquito species. A BGS2 can be plugged into an electrical outlet or powered by a large battery. If power is lost, the top of the trap closes to keep trapped mosquitoes from escaping.

Mosquito and Vector Management District of Santa Barbara County

Report of District Operations - July 2026

Location	Mosquito					Bees & Wasps			Rats & Mice		Surveillance			Other		Total
	Inspection Hours	Treatment Hours	Service Requests	Fish Requests	Standing Water Reports	Inspection Hours	Treatment Hours	Service Requests	Inspection Hours	Service Requests	WNV Bird	Chickens	Mosquito Pools	Bedbugs	Misc. Requests	Total hours devoted to zone
Goleta	11.0	3.5	1		1								7.0			21.5
Goleta Valley	63.0	31.5											9.5		1	104.0
Rancho Embarcadero	3.5	0.5											0.5			4.5
Isla Vista	8.0	2.0	2						1.0	1			13.0			24.0
Hope Ranch	6.5	1.0				1.5			11.0							20.0
Hidden Valley																0.0
Santa Barbara area	63.5	3.0	9	9	3				14.0	1	0.5		17.0			98.0
Mission Canyon																0.0
Montecito	9.5	1.5	3	2	1					1						11.0
Summerland	1.0		1	1					3.5	1						4.5
Carpinteria	29.5	8.5	2	2	1				4.0	1			8.5			50.5
Carpinteria Valley	14.0	5.0	1	1	1											19.0
Carp Salt Marsh	33.0	12.0														45.0
Camino Real																0.0
Storke Ranch																0.0
Goleta Sanitary																0.0
City of Goleta	3.5	2.0														5.5
UCSB	1.0	0.5	2													1.5
Santa Barbara Airport	33.0	18.0														51.0
City of Santa Barbara	8.0	1.0														9.0
SoCalGas																0.0
South County total	288.0	90.0	21	15	7	1.5	0.0	0	33.5	5	0.5	0.0	55.5	0	1	469.0
Unincorporated North County																0.0
North County total																0.0
Pismo Beach																0.0
Oceano Dunes																0.0
San Luis Obispo																0.0
SLO County total	0.0	0.0	0	0	0	0.0	0.0	0	0.0	0	0.0	0.0	0.0	0	0	0.0
Monthly Totals	288.0	90.0	21	15	7	1.5	0.0	0	33.5	5	0.5	0.0	55.5	0	1	469.0
Year to Date	1382.0	448.0	79	85	32	23.5	0.0	4	63.5	12	4.5	0.0	286.5	0	9	

	This Month	Year to Date
Total Inspection Hours	323.0	1469.0
Total Treatment Hours	90.0	448.0
Total Mileage	2,028.0	15022.0

Contract Status as of August 14, 2026

Account	MOU Maximum	FYE27	FYE26	FYE25	MOU Status
Wynmark	\$2,207	\$ 430	\$ 2,053	\$1,221	FYE28 ready for Board approval
Goleta Sanitary District	\$7,149	\$ 926	\$ 1,236	\$6,019	FYE28 ready for Board approval
Goleta, City of	\$11,605	\$ 1,109	\$ 5,975	\$6,739	FYE27 completed
Oceano Dunes District	\$22,728	\$ 10,041	\$ 20,136	\$12,345	CY24-CY28 completed
Pismo Beach, City of	\$9,353	\$ ---	\$ 3,499	\$2,808	FYE27 completed
Santa Barbara Airport	\$108,146	\$ 24,436	\$ 80,822	\$61,865	FYE27 up for Board approval
Santa Barbara, City of	\$7,785	\$ 2,613	\$ 8,104	\$5,986	FYE27 completed
SoCalGas	\$4,000	\$ 894	\$ 1,553	\$3,339	Submitted Mosquito Management Plan
Cal-Storke, LLC	\$2,612	\$ 453	\$ 1,533	\$1,397	FYE27 completed
UCSB	\$44,794	\$ 6,416	\$ 22,478	\$40,754	FYE 2028 completed
San Luis Obispo, County of	---	---	---	---	No contract for FY 25-26
	\$ 220,378	\$47,319	\$147,389	\$142,473	

Total Amount Billed for All Contracts and Amount Budgeted for Fiscal Years Ending 2015 through 2027

Fiscal Year Ending	Billed amount as of 7/1/2026	Budgeted
2027	\$47,319	\$ 160,000
2026	\$ 147,389	\$ 160,000
2025	\$ 142,473	\$ 160,000
2024	\$ 178,387	\$ 160,000
2023	\$ 172,986	\$ 130,000
2022	\$ 154,358	\$ 120,000
2021	\$ 111,621	\$ 110,000
2020	\$ 133,309	\$ 105,000
2019	\$ 129,219	\$ 100,000
2018	\$ 96,290	\$ 70,000
2017	\$ 129,280	\$ 105,000
2016	\$ 58,200	\$ 115,000
2015	\$ 64,697	\$ 120,000

Overview of the Mosquito and Vector Management District

Prepared by Board President Taber to accompany report to Board on SDLA conference in May 2026

Statutory Authorization: California Health and Safety Code §2000 *et seq.*

Our Mission Statement:

“The Mosquito and Vector Management District of Santa Barbara County is an independent special district that controls and monitors disease-carrying mosquitoes and rodents. We regularly test for vectored diseases and educate the public on how to reduce the probability of contracting such diseases. As a local government agency, we enforce the California Health and Safety Code as it applies to public health issues regarding problem insects and rats. Our focus is on mosquito control to help protect you from issues that can arise from these insects.” -- <https://www.mvmdistrict.org/our-mission>, 8/17/2026

What Exactly Is the Mosquito and Vector Management District (MVMD)?

The MVMD is an independent special district--a local government created by the voters of a community, to deliver specialized services which are not provided by the local city or county--which protects the usefulness, utility, desirability, and livability of property; and which protects the inhabitants of property within its jurisdictional area, by controlling and monitoring disease-carrying insects and other vectors. – *Adapted from 2026 Engineer’s Report*

Service Areas:

- Enhanced Vector Control Service areas were approved by voters through balloting:
 - Service Zone No. 1 (Goleta area, including City of Goleta, the City of Santa Barbara Municipal Airport, and most of the unincorporated territory of the Goleta Valley including the communities of Hope Ranch and Isla Vista)
 - Service Zone No. 1 Extension 1, or the “Extension Areas” (unincorporated areas of Montecito, Mission Canyon, Summerland, Hidden Valley, and the Goleta and Carpinteria Foothills in southern Santa Barbara County as well as to the non-serviced portions of the City of Santa Barbara)
 - Service Zone No. 2 (Carpinteria area, including the City of Carpinteria and the Carpinteria Valley)
- General Vector Control Service areas:
 - Other areas and entities (sometimes in other counties) as agreed upon in MOUs
- Not covered:
 - The District's service area does *not* include the cities of Lompoc, Buellton, Solvang, Santa Maria, or Guadalupe

Services: (*Adapted from website*)

Enhanced Service Area services include:

- | | |
|--|--|
| ○ general adult mosquito trapping | ○ mosquito fish at no charge |
| ○ targeted trapping for specific types of mosquitoes | ○ mosquito control (larvae only) |
| ○ property inspections | ○ dead bird pickup (for West Nile Virus detection) |
| ○ vector insect identification | ○ public information |
| ○ tick surveys | ○ honey bee swarm removal referrals |

Overview of the Mosquito and Vector Management District

Prepared by Board President Taber to accompany report to Board on SDLA conference in May 2026

District Funding: For Service Zones 1, 2, and the Extension Areas, operating fees are assessed per parcel annually, after a noticed public hearing on recommendations in an Engineer's Report; with MOUs with separate entities (sometimes in San Luis Obispo County) negotiated annually

Facilities: Built in 1950s, located at 2450 Lillie Ave, Summerland, CA. Reception desk, office space, lab space, mosquito fish holding tanks, equipment and materials storage, and a District vehicle parking lot.

Who Helps Run the District?

Board of Trustees:

- Each Trustee is appointed either by the County Board of Supervisors; or by the City of Carpinteria/Goleta/Santa Barbara, through each entity's chosen application process.
- Length of Term: **Health and Safety Code §2024 (a):** "..., the term of office for a member of the board of trustees shall be for a term of two or four years, at the discretion of the appointing authority"

The District Staff: A highly-trained team of seven, based in Summerland

- One General Manager (Brian, since 2019, hired as the Operations Manager Biologist in 2018)
- One Administrative Assistant (Jessica, since 2010)
- One Vector Biologist Technician (Karen, since 2004)
- One Lead Vector Control Technician (Vesna, since 2001)
- Two Vector Control Technicians (Royce and Sean, since 2002 and April 2026, respectively)
- One Vector Control Assistant (Ryan, May - August 2026)

Our Support Team: *All work for the Board, but collaborate with the General Manager*--adapted from CSDA SDLA slide, 2026

- **Certified Public Accountant** – Carrie Troup, who's based in Santa Maria, analyzes, tracks, prepares, and presents on the District's budget and monthly expenses
- **Two Legal Counsel** teams:
 - Jena Acos and Paige Samblanet, with Santa Barbara-based Brownstein Hyatt Farber Schreck, both assist with writing or reviewing staff reports, agreements, ordinances, resolutions, etc.
 - Nate Kowalski, based in Cerritos for Atkinson, Andelson, Loya, Ruud & Romo, assists with negotiating union agreement every 4 years
- **Public Outreach** – Carpinteria-based Two Trumpets (Lea Boyd and Peter Dugré) identifies target demographics, prepares multimedia materials to reach them, and reports on exposure of outreach efforts (creates social media posts for Instagram and Facebook, compose press releases, publishes the District newsletter, "The Itching Post").
- **Engineer's Report Author**—Fairfield-based SCI Consulting conducts annual assessments and advises the Board on rate-setting through an annual engineering report that's presented in a public hearing
- **Actuary** – Foster & Foster Consulting Actuaries (formerly Total Compensation Systems, Inc.) based in Westlake Village, CA; authors the required annual actuarial reports for Governmental Accounting Standards Board (GASB) Accounting Standards 74 and 75 for retiree health benefits.
- **Government Auditor** – Moss, Levy & Hartzheim, located in Santa Maria; conducts the annual audit of the District.

Overview of the Mosquito and Vector Management District

Prepared by Board President Taber to accompany report to Board on SDLA conference in May 2026

History: “The Mosquito and Vector Management District and its predecessors have provided mosquito control in the Carpinteria Valley since 1936 and in the Goleta Valley since 1959. In 1993, the District became a full service vector management district that now provides the entire range of vector management services. The District annexed the remaining unincorporated portions of Santa Barbara County in 2002 and the City of Santa Barbara in 2004.

The Mosquito & Vector Management District is a tax supported agency and is governed by a Board of Trustees who are also residents of the District. Our board meetings are business meetings on behalf of the district’s covered areas.”

The Special District Leadership Academy Conference is a three-day training and networking event presented annually by the California Special District Association. There are three conferences offered this year. Final 2026 offering is September 13-16 in San Luis Obispo! You get a certificate for attending a specific program of talks your first time there.

The certificate-track program consists of four modules over two full days and one half day. Some highlights:

Module 1: Governance Foundations, discussed how to be an effective trustee:

Effective Trustees...

- ✓ Are prepared for meetings
- ✓ Are present at meetings
- ✓ Know our role: To set vision & policy, not to micromanage
- ✓ Are respectful; we engage in dialogue, not debate. Listening is key.
- ✓ Serve as a **team** and have **unity of purpose**; once dialogue concludes, all trustees get behind the outcome of the vote
- ✓ Always keep confidential matters confidential
- ✓ Have a clear understanding of the district we serve: Enabling act, mission, facilities, staff, history, services provided (*See separate handout*)

Module 2: Setting Direction/Community Leadership, discussed the “core board responsibility” of community engagement

Best practices for a Board:

- Require a formal Communication Program with a plan
- Ensure ongoing engagement with the community (*Two Trumpets*)
- Help understand the community and identify audiences (*Two Trumpets*)
- Approve district messages and documents
- Designate a spokesperson (General Manager)
- Approve communication policies

Module 3: Board’s Role in Finance and Fiscal Accountability

- Included **SB 827** training, which became mandatory for public agencies as of Jan. 1, 2026

Module 4: Board’s Role in Human Resources

The Board...

- Is a policy-maker
- Focuses on “What”, not “How”
- Knows HR policies but do not directly intervene in personnel issues

COSB - Budget vs Actual (Financial Status)

Period FY 2026-27 - Jul
Fund FD-4160 Mosquito & Vector
Mgt District

As of: 07/31/2026 (8% Elapsed)

Accounting Period: Closed

	06/30/2027	07/31/2026	06/30/2027	
Ledger Account	Fiscal Year Adjusted Budget	Year-To-Date Actual	Fiscal Year Variance	Fiscal Year Percentage of Budget
Revenues				
6000:Taxes	698,327.00	1,431.42	(696,895.58)	0.21%
6050:Fines, Forfeitures, and Penalties	80.00	0.23	(79.77)	0.29%
6150:Use of Money and Property	61,000.00	0.00	(61,000.00)	0.00%
6200:Intergovernmental Revenue-State	2,075.00	0.00	(2,075.00)	0.00%
6250:Intergovernmental Revenue-Other	22,375.00	0.00	(22,375.00)	0.00%
6300:Charges for Services	812,803.00	(551.75)	(813,354.75)	(0.07%)
6350:Miscellaneous Revenue	166,500.00	0.00	(166,500.00)	0.00%
Total Revenues	1,763,160.00	879.90	(1,762,280.10)	0.05%
Expenditures				
SC-6100 Regular Salaries	683,574.00	18,126.95	665,447.05	2.65%
SC-6210 Commissioner/Director/Trustee	9,600.00	0.00	9,600.00	0.00%
SC-6400 Retirement Contribution	250,000.00	5,758.18	244,241.82	2.30%
SC-6475 Retiree Medical OPEB	48,000.00	3,405.73	44,594.27	7.10%
SC-6500 FICA Contribution	45,000.00	1,120.12	43,879.88	2.49%
SC-6550 FICA/Medicare	9,000.00	261.96	8,738.04	2.91%
SC-6600 Health Insurance Contrib	199,000.00	11,303.32	187,696.68	5.68%
SC-6610 Life & Disability Insur	2,099.00	124.22	1,974.78	5.92%
SC-6700 Unemployment Ins Contribution	2,000.00	18.91	1,981.09	0.95%
SC-6900 Workers Compensation	23,000.00	21,534.00	1,466.00	93.63%
7010:Salaries and Employee Benefits	1,271,273.00	61,653.39	1,209,619.61	4.85%
SC-7005 Advertising/Marketing Expense	15,000.00	2,100.00	12,900.00	14.00%
SC-7030 Clothing and Personal	6,400.00	0.00	6,400.00	0.00%
SC-7050 Communications	7,000.00	1,069.73	5,930.27	15.28%
SC-7070 Household Supplies	3,800.00	319.00	3,481.00	8.39%
SC-7090 Insurance	28,000.00	26,426.47	1,573.53	94.38%
SC-7120 Equipment Maintenance	9,000.00	2,221.02	6,778.98	24.68%

COSB - Budget vs Actual (Financial Status)

Period FY 2026-27 - Jul
Fund FD-4160 Mosquito & Vector
Mgt District

As of: 07/31/2026 (8% Elapsed)

Accounting Period: Closed

	06/30/2027	07/31/2026	06/30/2027	
Ledger Account	Fiscal Year Adjusted Budget	Year-To-Date Actual	Fiscal Year Variance	Fiscal Year Percentage of Budget
SC-7121 Operating Supplies	8,400.00	405.64	7,994.36	4.83%
SC-7124 IT Software Maintenance	38,000.00	3,250.77	34,749.23	8.55%
SC-7200 Structure & Ground Maintenance	20,000.00	560.00	19,440.00	2.80%
SC-7430 Memberships	19,000.00	0.00	19,000.00	0.00%
SC-7450 Office Expense	5,330.00	275.30	5,054.70	5.17%
SC-7460 Professional & Special Service	75,000.00	0.00	75,000.00	0.00%
SC-7508 Legal Fees	300,000.00	27,506.91	272,493.09	9.17%
SC-7546 Administrative Expense	13,500.00	910.65	12,589.35	6.75%
SC-7650 Special Departmental Expense	80,000.00	4,500.00	75,500.00	5.63%
SC-7653 Training Fees & Supplies	5,000.00	0.00	5,000.00	0.00%
SC-7730 Transportation and Travel	7,000.00	59.54	6,940.46	0.85%
SC-7731 Gasoline-Oil-Fuel	12,800.00	954.51	11,845.49	7.46%
SC-7760 Utilities	5,500.00	558.74	4,941.26	10.16%
SC-7901 Oper Trf (Out)	12,354.00	0.00	12,354.00	0.00%
SC-8200 Structures&Struct Improvements	22,000.00	0.00	22,000.00	0.00%
7020:Services and Supplies	693,084.00	71,118.28	621,965.72	10.26%
Total Expenditures	1,964,357.00	132,771.67	1,831,585.33	6.76%
Other Financing Sources & Uses				
RC-5911 Oper Trf (In)-Other Funds	201,197.00	0.00	(201,197.00)	0.00%
6400:Other Financing Sources	201,197.00	0.00	(201,197.00)	0.00%
Total Other Financing Sources & Uses	201,197.00	0.00	(201,197.00)	0.00%
Net Financial Impact	0.00	(131,891.77)	(131,891.77)	0.00%

COSB - Cash Balances

Starting Date	7/1/2026
Ending Date	7/31/2026
Fund	FD-4160 Mosquito & Vector Mgt District
	FD-4161 SB Vector-Cap Asset Reserve

Fund	04/28/2026 Ending Balance
FD-4160 Mosquito & Vector Mgt District	\$2,617,713.55
FD-4161 SB Vector-Cap Asset Reserve	\$751,505.23
Total	\$3,369,218.78

Supplier Payments**Company**

Mosquito and Vector
Management District of
Santa Barbara County

Start Date

7/1/2026

End Date

7/31/2026

Payments

Transaction	Payment Date	Status	Supplier	Payment Type	Payment Amount
90552188	7/1/2026	Complete	QUILL CORP	Check	152.50
EFT-0039551	7/2/2026	Complete	SBCERS CONTRIBUTIONS	ACH	7,484.17
90552245	7/2/2026	Complete	CLARKE MOSQUITO CONTROL	Check	33,509.39
EFT-0039654	7/2/2026	Complete	GLADWELL GOVERNMENTAL SERVICES INC	ACH	450.00
EFT-0039655	7/2/2026	Complete	ZWORLD GIS	ACH	1,445.00
90552283	7/2/2026	Complete	TECHEASE COMPUTER SOLUTIONS LLC	Check	468.00
EFT-0039656	7/2/2026	Complete	MISSION LINEN SUPPLY	ACH	904.89
90552276	7/2/2026	Complete	ROCKWELL PRINTING	Check	123.28
EFT-0039679	7/6/2026	Complete	ALLIED ADMINISTRATORS FOR DELTA DENTAL	ACH	871.89
EFT-0039703	7/6/2026	Complete	BROWNSTEIN HYATT FARBER SCHRECK LLP	ACH	40,121.59
EFT-0039704	7/6/2026	Complete	CARRIE TROUP CPA	ACH	3,035.31
EFT-0039976	7/14/2026	Complete	MONTECITO WATER DISTRICT	ACH	80.47
EFT-0040310	7/14/2026	Complete	CIVICPLUS LLC	ACH	360.50
EFT-0040311	7/14/2026	Complete	TWO TRUMPETS COMMUNICATIONS LLC	ACH	2,100.00
90552970	7/14/2026	Complete	COASTAL LANDSCAPE	Check	560.00
EFT-0040312	7/14/2026	Complete	BIG GREEN CLEANING COMPANY	ACH	319.00
EFT-0040314	7/14/2026	Complete	EDUCATED CAR WASH	ACH	246.54
EFT-0040315	7/14/2026	Complete	MCCORMIX CORPORATION	ACH	954.51

Supplier Payments**Company**Mosquito and Vector
Management District of
Santa Barbara County**Start Date**

7/1/2026

End Date

7/31/2026

Payments

Transaction	Payment Date	Status	Supplier	Payment Type	Payment Amount
EFT-0040316	7/14/2026	Complete	TAKE FLIGHT AG SOLUTIONS	ACH	4,500.00
EFT-0040331	7/15/2026	Complete	SPECIAL DISTRICT RISK MANAGEMENT AUTHORITY	ACH	124.22
90553038	7/15/2026	Complete	VECTOR CONTROL JOINT POWERS AGENCY	Check	47,960.47
EFT-0040332	7/15/2026	Complete	CITY EMPLOYEES ASSOC LLC	ACH	36.00
EFT-0040470	7/17/2026	Complete	SBCERS CONTRIBUTIONS	ACH	6,517.48
90553418	7/23/2026	Complete	AFLAC	Check	424.24
EFT-0041023	7/23/2026	Complete	CALIFORNIA PUBLIC EMPLOYEES RETIREMENT SYSTEM	ACH	13,837.16
EFT-0041066	7/24/2026	Complete	MARBORG INDUSTRIES	ACH	175.98
EFT-0041332	7/27/2026	Complete	CITY EMPLOYEES ASSOC LLC	ACH	36.00
90553497	7/27/2026	Complete	SOUTHERN CALIFORNIA EDISON	Check	302.29
EFT-0041682	7/30/2026	Complete	BROWNSTEIN HYATT FARBER SCHRECK LLP	ACH	14,303.88
EFT-0041747	7/30/2026	Complete	US BANK CORPORATE PAYMENT SYSTEM	ACH	2,137.92

Account Number:
Unique ID:
MVM DISTRICT
Statement Date: 07-22-2026



Page 1 of 4



Corporate Account Summary

Previous Balance	\$3,200.78
Purchases and Other Charges	\$2,137.92
Cash Advances	\$0.00
Cash Advance Fees	\$0.00
Late Payment Charges	\$0.00
Credits	\$0.00 CR
Payments	\$3,200.78 PY

New Balance **\$2,137.92**

Disputed Amount \$0.00

Payment Information

Amount Due \$2,137.92

Payment due in accordance with your agreement with U.S. Bank.

QUESTIONS OR TO REPORT A LOST OR STOLEN CARD,
CALL CUSTOMER SERVICE: 1-800-344-5696

To overnight or courier a payment, please send to:
Corporate Payment Systems
3180 Rider Trail S, Department 790428
Earth City, MO 63045-1518

Corporate Account Activity

MVM DISTRICT
Account Number:
Unique ID:

Total Corporate Activity
\$3,200.78 CR

Post Date	Tran Date	Reference Number	Transaction Description	Amount
06-29	06-29	747982661800000000000018	PAYMENT - 006215 00000 A	3,200.78 PY

New Activity

VESNA IBARRA	Purchases	\$59.54	Total Activity	\$59.54
Account Number:	Cash Advances	\$0.00		
Unique ID:	Cash Advance Fees	\$0.00		
	Credits	\$0.00 CR		

Post Date	Tran Date	Reference Number	Transaction Description	Amount
06-26	06-25	24137466177600271317748	TST* BROOKS BURGERS PISMO BEACH CA	59.54

(transactions continued on next page)

☒ Payment may be made electronically or by check made payable to Corporate Payment Systems.

CORPORATE PAYMENT SYSTEMS
P.O. BOX 6343
FARGO, ND 58125-6343

Account Number:
Unique ID:
Amount Due: \$2,137.92

Amount Enclosed \$

If paying by check, include coupon with payment to address below.

CORPORATE PAYMENT SYSTEMS
P.O. BOX 790428
ST. LOUIS, MO 63179-0428

000021821 TUSB05DD072326257819 01 01000000 002674 002



MVM DISTRICT
ATTN BRIAN CABRERA
PO BOX 1389
2450 LILLIE AVE
SUMMERLAND CA 93067-1389



Account Number:
Unique ID:
Statement Date: 07-22-2026

New Activity cont

JESSICA E SPRIGG	Purchases	\$298.58	Total Activity	\$298.58
Account Number:	Cash Advances	\$0.00		
Unique ID:	Cash Advances Fees	\$0.00		
	Credits	\$0.00 CR		

Post Date	Tran Date	Reference Number	Transaction Description	Amount
06-29	06-26	24164076177741665460869	FEDEX94092948 800-4633339 TN	275.30
07-10	07-08	24231686190815928431921	ALBERTSONS #0355 CARPINTERIA CA	5.19
07-17	07-16	24692166197402988309079	VERIZONWRLSS*RTCCR VB 800-922-0204 FL	18.09

SEAN FEKETE	Purchases	\$106.54	Total Activity	\$106.54
Account Number:	Cash Advances	\$0.00		
Unique ID:	Cash Advances Fees	\$0.00		
	Credits	\$0.00 CR		

Post Date	Tran Date	Reference Number	Transaction Description	Amount
06-23	06-22	24765016174796709095875	MINER'S ACE HARDWARE GOLETA CA	26.07
07-13	07-10	24431066192465454418313	HOME IMPROVEMENT CENTER SANTA BARBARA CA	49.32
07-20	07-17	24801976199826322551731	CARPINTERIA VALLEY LUMBE CARPINTERIA CA	31.15

ROBBY R SHARP	Purchases	\$470.99	Total Activity	\$470.99
Account Number:	Cash Advances	\$0.00		
Unique ID:	Cash Advances Fees	\$0.00		
	Credits	\$0.00 CR		

Post Date	Tran Date	Reference Number	Transaction Description	Amount
07-16	07-14	24231686196823074052396	SMART AND FINAL 391 SANTA BARBARA CA	152.57
07-20	07-17	24692166199404726094961	JIFFY LUBE #1257 GOLETA CA	177.08
07-21	07-20	24231686202829725473727	SMART AND FINAL 391 SANTA BARBARA CA	141.34

BRIAN J CABRERA	Purchases	\$1,202.27	Total Activity	\$1,202.27
Account Number:	Cash Advances	\$0.00		
Unique ID:	Cash Advances Fees	\$0.00		
	Credits	\$0.00 CR		

Post Date	Tran Date	Reference Number	Transaction Description	Amount
06-23	06-22	24011346173100117087364	ASSOCIATIO* CSDA CAREE NAYLOR.COM MD	225.00

(transactions continued on next page)

00021821 22447 0001-0002 DUS805DD072326257826 00 L 00002674 STINDSOME



Account Number:

Unique ID:

Statement Date: 07-22-2026



New Activity cont

06-23	06-22	24692166173402754796630	DROPBOX*KVMGNSSFZ915 DROPBOX.COM CA	720.00
07-07	07-06	24793386187001901989217	ADOBE INC 800-8336687 CA	29.99
07-14	07-13	24011346194100135289310	ZOOM.COM 888-799-9666 ZOOM.US CA	16.99
07-14	07-14	24204296195000804868225	MICROSOFT-G171524172 701-2817490 WA	44.10
07-21	07-20	24692166201407231284064	DROPBOX*N3XVX5C68V3S DROPBOX.COM CA	166.19
			Department: 00000	Total: \$2,137.92
			Division: 00000	Total: \$2,137.92

00021821 22448 0002-0002 DUSB050D072326257826 00 L 00002674 STNDSOME



00



Mosquito and Vector Management District of Santa Barbara County

Administrative Draft Integrated Mosquito and Vector Management Plan Special Coastal Procedures

prepared for

Mosquito and Vector Management District of Santa Barbara County¹

2450 Lillie Avenue
Summerland, California 93067
Contact: General Manager

prepared by

Rincon Consultants, Inc.
319 East Carrillo Street, Suite 105
Santa Barbara, California 93101

and

Tidal Influence
2539 East 7th Street
Long Beach, California 90804

August 2026

¹ This document was prepared at the direction of District counsel, Brownstein Hyatt Farber Schreck, LLP.

Table of Contents

1	Introduction.....	1
1.1	District and Integrated Mosquito and Vector Management Plan Background	1
1.2	Special Coastal Procedures Purpose and Need	2
1.3	Mosquito Life Cycle	2
1.4	Vector Regulation Summary.....	3
1.5	Aquatic Mosquito Habitats.....	5
2	Integrated Mosquito Management Program	11
2.1	Surveillance	11
2.2	Biochemical Controls.....	12
2.3	Public Health Emergency Declarations (Adulticide)	14
3	Non-Mosquito Vector Management.....	16
4	District Proposed Best Management Practices	17
4.1	Countywide General Best Management Practices.....	17
5	Special Coastal Procedures.....	19
5.1	Special Coastal Procedure BMPs.....	19
6	References	23
7	List of Preparers	25

Tables

Table 1	National Wetland Inventory Classification and Mosquito Habitat	9
Table 2	Product Options for Pre- and Post-Mosquito Larvae Treatments ¹	14

Figures

Figure 1	Mosquito Life Cycle	3
Figure 2	Santa Barbara County Western Enhanced Service Area Mosquito Habitat and Coastal ESHA	7
Figure 3	Santa Barbara County Eastern Enhanced Service Area and Mosquito Habitat and Coastal ESHA	8

Appendices

Appendix A	Integrated Vector Management is Critical for Protecting Public Health, Mosquito and Vector Control Association of California (2020)
Appendix B	State Water Resources Control Board Notice of Applicability and Pesticide Application Plan
Appendix C	Goleta Slough Ecosystem Biological Technical Report
	Attachment C.1 Goleta Slough Ecosystem Technical Appendix Photographs
	Attachment C.2 Natural Resources Regulatory Setting <i>(will be included in the Final Plan)</i>
Appendix D	Walking In the Marsh: Methods to Increase Safety and Reduce Impacts to Wildlife/Plants (USFWS)

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List of Acronyms and Abbreviations

Abbreviation	Term/Phrase/Name
BMP	Best Management Practice
BSS	Belding's Savannah sparrow (<i>Passerculus sandwichensis beldingi</i>), State Endangered
Bs	<i>Bacillus sphaericus</i> (mosquito larvicide bacterium)
Bti	<i>Bacillus thuringiensis israelensis</i> (mosquito larvicide bacterium)
CCBER	Cheadle Center for Biodiversity and Ecological Restoration
CCA	California Coastal Act
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CDPH	California Department of Public Health
CDPR	California Department of Pesticide Regulation
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
ESA	Endangered Species Act
ESHA	Environmentally Sensitive Habitat Area
FE	Federal Endangered
FP	State Fully Protected
FPT	Federally Proposed Threatened
FT	Federally Threatened
GP/CLUP	City of Goleta General Plan/Coastal Land Use Plan
GSD	Goleta Sanitary District
GSEMP	Goleta Slough Ecosystem Management Plan
GSMC	Goleta Slough Management Committee
GWSD	Goleta West Sanitary District
H&S Code	California Health and Safety Code
IMM	Integrated Mosquito Management
IPM	Integrated Pest Management
IMVMP/Plan	Integrated Mosquito and Vector Management Plan
LCP	Local Coastal Program
MBTA	Migratory Bird Treaty Act
MVCAC	Mosquito and Vector Control Association of California
NAVD	North American Vertical Datum
NMFS	National Marine Fisheries Service

Abbreviation	Term/Phrase/Name
NPDES	National Pollutant Discharge Elimination System
NWI	National Wetlands Inventory
PAP	Pesticide Application Plan
PHAER	Pesticide Hazard And Exposure Reduction
PVC	polyvinyl chloride
RWQCB	Regional Water Quality Control Board
SBA	Santa Barbara Airport
SBAS	Santa Barbara Audubon Society
SBBG	Santa Barbara Botanical Garden
The "County"	The County of Santa Barbara
SBCFCD	Santa Barbara County Flood Control District
SE	State Endangered
SoCalGas	Southern California Gas Company
SCP	Special Coastal Procedures
SSC	Species of Special Concern (CDFW)
SWPT	Southwestern pond turtle (<i>Actinemys pallida</i>), Federal Proposed Threatened/SSC
SWRCB	State Water Resources Control Board
TWG	Tidewater goby (<i>Eucyclogobius newberryi</i>), FE
UCSB	University of California, Santa Barbara
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
USFWS	United States Fish and Wildlife Service
VBDS	Vector-Borne Disease Section
WNV	West Nile virus

Mosquitoes and Larvicide-Related Species

Common Name/Term	Scientific Name
yellow fever mosquito	<i>Aedes aegypti</i>
Asian tiger mosquito	<i>Aedes albopictus</i>
Australian backyard mosquito	<i>Aedes notoscriptus</i>
California salt marsh mosquito	<i>Aedes squamiger</i>
black salt marsh mosquito	<i>Aedes taeniorhynchus</i>
floodwater mosquito	<i>Aedes washinoi</i>
Franciscan malaria mosquito	<i>Anopheles franciscanus</i>
western malaria mosquito	<i>Anopheles freeborni</i>
coastal malaria mosquito	<i>Anopheles hermsi</i>
No widely standardized common name	<i>Anopheles occidentalis</i>
woodland malaria mosquito	<i>Anopheles punctipennis</i>
tule mosquito	<i>Culex erythrothorax</i>

Common Name/Term	Scientific Name
No widely standardized common name	<i>Culiseta particeps</i>
southern house mosquito	<i>Culex quinquefasciatus</i>
banded foul water mosquito	<i>Culex stigmatosoma</i>
western encephalitis mosquito	<i>Culex tarsalis</i>
cool weather mosquito	<i>Culiseta incidens</i>
winter mosquito / large winter mosquito	<i>Culiseta inornata</i>
No widely standardized common name	<i>Culiseta particeps</i>
Bti/Mosquito larvicide bacterium	<i>Bacillus thuringiensis israelensis</i>
Bs/Mosquito larvicide bacterium	<i>Bacillus sphaericus</i>
spinosad-producing soil bacterium	<i>Saccharopolyspora spinosa</i>
mosquito fish	<i>Gambusia affinis</i>

Note that this document covers only the Special Coastal Procedures and countywide BMPs for voluntary public review. These sections may be reformatted, reorganized, or revised when incorporated into the countywide IMVMP. This document may also include notes to the public providing explanatory context for certain sections and what to expect in the overall IMVMP.

1 Introduction

The Mosquito and Vector Management District of Santa Barbara County (District) proposes a Countywide comprehensive Integrated Mosquito and Vector Management Plan (IMVMP or Plan), including the Special Coastal Procedures Section specific to sensitive areas in the coastal zone. The IMVMP will serve as a single reference document consolidating all District activities (including, but not limited to, surveillance, control methods, public education, environmental compliance, and emergency response) into one coordinated framework. The Plan is intended to give both the public and decision-makers a clear understanding of current practices, anticipated needs, District proposed Best Management Practices (BMPs) to implement in the future and the District's long-term strategy for protecting public health, while safeguarding the environment. This effort is intended to strengthen legal resilience, ensure regulatory compliance, and advance the District's mission to protect public health, safety, and welfare.

The IMVMP formalizes these practices to ensure continued compliance with public health mandates, environmental regulations, and evolving best practices. The IMVMP also establishes enforceable countywide BMPs and Special Coastal Procedures (SCPs) that avoid or minimize impacts to Environmentally Sensitive Habitat Area (ESHA), special-status species, and sensitive wetlands. This Special Coastal Procedures Section has been drafted using information obtained through pest management data collection, on-site observations, personnel interviews, and document reviews.

The Section will be incorporated into the IMVMP and undergo environmental review.

1.1 District and Integrated Mosquito and Vector Management Plan Background

The purpose of the District is to conduct surveillance, prevention, abatement, and control programs for mosquitoes and other vectors pursuant to its statutory authority under the California Health and Safety Code (H&S Code) to protect public health, safety, and welfare. The District directly interfaces with governments, special districts, homeowners' associations, and individual citizens to assist them in addressing their vector-related problems. The District provides mosquito abatement, rodent inspection and rodent mitigation advice, honeybee response, and yellow jacket control. It also routinely monitors the environment for vector-borne diseases, such as West Nile virus (WNV), Western Equine, and St. Louis Encephalitis viruses, as well as other public health threats. A structured planning process will enhance transparency for the community and provide a clear framework for prioritizing resources, evaluating outcomes, and guiding future activities in compliance with regulations. This comprehensive review of the District's services is to ensure programs remain effective, science-based, environmentally responsible, and responsive to evolving public health needs and regulatory requirements.

The IMVMP is based on Integrated Mosquito Management (IMM) principles established and implemented by the California Department of Public Health (CDPH), California Department of Pesticide Regulation (CDPR), and over 50 local Mosquito and Vector Control Districts in California under the Mosquito and Vector Control Association of California (MVCAC). IMM is a science-based, multi-component public health approach used by mosquito and vector control districts to prevent and manage mosquito populations while minimizing risks to human health, wildlife, and the environment. IMM emphasizes surveillance-based decision-making, larval source management, biological controls, least-toxic chemical tools, and continuous evaluation to minimize impacts to non-target organisms and sensitive habitats. The use of multiple tools and strategies is essential, as no single method is sufficient to manage vector populations across diverse environmental settings (MVCAC 2020). MVCAC statewide guidance is included under Appendix A. The District specific IMM is further discussed in Section 2.

1.2 Special Coastal Procedures Purpose and Need

Wetlands present a dual challenge: they are ecologically sensitive environments and highly productive mosquito habitats. Seasonal flooding, freshwater impoundment, stagnant water sources, and decreased water flow and drainage can generate large populations of mosquitoes, including species that serve as vectors of human disease.

The District addresses this challenge through targeted, ecologically conscious practices that have evolved through collaboration with regulatory agencies and land managers. By focusing on larval control (instead of broad pesticide use targeting adult mosquitoes), using biological agents, and employing trained biologists to oversee operations, the District has succeeded in controlling mosquitoes without significant harm to non-target species or habitats. This integrated approach is formalized within this Special Coastal Procedures Section of the IMVMP to ensure that coastal mosquito abatement activities remain transparent, science-based, and in compliance with applicable regulations.

1.3 Mosquito Life Cycle

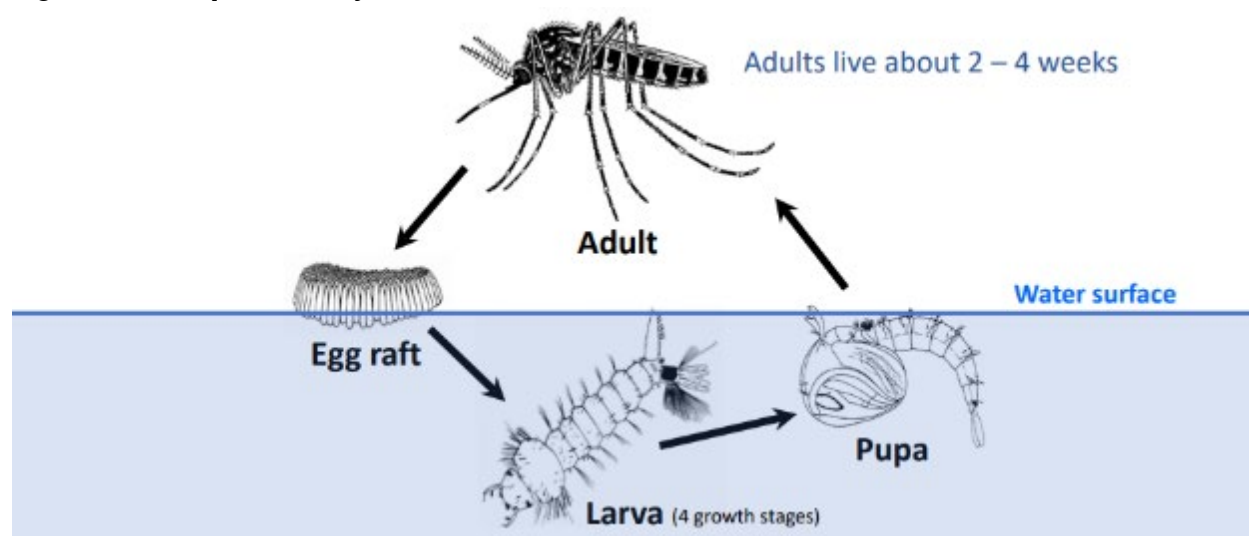
Although few environmental benefits have been documented for mosquitoes, their harms are well-known. Most female mosquitoes feed on the blood of one or more species to fuel egg development. Many take repeated blood meals, enabling them to vector pathogens between animals, including humans. This promotes epidemics and epizootics of various diseases caused by viruses, protists, nematodes, and other pathogens, causing morbidity and mortality in humans, domestic animals, and wildlife. Examples include viruses that can cause encephalitis in humans, horses, birds and other animals, protists that cause avian and human malaria, and nematodes that cause diseases of the cardiac and lymphatic systems in wildlife and humans (Lawler 2017).

Mosquitoes have four life stages: egg, larva, pupa, and adult. Immature mosquito stages need standing water to complete their life cycle. Females lay their eggs singly or in clusters (called rafts), depending on the species. The eggs float on the surface of still or slow-moving water and hatch into larvae within a few days. The larval stage is also aquatic and includes four growth stages called instars, during which larvae feed on organic matter and microorganisms and molt between each instar stage as they grow. After the fourth instar, the mosquito enters the pupal stage, a non-feeding but active phase. Finally, the adult mosquito emerges from the pupa, where it can feed, mate, and continue the life cycle. Adults typically live about two to four weeks. Under ideal conditions, such as warm temperatures and abundant water sources, mosquitoes can develop from egg to adult in seven days (District 2026). Figure 1 shows an example of a mosquito life cycle.²

Fifty-two species of mosquitoes occur in California, and more specifically, approximately 26 species of mosquitoes occur in Santa Barbara County (also referred to as the “County”). Of these 26 species, seven are most common:

- Disease vectors: western encephalitis mosquito (*Culex tarsalis*), southern house mosquito (*Culex quinquefasciatus*), coastal malaria mosquito (*Anopheles hermsi*), and winter mosquito (*Culiseta inornata*), and tule mosquito (*Culex erythrothorax*)
- Nuisance species: black salt marsh mosquito (*Aedes taeniorhynchus*) and floodwater mosquito (*Aedes washinoi*) are notoriously aggressive day-biters that swarm humans but are not primary disease vectors. The southern house, tule, and winter mosquitoes are aggressive biters in addition to carrying viruses.

² Figure 1 illustrates one example of a mosquito life cycle and is provided for informational purposes only, as breeding specifics may vary among mosquito species (Mullen and Durden 2009).

Figure 1 Mosquito Life Cycle

Source: District 2026

Mosquito-Borne Illness

Hot weather accelerates the life cycle of mosquitoes so that mosquito larvae become adults much faster, which can lead to an increase in the abundance of adult mosquitoes in an area. An increase in the abundance of mosquitoes that are potential vectors for disease can increase the public's risk of contracting diseases.

WNV is a disease of concern for the District and is primarily vectored by the *Culex* species. WNV becomes most actively vectored during the hotter months of the year. The reservoir for WNV is wild birds, which are in great abundance in and around the County's wetlands (e.g., Goleta Slough). Female encephalitis mosquitoes are the major vector of WNV and St. Louis Encephalitis. They readily feed on birds, as well as mammals, including humans. The presence of numerous wild birds and large populations of *Culex* mosquitoes near humans, plus hot summer weather, combine to create situations in which there is a higher risk of WNV transmission.

Invasive Vectors and Nuisance Mosquitoes

Two invasive (non-native) mosquito species, yellow fever mosquito (*Aedes aegypti*) and Asian tiger mosquito (*Aedes albopictus*) that can carry and transmit Zika, Dengue, Chikungunya, and yellow fever viruses to humans, have spread to numerous California cities and there is the potential for them to become established in the County. The District deploys specially designed traps at various locations to monitor for the presence of yellow fever mosquito and Asian tiger mosquito.

Several specimens of adult Australian backyard mosquito (*Aedes notoscriptus*), a non-native, aggressive daytime-biting mosquito, were found in March 2026 in a sample from a residence in the Westside neighborhood of Santa Barbara (District 2026). In Australia, this species is a primary vector of dog heartworm.

1.4 Vector Regulation Summary

The CDPH's Vector-Borne Disease Section (VBDS) protects the health and well-being of Californians from diseases transmitted to people from insects and other animals. VBDS conducts prevention, surveillance, and control of WNV, Lyme disease, plague, hantavirus, and other vector-borne diseases throughout California. CDPH's VBDS declares statewide alert levels, provides testing and epidemiological analysis, issues public health advisories, and can deploy state resources (stockpiled pesticides, technical experts,

mobile labs). CDPH also coordinates with the Centers for Disease Control and Prevention if federal assistance is needed.

The County Health Officer is the legal authority for declaring local health emergencies and issuing health orders (e.g., mandatory mosquito abatement on private property). The department coordinates all local agencies, manages public communication, investigates human cases, and authorizes emergency vector control actions.

Aside from the District's regulatory authority to monitor and control vectors, individual activities are subject to applicable federal, state, and local environmental regulations, such as the federal and California Endangered Species Act, Migratory Bird Treaty Act, Clean Water Act and Rivers and Harbors Act, Statewide General National Pollutant Discharge Elimination System (NPDES) Permit for Vector Control, California Fish and Game Code, Porter-Cologne Water Quality Control Act, and others. Refer to IMVMP Appendix C Attachment C.2, Natural Resource Regulatory Setting, for details. *(Public review note: Appendix C, Attachment C.2 will be included in the Final Plan).*

State Water Resources Control Board NPDES Vector Control Permit

Under the requirements of the Porter-Cologne Act and the federal Clean Water Act, the State Water Resources Control Board (SWRCB) is delegated authority for the protection of surface and groundwater and issues a General NPDES Permit for vector control discharges under CWA Section 402. The District's NPDES permit (Order 2016-0039-DWQ, General Permit No. 990004) is part of Porter-Cologne Act compliance. The District is enrolled as a Coalition Member of the Statewide NPDES which authorizes use of specific larvicides (e.g., those containing *Bacillus thuringiensis israelensis* [Bti], *B. sphaericus* [Bs], spinosad, methoprene, oils) in wetlands provided strict monitoring and reporting conditions are met. The District submits annual reports to the SWRCB regarding pesticide use in compliance with General Permit No. 990004. The District's Pesticide Application Plan (PAP) (Appendix B) specifies the use and discharge of biological and residual pesticides, including larvicides and adulticides within federal Waters of the United States.

In the County, larvicide applications must meet the Water Quality Control Plan for the Central Coastal Basin Plan standards (e.g., for toxicity or residues in water) (Regional Water Quality Control Board [RWQCB] 2024). In 2014 state regulators significantly relaxed monitoring requirements after determining that mosquito larvicide use had no significant effect on water quality or beneficial uses in treated waters (SWRCB 2014).

Federal Insecticide, Fungicide, and Rodenticide Act

The Federal Insecticide, Fungicide, and Rodenticide Act Governs pesticide registration, labelling, and use. All larvicides used (Bti, Bs, methoprene, spinosad, etc.) must be United States Environmental Protection Agency (USEPA) registered and applied strictly according to USEPA-approved label instructions that prevent "unreasonable adverse effects" on people or the environment. The USEPA evaluates extensive toxicity data to ensure that when pesticides are used as directed, they will not pose significant harm to non-target species or ecosystems. Under the Federal Insecticide, Fungicide, and Rodenticide Act, only certified vector control technicians may apply restricted-use pesticides, and inert ingredients are also assessed as part of product formulations.

California Health and Safety Code Sections 2000–2093

These sections explicitly mandate that mosquito and vector control districts are authorized to identify and abate public nuisances, including mosquito outbreaks, and to take necessary action to protect public health. District actions such as surveillance, treatment, and elimination of breeding sites are not just permitted—they are mandated actions identified by the California legislature in controlling vector threats and safeguarding community well-being (H&S Code Section 2001[c]). As such, once a public nuisance is confirmed, the District has a mandatory duty to abate the nuisance (H&S Code Sections 2040–41, 2060).

California Department of Public Health

The District's pesticide use, including the registration and continuing education of state-certified field personnel, is reviewed and approved by the CDPH through a formal Cooperative Agreement that is reviewed and renewed annually (CDPH and District 2025).

California Pesticide Regulatory Program

CDPR regulates the sale and use of pesticides with oversight by every county's Agricultural Commissioner's Office. CDPR is responsible for reviewing the toxic effects of pesticide formulations and determining whether a pesticide is suitable for use in California through a rigorous registration process. For example, product labels may contain such measures as restrictions for applications on certain land and water uses and under certain weather (i.e., rain, wind speed) parameters.

All larvicides must be registered in California, and vector control agencies operate under a Cooperative Agreement with CDPH. Technicians are state certified by CDPH. The District submits monthly pesticide use reports to the County Agricultural Commissioner's Office, and these uses are tracked. In addition to the user's reliance on the label instructions to protect non-target species, pesticide risks to endangered species within California are evaluated by an interagency network that includes CDPR, the California Department of Fish and Wildlife (CDFW) Pesticide Investigation Unit, California Department of Food and Agriculture, the Pesticide Registration and Evaluation Committee, and County Agricultural Commissioners, as well as the USEPA and United State Fish and Wildlife Service (USFWS).

County Agricultural Commissioner

The County Agricultural Commissioner regulates the sale and use of pesticides and issues use permits for applications of pesticides that are deemed as restricted materials by CDPR. The County Agricultural Commissioner collects pesticide use reports from the District and other users. The County Agricultural Commissioner also investigates incidents, illnesses, complaints, and conducts annual inspections of pesticide users.

Integrated Public Health Response System

In the event of a public health emergency, the County of Santa Barbara Public Health Department and CDPH function as a coordinated two-tier response system:

- CDPH provides the scientific backbone: laboratory testing, statewide surveillance data, technical guidelines, and resource support.
- County Public Health provides local command: disease investigation, public communication, emergency declarations, and coordination with District.

The District provides operational capacity: the boots-on-the-ground mosquito and vector control expertise and infrastructure in addition to educating the public on these issues.

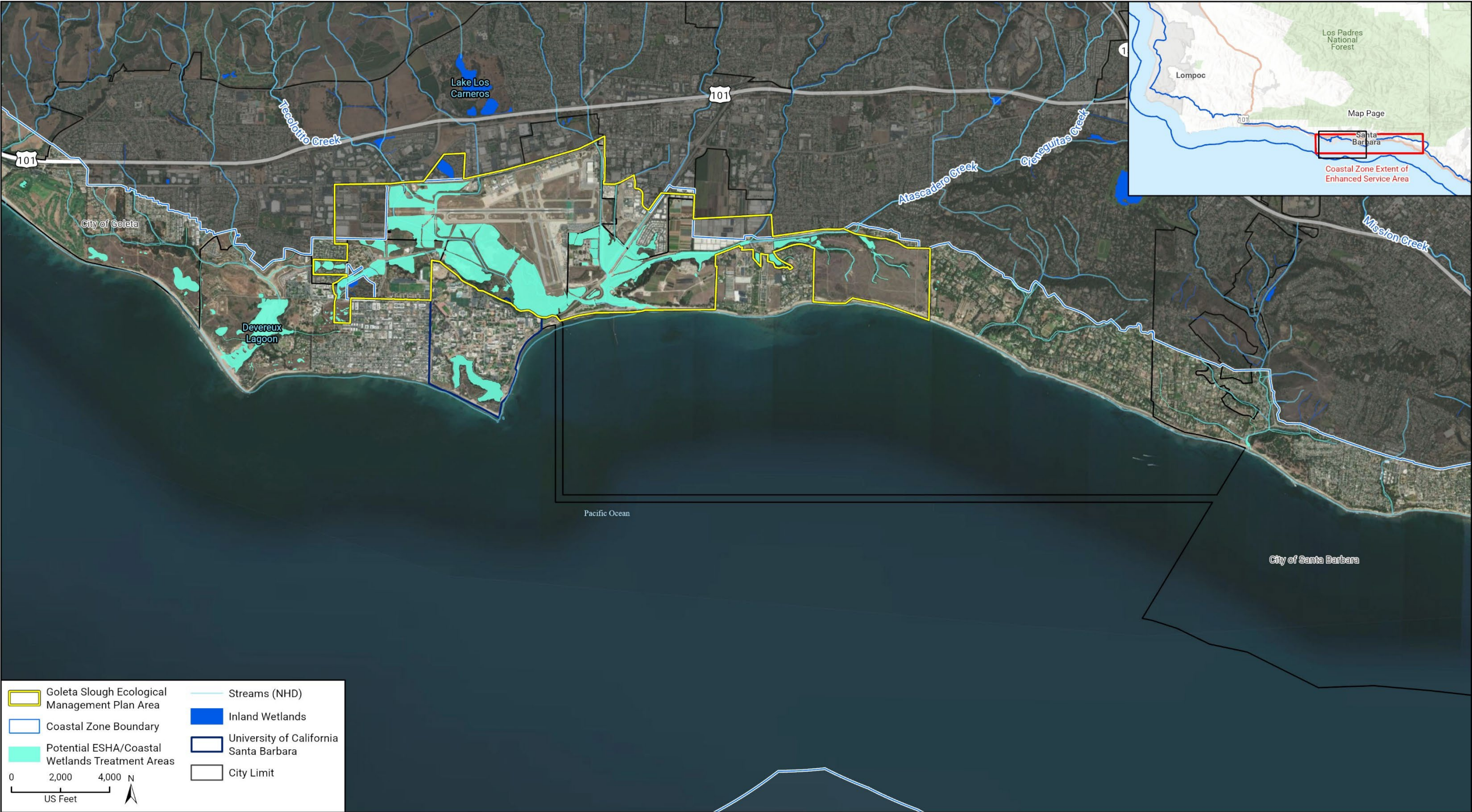
1.5 Aquatic Mosquito Habitats

The National Wetland Inventory³ (NWI; USFWS 2026) maps wetland habitats throughout the United States, including those in the District's Enhanced Service Area (refer to Figure 2 and Figure 3). While any area that holds water for more than 96 hours (four days) can produce mosquitoes (CDPH 2023), the NWI maps illustrate locations of the largest sites in the Enhanced Service Area that may require treatment. Table 1 lists each of the wetland habitat types mapped in the Enhanced Service Area, along with representative locations, habitat descriptions, and potential for nuisance and vector mosquitoes.

³ Deepwater tidal and freshwater creeks are excluded since only standing water receives treatment.

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Figure 2 Santa Barbara County Western Enhanced Service Area Mosquito Habitat and Coastal ESHA



Imagery provided by Esri and its licensors © 2026. Map created by Rincon Consultants, Inc., 2026.
Additional sources provided by USGS, 2025

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County Coastal ESHA Page 1

Figure 3 Santa Barbara County Eastern Enhanced Service Area and Mosquito Habitat and Coastal ESHA



Table 1 National Wetland Inventory Classification and Mosquito Habitat

Habitat/NWI Classification ¹	General and Mosquito Habitat Description	Example(s)	Nuisance Species	Vector Species
Brackish marsh, tidal marsh and channels, coastal salt marsh NWI: Estuarine and Marine Wetlands	Vegetated wetland area subject to tidal action. Includes both salt and brackish marshes. Includes tidal channels that carry water into and away from the marsh during the tidal cycle. In California coastal wetlands and estuaries, seasonal mosquito dynamics are driven less by temperature alone and more by hydrology, salinity, and tidal influence. Winter conditions are characterized by tidal flushing and cool temperatures that suppress mosquito breeding, whereas potential mosquito production is limited to localized, shallow, poorly flushed habitats during warmer summer months, with fully tidal areas remaining non-producing year-round. During winter, mosquito populations in estuarine wetlands are dormant or suppressed. Dormant eggs laid in fall do not hatch until warmer, stable conditions return.	Santa Barbara Airport (SBA): Basins A-M, Devereux Slough, Carpinteria Salt Marsh	California salt marsh mosquito (<i>Aedes squamiger</i>) black salt marsh mosquito (<i>Aedes taeniorhynchus</i>) cool weather mosquito (<i>Culiseta incidens</i>)	western encephalitis mosquito (<i>Culex tarsalis</i>)
Lagoon NWI Estuarine and Marine Deep Water	Area behind the mouth of a river or stream that has been closed off by sand or other material, but is at least sporadically subject to tidal action.	Andrée Clark Bird Refuge, Goleta Slough seasonally	cool weather mosquito tule mosquito (<i>Culex erythrothorax</i>) winter mosquito (<i>Culiseta inornata</i>)	western encephalitis mosquito
Riparian Corridor NWI Freshwater Forested/Shrub Wetland	The trees, shrubs and other vegetation that grow along the edges of creeks and rivers. Mosquito control activities within creeks focus on areas of slow-moving or isolated water, including side channels and pools that become disconnected from flowing water, residual puddles that persist as streamflows recede, dense emergent vegetation such as tule stands, and plunge pools associated with culverts, fish ladders, and other structures.	Atascadero, Tecolote, Old San Jose Creek, and San Pedro Creek	floodwater mosquito (<i>Aedes washinoi</i>) Franciscan malaria mosquito (<i>Anopheles franciscanus</i>) <i>Anopheles occidentalis</i> woodland malaria mosquito (<i>Anopheles punctipennis</i>)	
Freshwater Marsh NWI: Freshwater Emergent Wetland	Freshwater areas that support reeds, rushes, and other vegetation typical of wetlands.	SBA Tule Pond (Area J), Storke Wetland, Area R, Hollister sources (Area S)	floodwater mosquito tule mosquito	western malaria mosquito (<i>Anopheles freeborni</i>) western encephalitis mosquito coastal malaria mosquito (<i>Anopheles hermsi</i>)
Seasonal Wetlands/Marsh NWI: Freshwater Emergent Wetland	Areas that support standing water for part of the year, but dry out during the summer months.	Duck Pond (Basin K), SBA Basins I,R, L, and M	floodwater mosquito California salt marsh mosquito cool weather mosquito	western encephalitis mosquito southern house mosquito (<i>Culex quinquefasciatus</i>)
Vernal Pools NWI: Freshwater Emergent Wetland	Areas that support standing water for part of the year, but dry out during the summer months. Typically exhibit less water depth and wetted duration than seasonal wetlands/marsh.	More Mesa, Del Sol Vernal Pool Preserve	California salt marsh mosquito floodwater mosquito <i>Culex</i> spp. <i>Culiseta</i> spp.	
Water and Wastewater Management Facilities NWI Freshwater Pond	Constructed channels, ponds and other facilities designed for the management of water or wastewater. Includes flood control channels, agricultural and roadside ditches, stormwater retention basins, treatment ponds, waste ponds, wastewater treatment facilities, septic systems, and all associated facilities.	Goleta Sanitary District	cool weather mosquito <i>Culiseta particeps</i> tule mosquito	western encephalitis mosquito banded foul water mosquito (<i>Culex stigmatosoma</i>)
Ponds and Lakes	May include natural or artificial bottoms.	Parker Wetlands, Lake Los Carneros	floodwater mosquito	western encephalitis mosquito southern house mosquito tule mosquito Coastal malaria mosquito
Other. Agricultural areas, storm drains, urban Interface and infrastructure	Ditches, irrigated areas, urban run-off and sources such as buckets or tires, providing a variety of mosquito habitat sources.	Patterson agricultural block	Franciscan malaria mosquito	western encephalitis mosquito southern house mosquito banded foul water mosquito
NWI = National Wetland Inventory; SBA = Santa Barbara Airport Source: California Department of Public Health, <i>Best Management Practices for Mosquito Control in California</i> , 2023, Appendix C: Typical Larval Habitats of California Mosquitoes, National Wetland Inventory (USFWS 2026)				

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2 Integrated Mosquito Management Program

The District relies on surveillance, biological controls, and biological larvicides to manage mosquito populations. Physical habitat alteration, mechanized vegetation removal,⁴ hydrological modification, and routine adulticide applications are not proposed. Surveillance data, including trap and sample counts, species composition, developmental stage, habitat conditions, and disease risk, guide all management decisions.

Surveillance, larvicide treatments, and biological controls are the main methods used by the District to control mosquito populations as guided by IMM⁵ principles under CDPH's 2023 *Best Management Practices for Mosquito Control in California*. All treatment materials are applied by trained and certified technicians, and larvicides are applied only according to product label directions. Technicians must have Public Health Vector Control Technician certification from CDPH, which is maintained through continued education (MVCAC 2026).

Materials used to target the mosquito larval stage are used in strict accordance with the product's label directions. Products are formulated as granular pellets, tablets, or briquettes and are applied in dry form. The District employs various treatment methods and larvicides based on factors such as the mosquito species, the development stages of the larvae present, habitat conditions, presence or absence of water, and costs. The materials used are considered a safer alternative to conventional insecticides, which may have greater impacts on a broader range of non-target organisms, as discussed further below.

2.1 Surveillance

Surveillance operations are essential to determine the species present, the population level involved, and the potential risk of disease transmission. Surveys also serve as a valuable tool in evaluating control operations. Mosquito surveillance includes conducting both larval and adult surveys. Larval surveys are important because they determine where mosquitoes are breeding and what life cycle stage they are in, providing the information necessary to manage or eliminate mosquitoes at the source. Larval surveys involve visits to documented and suspected breeding sites that are inspected periodically throughout the mosquito season. Water samples are collected using a dipper, which is a handheld dip stick with a small sample cup attached at the end. The dipper allows field technicians to easily check water for the presence and abundance of larvae. In areas where mosquito control is conducted, random larval sampling is performed to check the effectiveness of treatments. In naturally occurring habitats, breeding sites are reached through established access points and foot paths or the least impactful/less sloped route, as feasible.

Adult mosquito surveys are conducted by collecting mosquitoes using traps. The District uses the BG-Sentinel mosquito trap (Appendix C Attachment C.1, Photograph 15) to conduct surveillance for invasive, non-native yellow fever mosquitoes and Asian tiger mosquitoes that are established in many California counties. These mosquitoes can carry and transmit Zika, Dengue, Chikungunya, and yellow fever viruses to humans. These non-native mosquitoes are aggressive daytime biters and live in close association with humans. Therefore, BG-Sentinel mosquito traps are placed in urbanized settings rather than near the wetland habitats that most native mosquito species prefer. BG-Sentinel traps require electricity from an outlet or an automotive battery and are baited with lures containing compounds found on human skin.

In natural areas, the District uses solid carbon dioxide (dry ice) baited Encephalitis Virus Surveillance traps to monitor native mosquito populations that can carry WNV, but may occasionally use them to

⁴ Mechanical refers to ground disturbance affecting root systems (e.g., grubbing). Minor trimming of shrubs, small branches, or fallen tree limbs for access may be completed using hand tools for access.

⁵ Term used under the CDPH's 2023 *Best Management Practices for Mosquito Control in California*. Also referred to as Integrated Vector Management, or Integrated Pest Management

monitor for invasive *Aedes* species as well (District 2026). A small battery-powered fan sits below the dry ice source. When a mosquito follows the scent plume and approaches the trap, the fan creates a gentle downdraft, sucking the mosquito into a fine mesh collection net. These traps are typically placed at ecological margins such as tree lines or dense vegetation about 3 to 5 feet off the ground, and are often left out overnight to capture peak mosquito activity periods. Carbon dioxide-baited traps can be set up in ESHA trees and large shrubs by technicians on foot without equipment without affecting vegetation (Appendix C Attachment C.1, Photograph 16).

2.2 Biochemical Controls

Each fall, applications of extended-release larvicide briquettes are scheduled for low-lying areas prone to flooding during the winter months. These “pre-treatments” are conducted before the depressions are flooded by precipitation events. Pre-treatments are preferred for larger basins that experience seasonal wet/dry cycles from rain events, especially where subsequent emergent vegetation growth hinders effective placement of post-flooding larvicides. Flooding activates pre-applied larvicides upon wetting and provides immediate control of hatching mosquito larvae. Pre-treatments eliminate the need for technicians to enter the area again for upward of 180 days due to the briquettes’ extended-release formulation. Pre-treatment larvicides can also be used after a site is flooded to extend the effectiveness of treatments. Table 2 shows the various product options for pre- and post-mosquito larvae treatment and is further discussed below.

Larvicide Deployment

All larvicides are deployed by District technicians with a battery-powered backpack and gas-powered applicators. The battery-powered applicators are the preferred choice, but gas-powered applicators are used when needed. Larvicide is currently deployed without the use of vehicles or ground disturbance, as discussed below:

- **Granules.** One of the most common methods of biological control involves the use of a horn seeder to apply Bti or Bs granules (or VectoBac granules). The horn seeder consists of a vinyl shoulder bag worn by the field technician to hold the granules, with an attached polyvinyl chloride (PVC) pipe used to disperse the material (Appendix C, Attachment C.1, Photograph 6). This method allows technicians to manually apply granules on foot, typically in easily accessible areas, with an effective dispersal range of approximately 15 to 25 feet from the technician depending on wind direction. Field technicians must periodically refill bags with granules. The horn seeder has no mechanical components and relies entirely on manual operation. Another method for deploying VectoBac granules involves the use of a backpack-mounted mechanical applicator, worn by the field technician, which can hold a larger volume and disperse granules over a greater distance than a horn seeder.

Briquettes. Briquette treatments involve deploying briquettes by hand from a bucket (Appendix C Attachment C.1, Photograph 3). Field technicians carry buckets filled with briquettes and walk along established transects, placing briquettes approximately every 10 feet. Briquettes are applied in both wet and dry areas, as appropriate. Once a bucket is empty, technicians return to reload and then resume application along the transects. In addition to hand placement, briquettes may be deployed using a slingshot or a long PVC pipe (approximately 6 to 7 feet in length), referred to as a DC jab pipe. Using the PVC pipe method, two to three briquettes are placed at the end of the pipe and tossed into the treatment area, allowing for more efficient placement. The PVC pipe or slingshot deployment methods are most effective in areas with dense vegetation and limited or no foot access (e.g., thick cattail or tule ponds). Deployment involves no heavy equipment and relies entirely on manual operation or a gasoline or battery-powered backpack applicator.

Larvicide Products

The District uses several brands of biologically based control agents to perform both pre- and post-treatments. These larvicides specifically target each mosquito species' aquatic larval stage. While details vary among the larvicide products used, the District's current PAP (Appendix B) is provided as an example of criteria considered by vector control staff prior to every mosquito chemical control treatment.

The following larvicide active ingredients are used by the District:

- **Methoprene.** Altosid is one of the biochemical based brands that is used by the District, and methoprene is the active ingredient in this product. Methoprene is a hormone-based insect growth regulator that is commonly used to control a variety of arthropod pests. So as not to impact marine invertebrates, products containing methoprene are not proposed to be used in tidal wetlands during typical surveillance and treatment activities.
- **Spinosad.** Natular is a brand used as an alternative to Altosid which can be used in marine settings. The active ingredient in Natular is a naturally derived insecticide produced by the fermentation of the soil bacterium *Saccharopolyspora spinosa* that is not toxic to mammals and is not carcinogenic, genotoxic, or a reproductive or developmental toxin. Natular products come in a variety of forms and the tablet form is the best alternative to Altosid. Natular is organic as verified by the Organic Materials Review Institute.
- **Bti and Bs.** VectoBac and Fourstar products are also an alternative to larvicides containing methoprene and contain the bacteria *Bacillus thuringiensis israelensis* (Bti) and *Bacillus sphaericus* (Bs) which act as larvicides. Fourstar is more effective in shallower water, whereas VectoBac is more effective for short term control in water depths greater than 2 feet. Both are used for post-treatment (after flooding). Post-treatment applications of products containing Bti or Bs are useful for quick suppression of mosquito larvae populations in the water.

Pesticides used in California must be registered with CDPR. CDPR maintains an extensive registered products database, including label information, active ingredients, and registration status (CDPR 2026). Mosquito control products can be differentiated based on their selectivity, environmental fate, and potential for non-target impacts. The color ranking under Table 2 is from the City of Santa Barbara's Pesticide Hazard and Exposure Reduction (PHAER)⁶ zone model updated Tiered Materials List, which divides approved mosquito control products into three color categories (green, yellow, red). This risk-based IPM decision framework prioritizes the least-toxic and most target-specific mosquito control products (green-ranking products) while reserving higher-risk pesticides for situations where lower-risk alternatives are ineffective (yellow and red-ranking products). The ranking system classifies methoprene-based products as yellow, while bacterial larvicides based on Bti and Bs are ranked green (City of Santa Barbara 2023, 2006).

⁶ A PHAER-based Tiered Materials List is a pesticide ranking system that allows applicators to clearly and simply evaluate the short and long term hazards of a material (City of Santa Barbara 2006).

Table 2 Product Options for Pre- and Post-Mosquito Larvae Treatments¹

Product	Active Ingredient	EPA Regulation Number	Signal Word	Selectivity, Coastal limitations
Pre-Mosquito Larvae Treatments				
Altosid Briquettes	methoprene	2724-375	caution	Insect-hormone pathway, no tidal marsh use
Altosid Pellets	methoprene	2724-448	caution	Insect-hormone pathway, no tidal marsh use
Altosid XR	methoprene	2724-421	caution	Insect-hormone pathway, no tidal marsh use
Altosid P35	methoprene	8945 9-95	caution	Insect-hormone pathway, no tidal marsh use
Fourstar Briquettes	Bti and Bs	83362-3	caution	Highly selective, approved tidal marsh use
Fourstar CRG Granules	Bti and Bs	85685-4	caution	Highly selective. approved tidal marsh use
Natular T30	spinosad	8329-85	caution	Short persistence, limited, site-specific
Natular XRT	spinosad	8329-84	caution	Short persistence, limited, site-specific
Post-Mosquito Larvae Treatments				
VectoBac G	Bti	73049-10	caution	Highly mosquito-specific, approved tidal marsh use
VectoLex FG	Bs	73049-20	caution	Highly mosquito-specific, approved tidal use
VectoMax WSP	Bs	73049-429	caution	Highly mosquito-specific, approved tidal use

Bs = *Bacillus sphaericus*; Bti = *Bacillus thuringiensis israelensis*

¹ In the event of emergency outbreaks that include the active spread of vector-borne diseases, including those defined under California Government Code Section 8558, the District may have to use products not listed above. These products will be determined at the time of emergency and will be used in accordance with all applicable state and federal laws.

Information on each product can be found on the webpage "Registered Products in California" (CDPR 2026).

2.3 Public Health Emergency Declarations (Adulticide)

IMM programs initiate adult mosquito control when public health emergency action levels or thresholds are reached or exceeded (CDPH 2023, 2025). Thresholds are based on local sampling of the adult mosquito population and/or when the risk of mosquito-borne disease increases above levels established in the California Mosquito-Borne Virus Surveillance and Response Plan (CDPH 2025, or its successor) and the District's PAP. Thresholds are an integral component of mosquito control because they provide a range of predetermined actions based on quantified data. Thresholds also establish expectations and boundaries for responses that ensure appropriate mosquito control activities are implemented at the appropriate time. The threshold for adult mosquito control depends on several factors including:

- How citizens tolerate nuisance mosquitoes, based on public service requests
- Overall mosquito abundance
- Presence of mosquito-borne disease in the region
- Abundance of mosquito species that are vectors of disease
- Local acceptance of adult mosquito control activities
- Climate data (CDPH 2023)

These recommended thresholds are coordinated with CDPH may vary depending on location or CDPH medical guidance. If local transmission of a disease is confirmed, thresholds will likely decrease. If a trap count exceeds the threshold, the area surrounding that trap is surveyed to identify and treat the active breeding site. For many species, mosquito activity is greatest from dusk to dawn. However, as mentioned in the above mosquito biology section, *Aedes* mosquitoes are important vectors that continue to bite during the day.

In the event of public health emergency conditions, comprising an actual or imminent disease outbreak declared by the CDPH, the District's activities could temporarily vary through increases in scope or intensity of methods, equipment (e.g., amphibious vehicle), and potentially through use of legal pesticides, in strict conformance with label requirements, which are not routinely used by the District. These activities would be temporary in nature and similar to routine activities. The California Natural Resources Agency and Governor's Office of Land Use and Climate Innovation have recognized that emergency conditions may require prompt action of a nature or intensity above typical levels to protect public health, welfare, safety, or property, and has exempted these activities from requirements for further environmental review (Cal. Code Regs., tit. 14, § 15000 et seq. [the "CEQA Guidelines"] Sections 15269, 15359).

Public health emergencies requiring adulticides are rare and the use of adulticides is outside the scope of the IMVMP. The District has not needed to do any aerial adulticide applications in documented history and would only do so in the case of an extensive outbreak of disease in an area larger than what could be covered by truck-mounted sprayers in a couple of days. Aerial spraying may be done using appropriately labeled pesticide(s) and application equipment; however, all aerial spraying operations must be reviewed and approved by the respective land manager and is coordinated with Santa Barbara County Department of Public Health, and CDPR. The District is one of the few members of the MVCAC that does not have the equipment and staffing to spray adulticide in the event of a public health emergency. Therefore, this future use or activity is not proposed for inclusion in the Plan.

3 Non-Mosquito Vector Management

(Public Review note: The education and outreach program will be included in the final Plan)

4 District Proposed Best Management Practices

The District is required to comply with all federal and state environmental laws and the H&S Code to prevent environmental harm while reducing or eliminating mosquito production. The District follows vector control guidance documents and BMPs prepared by the CDPH that detail surveillance methods, vector control management strategies, and pesticide application procedures established under:

- *Best Management Practices for Mosquito Control in California* (CDPH 2023), a manual that provides guidance on habitat management, IMM principles, and land-use-specific guidance to prevent mosquito production.
- *The California Mosquito-Borne Virus Surveillance and Response Plan* (CDPH 2025), which establishes statewide public health surveillance protocols and response thresholds and is updated annually
- Statewide National NPDES Permit for Biological and Residual Pesticide Discharges to Waters of the United States from Vector Control Applications (Order No. 2016-0039-DWQ) and the District's PAP Appendix B).
- *Best Management Practices for Mosquito Control on California State Properties* (CDPH 2008), applicable for State-owned lands (e.g., University of California, CDFW Goleta Slough Reserve).
- Other management practices and guidance documents that are regularly updated and published on the CDPH Vector Borne Diseases Section website.

Selection and implementation of BMPs will consider effectiveness, environmental conditions, and operational feasibility, consistent with IVM principles that prioritize adaptive, site-specific decision-making (MVCAC 2020, Appendix A)

4.1 Countywide General Best Management Practices

BMP-01 General Chemical and Biological Controls. Treatments applied by the District are approved by the CDPR and their application shall continue to abide by all label instructions and regulations of the USEPA and CDPH, including application rates and methods, storage, transportation, mixing, and container disposal. In addition, the District will continue to comply with all pesticide reporting, equipment calibration, and inspection requirements as regulated by the County Agricultural Commissioner.

In accordance with CDPH regulations, pesticides shall only be applied by Certified Vector Control technicians. Technicians who apply pesticides will continue to complete all training required by CDPH to maintain status as a Certified Vector Control Technician and will follow the District's comprehensive documents, including the annual Engineer's Report, strategic response plans, and Standard Operating Procedures to avoid and minimize negative environmental impacts. These activities are conducted in accordance with the BMPs described in the *Best Management Practices for Mosquito Control in California* (CDPH 2023), *Best Management Practices for Mosquito Control on California State Properties* (CDPH 2008), and in the *California Mosquito-Borne Virus Surveillance and Response Plan* (CDPH 2025, or as updated annually), in order to ensure pesticides are selected and applied appropriately and potential impacts on non-targeted areas are eliminated or minimized.

Pesticides will be applied at the lowest effective concentration for a specific, targeted set of vectors and site conditions. Application rates will never exceed the USEPA- and CDPH-approved maximum label application rate. All pesticide application equipment is currently and will continue to be calibrated and inspected annually as required by regulating agencies, such as CDPH and the County Department of Agriculture, Weights, and Measures.

Pesticide application shall be modified, postponed, or ceased when weather parameters exceed product label specifications, such as when a high chance of rain is predicted and rain is a determining factor on the label of the material to be applied.

BMP-02 Surveillance-Triggered Treatments and Least-Toxic Larval Control. Microbial larvicides (Bti, Bs) or insect growth regulator (e.g., methoprene) will be used as the primary treatment method when necessary to control mosquito larvae. Only when necessary may surfactants be used to control late-stage larvae or pupae. The District will maintain treatment records (location, date, method, product, rationale based on surveillance, amount applied, applicator name) to support adaptive management and minimize repeated application.

BMP-03 Vector Control State Water Resources Control Board Permit. Chemical controls applied within waterbodies defined by federal and state regulations as wetland and/or non-wetland Waters of the United States and/or state must be used in accordance with the Statewide NPDES Permit for Biological and Residual Pesticide Discharges to Waters of the United States from Vector Control Applications (Order No. 2016-0039-DWQ, General Permit No. CA990004).

BMP-04 Local Integrated Pest Management Plan Consistency. Unless inconsistent with the District's authority provided under the H&S Code, District activities may be consistent with chemical use as directed under any Integrated Pest Management Plan or similar guidance or policies adopted by the local jurisdiction or applicable to state or federally managed lands (e.g., CDPH 2008 *Best Management Practices for Mosquito Control on State Properties*). Additionally, habitat management plans or other public or private agreements may determine the products used in a particular area, to the extent consistent with the District's authority under the H&S Safety Code.

BMP-05 Interagency Communication. For individual activities located within federal, state, or local wildlife refuges, preserves, or conservation areas, the District will continue to coordinate, review activities, and collaborate with applicable agencies, including UCSB, CDFW, and local agencies, municipalities, and property owners. The District will also continue to coordinate with various land managers and Resource Agencies (e.g., USFWS, United States Army Corps of Engineers, Central Coast Regional Water Quality Control Board, and CDFW) as needed to minimize the impacts of IMVMP activities on waters and biological resources within designated reserves and refuges. Methods to minimize impacts to special-status species, habitats, and wildlife are agreed upon prior to entering protected and sensitive habitats. The District will continue to foster these relationships through communication and collaboration.

The District will coordinate with the Santa Barbara County Flood Control District (SBCFCD) on notification for any winter management activities affecting potential mosquito habitat hydrology so that the District can make timely applications of larvicide if necessary. The District will coordinate with local planning departments to ensure the District is notified when new stormwater detention systems are proposed as part of discretionary applications and environmental review.

BMP-06 Emergency Adulticide Guidance. Adulticide use, while not anticipated and not applied directly by the District, should adhere to following conditions, consistent with IMM principles that control actions are based on surveillance and risk:

- **Trigger Criteria:** Documented surveillance indicators demonstrate elevated public health risk or substantial nuisance levels not controllable through larval measures alone.
- **Least-Impact Method:** Use the least dispersive feasible method and timing to minimize exposure to non-target organisms.
- **Avoidance Areas:** Establish avoidance areas for sensitive habitats and known bird/animal roosting/nesting concentrations to the maximum extent feasible.
- **Notification and Evaluation:** Provide public/agency notifications as applicable and document effectiveness and need for any repeat action consistent with IMM evaluation principles.

5 Special Coastal Procedures

The California Coastal Act (CCA) places a high priority on the protection of biological and natural resources. In general, only land uses that are dependent on the habitat resources are allowable within ESHA areas. This Special Coastal Procedures Section identifies District proposed BMPs and procedures to implement in the future that are associated with mosquito surveillance and larval control activities in environmentally sensitive habitats in the District's Enhanced Service Area as shown on Figure 2 and Figure 3. The Goleta Slough Ecosystem Management Plan (GSEMP) area is used as a representative case study under Appendix C; however, the analysis and BMPs apply to all District activities within the coastal zone.

The Special Coastal Procedures presented below apply to the entirety of the ESHA treated in the coastal zone from Goleta to Carpinteria as shown in Figure 2 and Figure 3. These areas include, but are not limited to, Carpinteria Salt Marsh, Andr  e Clark Bird Refuge, Mission Creek Estuary, Arroyo Burro/Las Positas Creeks, Atascadero and Cieneguitas creeks, More Mesa, Goleta Slough, University of California Santa Barbara (UCSB), Devereux Lagoon, and lower Tecolote Creek. Sensitive coastal habitats in the northern portion of the county (e.g., Santa Ynez River Estuary) are on Vandenberg Space Force Base, which as a federal military installation is responsible for its own vector control.

5.1 Special Coastal Procedure BMPs

The Special Coastal Procedure (SCP) measures below are proposed by the District throughout the coastal zone considering most activities are in ESHA.

SCP-01 Vehicle Use. The District will restrict vehicle access to existing paved or unpaved roads, levees, and established access routes to the maximum extent practicable. Interior coastal wetland areas designated as ESHA will be accessed on foot only to the maximum extent practicable. Vehicle speeds on levees and access roads adjacent to aquatic habitats will not exceed 15 miles per hour to minimize noise, dust, and wildlife disturbance. Vehicle maintenance and refueling is conducted in off-site service yards and gas stations.

SCP-02 Watercraft. Watercraft may be utilized to access aquatic environments where access is permissible (e.g., outside a Marine Protected Area), including but not limited to marshes, lagoons, and estuaries, to conduct surveillance and control of vectors and when their use would reduce the risk of potential impacts that may otherwise occur from land-based vehicles. Operation of watercraft within CDFW-owned lands/easements and Marine Protected Areas, University-owned lands and preserves, and other open space areas would be completed in coordination with CDFW, University, and/or other applicable land managers and agencies and would follow avoidance and minimization measures as required by the relevant agencies and right-of-entry, Special Use, and other relevant permits.

SCP-03 Mosquito Fish Use. Only allowed in closed systems that are hydrologically disconnected from naturally occurring wetlands, creeks, or sensitive areas (e.g., Lake Los Carneros).

SCP-04 Worker Education Awareness Program. Technicians shall receive annual training regarding techniques and procedures to identify and avoid or minimize negative effects to protect state-and/or federally listed threatened or endangered species, ESHA, and wildlife and plant habitat. Technicians shall receive annual training on the identification of sensitive biological resources, including sensitive habitat and special-status species (e.g., vernal pools, salt marsh habitat, bird species).

A fact sheet conveying this information shall also be prepared for distribution to all District field technicians, their employees, and other personnel involved. Employees shall sign a form provided by the trainer documenting they have attended the Worker Education Awareness Program and understand the information presented to them. The Operation Manager Biologist and/or District lead field technician

shall be responsible for ensuring District members adhere to the guidelines and restrictions designed to avoid impacts to special-status species.

SCP-05 Surveillance, Treatment, and Access ESHA Avoidance. The District shall exercise caution when entering ESHAs to minimize impacts to these environments. Staff shall use established routes to the maximum extent feasible and avoid impacting sensitive vegetation. Technicians are required to remain mindful of wildlife during walking treatments and stay on designated pathways when appropriate to do so. If a technician must leave designated pathways, they must be mindful of avoiding nests, eggs, or other wildlife features.

SCP-06 ESHA and Resource Mapping Database. Before conducting monitoring or treatment, a Certified Vector Control Technician will review applicable permits or agreements, or other notes discussing environmental constraints/requirements, points of access, or any other pertinent information prior to visiting a site, such as existing ESHA mapping from each jurisdiction (where available and applicable). Sensitive sites may include, but are not limited to, coastal salt marshes, CDFW or university-owned or operated lands, easements, and preserves; County-owned parks and open space areas; or USFWS/National Marine Fisheries Service designated critical habitat.

Prior to entering an ESHA or other site that has the potential to contain sensitive habitat or species, the technician will identify suspected vector breeding sources using such resources as satellite images, topographic maps, historical records, or on-site evaluation to help ascertain the least environmentally impactful way to access the site. If more than one access route is available, staff will prioritize the path that would minimize or avoid environmental impacts to sensitive biological resources.

Staff will also discuss preferred access points, methods, and paths for reaching vector breeding source(s) with the supervisor and/or land manager.

SCP-07 Aquatic Invasive Species and Decontamination. All activities will be in compliance with federal, state, or local laws, ordinances, or permits to the extent they do not conflict with the District's authority under the H&S Code. If equipment is operated without contacting water or wetted soils, work can be conducted between regions and watersheds without specialized decontamination procedures. For wet/muddy equipment, prior to moving between watersheds vulnerable to aquatic invasive species (e.g., Goleta Slough and Carpinteria Saltmarsh), technicians must decontaminate all tools, waders, boots, and other equipment come into contact with water or wetted soils. Decontamination must be consistent with the *CDFW Aquatic Invasive Species Decontamination Protocol (2022)* as feasible, both before entering and after exiting wetlands in different watersheds.

The District will properly train all staff, contractors, and volunteer help to prevent spreading weeds and invasive animal species (e.g., New Zealand mud snails) or pathogens (e.g., the fungus that causes chytridiomycosis in amphibians) to other sites. Decontamination methods to clean equipment of invasive species and pathogens will be included in worker training and be implemented when working between different watersheds.

SCP-08 SCP Communication. To ensure ecological resource considerations are incorporated into operational planning, the District may update the website and engage stakeholders (e.g., Goleta Slough Management Committee [GSMC]) prior to annual treatment cycles or as seasonally appropriate for resources (e.g., nesting bird season).

a. Annual Coordination

- Prior to initiation of vector management activities in early winter, the District will establish communication protocols.
- One example is attending GSMC. The District presentation at GSMC specific to that management area may include:
 - Review of planned vector-control activities within or adjacent to ESHAs
 - Identification of ecological constraints, seasonal restrictions, and mitigation applicable to vector-control operations
 - The District may consider incorporating recommendations into its operational plan.

b. Activity Reporting

- The District will prepare and submit to the District's Board of Trustees a summary documenting the following in the previous season:
 - Vector-control activities conducted in sensitive habitat (e.g., coastal salt marsh)
 - BMPs implemented to avoid biological impacts
 - Any recommendations and how they were addressed
 - Any adaptive management modifications for the following year

SCP-09 Nesting Bird Season Monitoring, Surveys, and Nest Avoidance. To avoid disturbance of nesting and special-status birds, including raptor species protected by the Migratory Bird Treaty Act and California Fish and Game Code Section 3503, as feasible, the District will schedule winter mosquito surveillance and treatment activities prior to bird breeding season for migratory birds (February 1 through August 31). However, late winter and summer mosquito surveillance and treatment are required during the nesting bird season.

For District activities during the breeding season, a pre-activity nesting bird survey shall be conducted only where vector management activities are to occur. The pre-activity nesting bird survey shall be conducted on foot from the interior access and activity area. The survey shall be conducted by a biologist familiar with the identification of avian species known to occur in Southern California coastal communities. If nests are found, the nest will be avoided by the technicians on foot and GPS coordinates recorded. All personnel conducting vector management activities shall be notified as to the presence of an active nest avoid disturbance while the nest is still active.

While encounters with special-status species are not likely or anticipated, any personnel who encounters a dead, injured, or entrapped special-status member of such species shall immediately report the incident to the General Manager of the District. If a species is legally protected, the District shall follow up with written notification to USFWS and/or CDFW (as applicable).

SCP-10 Tidal Marsh Specific BMP. Technicians will receive annual training and review of this document to remain up to date and current on this document and its methodologies for protecting sensitive species and the marsh habitat. District will minimize travel in the coastal salt marsh and tidal channels to reduce impacts to vegetation used as habitat. Technicians will continue to consider applicable measures, such as the USFWS guidance "Walking in the Marsh: Methods to Increase Safety and Reduce Impacts to Wildlife/Plants" (USFWS, undated, Appendix D).

SCP-11 Coastal Salt Marsh Nesting Season Survey Avian Monitoring. The following apply to surveillance and larvicide treatments in tidal and non-tidal coastal salt marsh plant community areas that provide Belding's Savannah sparrow (*Passerculus sandwichensis beldingi*, BSS) habitat during breeding season (approximately mid-March to mid-July). In the District Enhanced Service Area, these areas are assumed to include the Santa Barbara Airport Basins A through H; Devereux Slough, and Carpinteria Salt Marsh.⁷ Implementation shall occur in coordination with the lead agency and/or land manager (e.g., CDFW Reserve Manager, University of California Reserve, or City of Santa Barbara Airport Operations) for escort and access considerations.

- **Early Nesting Season Pre-Activity Baseline Survey.** Within 24 to 72 hours of the first surveillance/treatment during the BSS breeding season (after March 15) in suitable habitat, a qualified biologist familiar with BSS⁸ shall conduct a focused survey consistent with the agency guidance methodologies⁹ for BSS breeding behavior within the areas typically treated by the District in the

⁷ Based on current review the California Natural Diversity Database mapping (CNDDB, CDFW 2025) and other sources.

⁸ Experience may include specialized training or workshops on nesting bird survey techniques and species-specific ecology. Experience may include coastal bird monitoring, nest searching, endangered bird species management, or mentorship under a seasoned BSS biologist. Qualification must include multiple years (minimum 2+ years) of local experience/training/workshops and familiarity with the Goleta Slough and/or Carpinteria Salt Marsh ecosystem.

⁹ No BSS protocol has been established by CDFW. Seasonal and daytime timing of the surveys is currently recommended consistent with other accepted survey efforts conducted throughout the state, such as Zembal and Hoffman 2010 and 2015.

spring/summer that overlap with known BSS habitat. Should any BSS be observed acting territorial (perching or singing) or nesting, GPS coordinates reported to technicians prior to activities. Based on locations the District will prepare an alternative access and treatment plan for those areas focusing on the lower elevation treatments areas and avoidance of higher elevation nesting habitat. The baseline survey may need to be repeated based on seasonal conditions (e.g., estuary mouth opens/closes, new pooling).

If escort restrictions prevent early access, the qualified biologist may conduct a same day early-morning (first-light) reconnaissance of basins proposed that day prior to mapping all areas.

- **Surveillance and Larvicide BSS Treatment Monitoring.** Technician entry into tidal basins during the nesting season shall occur under direct guidance of a qualified biologist. The qualified biologist will determine the intensity of monitoring based on activities, location, and survey results. Technicians shall minimize traversing from staging areas to the marsh and, once in the marsh, shall remain in lower, wetter depressions used for mosquito treatments while avoiding elevated “rises” where nests are most likely. Pre-entry briefings, same-day route validation, and adaptive rerouting shall be used as needed to avoid potential nest areas. As necessary Qualified biological monitor observations during activities will update the initial surveys and include GPS coordinates, recommended avoided rises and treatment depressions, reroute decisions, and adaptive management notes for future activities.

Technicians shall receive training on bird identification and nesting behavior, recognizing rises vs. depressions, interpreting microtopography, and low-impact foot access techniques in pickleweed marsh.

- **SCP-12 Trash Removal.** When feasible (i.e., with existing labor and vehicles), existing litter or debris in ESHA will be removed and properly discarded.

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Appendix A

Integrated Vector Management is Critical for Protecting Public Health, Mosquito and Vector Control Association of California (2020)



INTEGRATED VECTOR MANAGEMENT IS CRITICAL FOR PROTECTING PUBLIC HEALTH



MVCAC

Mosquito and Vector Control Association of California

January 2020

MOSQUITOES ARE THE WORLD'S DEADLIEST ANIMAL

Despite their small size, mosquitoes have a tremendous impact on human health. When a female mosquito takes a meal of human blood to develop her eggs, she can transmit potentially devastating pathogens. Worldwide mosquito-borne diseases kill over one million people each year.¹ Most of these are caused by malaria, a debilitating parasite that, though rarely encountered in California today, was the driving force behind the formation of mosquito control districts in the 1920s.

West Nile virus, the most prevalent mosquito-borne disease in the state, has sickened nearly 7,000 Californians and killed over 300 residents since it was first detected in 2003. There are no human vaccines to protect against many mosquito-transmitted viruses which are costly to treat and can have long-term health and economic consequences.²

The recent establishment of the invasive mosquitoes, *Aedes aegypti* and *Aedes albopictus*, in California presents additional challenges. In addition to being persistent day-biting nuisances, these mosquitoes are capable of transmitting several imported pathogens including Zika, dengue, and chikungunya viruses.¹ These pathogens are associated with debilitating diseases, with Zika virus being linked to birth defects when women are infected during pregnancy.³ These pathogens have the potential to be introduced into the local mosquito population if mosquitoes take blood meals from infected travelers returning from a region where transmission is occurring.



A vector control technician dips water to check for mosquito larvae.

Photo credit: San Gabriel Valley Mosquito and Vector Control District

The risk that unchecked mosquito populations pose to public health is significant and there must be a variety of tools available through an Integrated Vector Management approach in order to effectively protect public health.



MOSQUITOES ARE PROLIFIC AND ADAPTIVE

California is home to more than 50 mosquito species⁴, and each one uses sources of standing water to breed. From date palm groves to tidal marshes to tule-laden ponds, millions of mosquitoes emerge each year to bother and sicken residents. Two of the most abundant and widespread mosquito species in the state, *Culex tarsalis* and *Culex pipiens/quinqüefasciatus*, are the primary vectors of a number of mosquito-transmitted encephalitis viruses, including West Nile virus.⁵

In addition to being able to exploit natural and agricultural water sources, some mosquitoes have adapted to thrive in man-made water sources in urban and suburban areas. Chief among these are some of California's newest arrivals, *Aedes aegypti* and *Aedes albopictus*.⁶ These invasive mosquitoes can develop in very small amounts of water that collect in pots, plant saucers, rain barrels, corrugated tubing connected to yard drains, and even tree-holes and leaf axils of landscape plants.⁷ *Aedes* eggs are laid above the water line in containers and can last for months before hatching when submerged in water. After rain or irrigation, a single residential yard can have hundreds of potential mosquito sources. Water conservation and other water management practices can considerably reduce mosquito production and the risk of mosquito-borne diseases.

MOSQUITO AND VECTOR CONTROL DISTRICTS FACE A DAUNTING TASK

In agricultural and residential pest control, low levels of pest infestation may be tolerated. However, the tolerance for mosquitoes is different as they can pose a risk to human health. Unfortunately, even large mosquito and vector control districts lack the resources to prevent all mosquito-borne disease risks within their jurisdictions. The spread of invasive *Aedes* mosquitoes and the desperate need to prevent the emergence of Zika, dengue, and other viruses has further strained mosquito and vector control districts' limited resources. There is not one solution to controlling mosquitoes – the most effective way to protect public health is to follow Best Management Practices⁸ through strategic application of an Integrated Vector Management (IVM) program.⁹

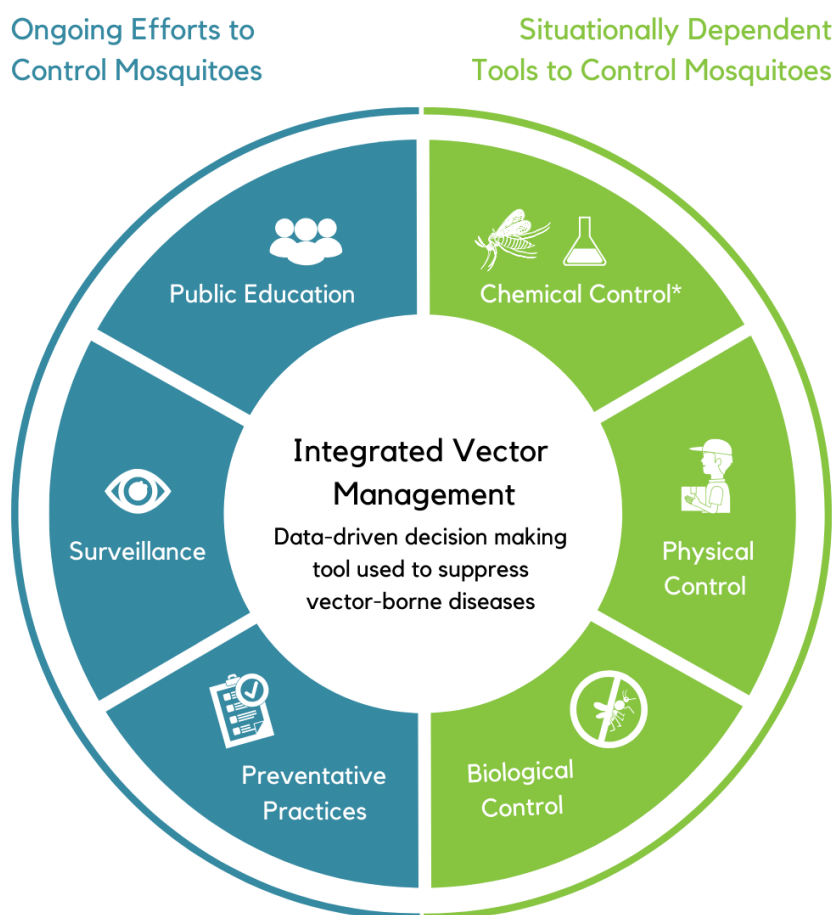
IMPACT OF INVASIVE *Aedes*

Invasive *Aedes* require unique surveillance and control methods which put a significant burden on local mosquito and vector control districts. For example, a Southern California district's operational expenses increased by 34% in one year to deal with these invasive mosquitoes. All districts with invasive *Aedes* detections have had to increase staff, equipment, and traps, and develop additional outreach efforts and materials.



THE VARIED TOOLS OF IVM

Integrated Vector Management is an evidence-based, data-driven decision making tool used to suppress vector-borne diseases. IVM prioritizes surveillance of mosquito populations, removal of breeding sites, public outreach, and education campaigns. IVM incorporates various tools to target mosquitoes at different life stages which can include chemical control. When implementing a control program, districts continually evaluate the strengths, weaknesses, risks, and resource cost of each type of intervention to determine what combination in a given area is most appropriate for the current risk posed to public health from mosquitoes and the pathogens they transmit.^{10, 11}



All components of IVM target mosquitoes at their different lifecycle stages, but chemical control is the sole means of eliminating adult mosquitoes over a large area.



COMPONENTS OF INTEGRATED VECTOR MANAGEMENT

Public Education

Involves outreach and community engagement to encourage the public to protect themselves from mosquito bites and prevent mosquito breeding.

Tactics can include earned media, social media outreach, paid advertisements, youth programs, and attendance at community events.

Surveillance

Mosquito abundance and disease surveillance enables districts to make informed decisions about where to focus resources and what level of intervention is required.

Surveillance data also helps districts evaluate the efficacy of the control measures.

Preventative Practices

Integrates vector management strategies into land use and local and regional planning activities.

Encourages good water management and mosquito-prevention habits.

Benefits: can reduce the need for pesticide applications.

Drawbacks: requires considerable public investment, time, and ongoing support for lasting change.

Biological Control

Natural approach that uses predators, such as mosquitofish, to reduce mosquito larvae and pupae. May involve other native fish to minimize adverse impacts to aquatic species.

Benefits: potential long-term and recurring control once successfully established.

Drawbacks: may not adequately eliminate mosquito larvae.

Physical Control

Changes a landscape to eliminate current and future mosquito production. May require support of the property owner or use of enforcement authority.

Benefits: complete elimination of mosquito larvae when effective.

Drawbacks: resource costs including specialized equipment and trained employees; inability to physically modify all sources of standing water; can be time intensive.



Chemical Control

Larviciding

Uses pesticides targeted at localized water sources that have mosquito larvae. Eliminates mosquitoes at the larval stage when they do not have the ability to feed on humans or animals and spread diseases.

Benefits: wide variety of products with high efficiency, specificity, and residual control.

Drawbacks: can be labor intensive to identify and target water sources containing mosquito larvae.

Adulticiding

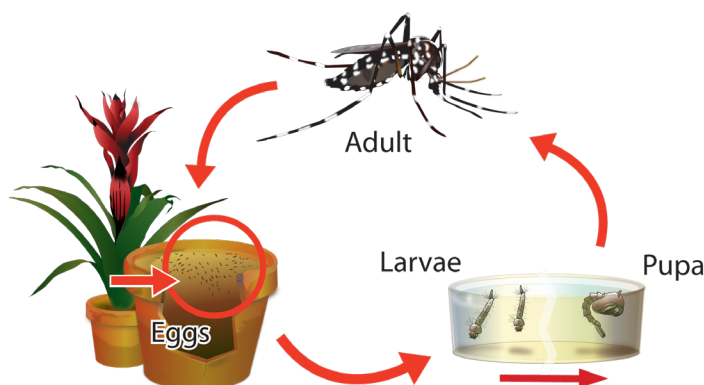
Requires precise timing of insecticides applied in very tiny droplets known as Ultra Low Volume (ULV) application. Sole means of quickly eliminating adult mosquitoes over a large area.

Benefits: reduces transmission of West Nile virus and other mosquito-borne pathogens; minimal public health risks.

Drawbacks: environmental conditions may affect efficacy.

USING SURVEILLANCE AND RISK ASSESSMENTS TO DIRECT MOSQUITO CONTROL OPERATIONS

Many mosquito and vector control districts provide service over large areas with a multitude of known mosquito sources. With newly-created mosquito sources caused by unmaintained swimming pools, residential and agricultural over-irrigation and stormwater capture, treatment and infiltration devices, it is vital to focus efforts where they are most needed. This is achieved through comprehensive surveillance of mosquito populations at all stages of the mosquito's life cycle.¹²



Life cycle: mosquitoes can develop from eggs to biting adults in just 5-7 days.

LARVAL SURVEILLANCE

Almost any standing water that persists for more than a few days has the potential to produce mosquitoes. The factors that favor mosquito development are multifaceted and are an ongoing focus for research, but a number of recurring mosquito source types have been identified in residential, industrial, agricultural, and natural settings. Districts identify these locations and regularly assess the population of mosquito larva, which are then identified by type (genus or species) and life stage. Records of these assessments and the sources from which they arose are maintained often in a georeferenced database for ease of review.

The purpose of larval surveillance is to determine both short-term and long-term actions. Larval surveys can indicate periods of high population that determine when a particular source should be inspected, how often it should be inspected, and help identify factors (i.e. over-irrigation) that can be eliminated by working with the landowner. They can also help determine which control tools districts should use. For example, more immediate and aggressive control measures will be needed if the water source has disease vectors. Surveillance data is also used to evaluate the efficacy of control efforts by determining the extent and duration of larval suppression.



Vector control professionals often use a 'dip count' which measures the number of mosquito larvae collected per dip of water to evaluate mosquito populations.

Photo credit: Orange County Mosquito and Vector Control District

ADULT MOSQUITO SURVEILLANCE

One of the largest components of any vector control operation is surveillance directed at adult mosquitoes because this is the stage that mosquitoes transmit diseases. Since identifying all potential mosquito sources is not possible, districts rely on monitoring adult mosquito activity to identify and prioritize problem areas.



A vector control technician sets a mosquito trap.

Photo credit: San Gabriel Valley Mosquito and Vector Control District

An adult mosquito surveillance program consists of a combination of fixed sites and “floating” sites that are identified in response to resident reports, technician inquiries, human or animal disease detections, or other indicators. Fixed sites provide consistent population data for set areas and serve as a baseline for comparing year-to-year activity. Floating sites allow for quick assessment of potential problem areas and can be used to evaluate the need for additional control or surveillance activities. Adult mosquito surveillance can aid in the identification and treatment of previously undetected larval sources.

There are a variety of traps used to capture adult mosquitoes, but most target one of two adult mosquito behaviors: host-seeking (female mosquitoes looking for a blood meal) and oviposition (females seeking a water source where they can lay their eggs). Traps are placed over a short period of time and contain live mosquitoes when recovered. Samples are sent to district labs where they can be sorted, counted, identified by species, and tested for mosquito-borne viruses.





Laboratory staff sort, count and identify adult mosquitoes.

Photo credit: Contra Costa Mosquito and Vector Control District

DISEASE SURVEILLANCE AND RESPONSE

Mosquito and vector control districts are charged under the California Health & Safety code with protecting Californians against the discomforts, health risks and economic effects of vector-borne diseases.¹³ Some districts have the capability to test their own mosquito samples for mosquito-borne viruses and others partner with the California Department of Public Health (CDPH) and the Center for Vectorborne Diseases (CVEC) at the University of California Davis for mosquito sample testing.

West Nile virus is currently the most common mosquito-borne disease in California and is a key target of surveillance efforts. In addition to testing mosquito samples, districts also test dead birds reported by the public¹⁴ and some districts use sentinel chickens to detect active transmission of West Nile virus.¹⁵ Records of viral infection in humans may also be reported by local health districts. While these reports can serve as definitive proof of active virus transmission between mosquitoes and humans, they are often of limited utility in directing operations due to time elapsed between patient infection and the district's notification of the confirmed disease case.¹⁶ Because of this, earlier indicators of disease activity such as mosquito samples and dead birds are used to inform effective intervention efforts.¹⁷

CALSURV: STATEWIDE SURVEILLANCE DATABASE

California started the first statewide mosquito abundance and disease surveillance database called CalSurv.²⁰ Surveillance and operations data from local districts are entered into the database for rapid reporting and analysis which aids in the direction of vector control programs. Districts can also access past surveillance data to track trends in mosquito activity or use in applied research. CalSurv's data visualization capabilities help districts use surveillance data to determine the most appropriate and effective IVM control components. CalSurv has expanded and now there are similar systems in Arizona, New Jersey, Tennessee, Utah, and Guam.



Comprehensive mosquito abundance and disease surveillance data allows districts to make informed decisions about where to focus resources and what level of intervention is required. This can be particularly important when considering costly and publicly visible interventions such as large scale area spraying or door-to-door inspection teams. To ensure consistent responses, CDPH has developed a number of disease response plans that factor in a variety of surveillance data and environmental conditions to determine a risk level associated with disease transmission.^{12, 18, 19} These plans are widely used by districts and are often incorporated into local operation plans.

PREVENTATIVE PRACTICES: SOURCE PREVENTION AND ELIMINATION BY AN ENGAGED POPULACE

Preventative practices involve a wide range of efforts focused on encouraging good water management and mosquito prevention habits. Best Management Practices⁸ (BMPs) have been developed for common land uses that typically create mosquito sources providing details on changes in practices and land modifications that can readily decrease mosquito production and protect public health. Greater support for integration of BMPs is needed at the political and regulatory levels to ensure integration of sound vector management strategies into local and regional planning efforts.

For residential and suburban areas, preventative practices are typically focused on eliminating man made container sources in and around the home. This includes discarding unnecessary containers that can hold water and frequently dumping or draining water sources that cannot be eliminated as mosquitoes can develop from eggs to biting adults in just 5-7 days.

When successful, preventative practices to control mosquitoes have minimal costs, are more sustainable, and reduce the need for pesticide applications. However, successful preventative practices control programs require considerable public investment and ongoing support for lasting change.²² Districts' capacity for outreach varies, with larger and better funded districts typically having a greater ability to implement a robust public outreach program.

PREVENTATIVE MOSQUITO CONTROL SAVES TIME AND RESOURCES

When the economic downturn of 2007-2008 led to a rapid increase of foreclosures, mosquito and vector control districts quickly realized that unmaintained swimming pools at vacant properties were producing thousands of mosquitoes within a matter of days. Recognizing that waiting for resident complaints or fortuitous trap placement was insufficient, districts sought to identify unmaintained pools before mosquitoes began to emerge. This entailed high elevation aerial photography and outreach to real estate and community partners to identify foreclosed and abandoned homes and allow technicians to systematically inspect these sources.²¹



Tools for outreach and community engagement include comprehensive earned and social media, paid advertisements, youth programs, and attendance at community events. This outreach is designed to encourage the public to protect themselves from mosquito bites by using CDC-approved repellents, wear protective clothing, prevent mosquito access to the home, and avoid outdoor activities during peak periods for disease-transmitting species.

Successful mosquito and vector control requires an engaged community actively thinking about and eliminating mosquito sources. Forming strong working relationships with community groups and other government agencies effectively expands the mosquito control workforce well beyond a local district's staff. The challenge of keeping the public informed and motivated, however, limits the overall impact of preventative practices on mosquito populations and makes the use of additional interventions necessary.



Public outreach, from billboards to social media to community events, is an integral component of IVM.

Photo credit: Sacramento-Yolo Mosquito and Vector Control District

PHYSICAL CONTROL: CHANGING THE LANDSCAPE TO PREVENT RECURRENCE

Physical control involves modifying a mosquito source to eliminate or significantly reduce current and future mosquito production. At the smallest scale this can involve dumping and draining backyard container sources²³ and on a larger scale it can involve managing water flows in salt marshes or levelling flooded grounds.²⁴ While some of these interventions permanently eliminate future production of mosquitoes on the property, others require periodic maintenance to remain effective.

Limitations of physical control include resource costs and the ability to physically modify mosquito sources. Removing water from backyard container sources, while effective, requires many employees to complete door-to-door inspections. Larger scale projects often require specialized equipment and trained employees. One example is when districts send staff into a flood control channel with hand tools and equipment to remove vegetation and sediments during non-storm periods to keep the water flowing.



Vector control staff use ditching to restore tidal flow to a coastal marsh.

Photo credit: Marin/Sonoma Mosquito and Vector Control District

In addition, not all sources of standing water can be physically modified. Flood-irrigated agricultural sources such as rice and natural standing water sources such as peripheral river seepage points or wetlands cannot be drained or significantly modified without severely interfering with their intended purposes. Even when a source is eligible for physical control significant modification to the property requires cooperation by the property owner. Districts typically try to do this through affirmative outreach and engagement though districts have the power to enforce changes through statutory abatement.²⁵ The effectiveness of both physical control and preventative practices is dependent on the community's receptiveness to district outreach and engagement efforts and their tolerance for use of enforcement authority against the few property owners that are unwilling to comply.

TIDAL RESTORATION PROJECTS CAN PREVENT MOSQUITO BREEDING

Abandoned salt ponds around the San Francisco Bay have become seasonal wetlands breeding large numbers of saltmarsh mosquitoes in the winter months. These mosquitoes can fly up to 15 miles inland presenting a severe biting nuisance to nearby residential areas. In the 1990s, tidal restoration projects around the Bay – including disking, ditching, dredging, and the installation of tidegates and siphons – permanently reduced the number of acres of mosquito breeding habitat in abandoned salt ponds. This saved tens of thousands of dollars and eliminated the need for ongoing pesticide applications in these areas.



BIOLOGICAL CONTROL: TAKING ADVANTAGE OF MOSQUITOES' NATURAL PREDATORS AND PARASITES

Biological control is defined as using a vector's natural enemies to reduce the population of the target vector typically with the assistance of human activity.²⁶ Fish have long been used to manage immature mosquito larvae and pupae. Mosquitofish (*Gambusia* sp.) remain the most widely used fish for mosquito control because of their hardiness, high potential for reproduction, and ability to feed readily on mosquito and other insect larvae.^{27, 28, 29, 30, 31, 32}

Mosquitofish feed on mosquito larvae and pupae. They provide effective control when used alone or with larvicide applications in a variety of standing water habitats ranging from ornamental ponds to neglected swimming pools. However, mosquitofish do not serve as a cure-all for ongoing mosquito management. Mosquitofish should be used thoughtfully and strategically in appropriate sources to minimize any adverse impacts to other aquatic species, and when available, other native fishes should be considered for mosquito management.



A vector control technician releases mosquitofish into an abandoned swimming pool.

Photo credit: Contra Costa Mosquito and Vector Control District

Another component of biological control is encouragement of local, non-introduced predator populations. Several native aquatic invertebrates regularly prey on mosquito larva and in sufficient numbers can greatly reduce the production of a mosquito source. Mosquitoes tend to utilize recently-flooded and marginal waterways that other species are not as adept at colonizing. As such, it can be beneficial to create deep water continually-flooded predator reserves to facilitate rapid introduction of predator species upon flooding of adjacent lands.

Biological control is a vital part of IVM as it is one of the few approaches that provides the opportunity for long-term and recurring control once successfully established. It also tends to be popular with the public offering a more “natural” approach to mosquito control. The limitations in its degree of control and areas of use, however, require additional control methods to ensure adequate suppression of vector populations.³³

OTHER “MOSQUITO EATERS”

While mosquitofish are an effective biological control tool, many organisms that people think of as ‘mosquito eaters’ aren’t actually effective predators. Bats, birds, and dragonflies eat mosquitoes, but these animals have varied diets which means they don’t eat enough mosquitoes to provide effective mosquito control.

CHEMICAL CONTROL: TO SPRAY OR NOT TO SPRAY?

Chemical control methods are a major point of focus in mosquito and vector control operations, garnering both positive and negative attention. Public health pesticides play a vital role (though not a sole role) in IVM plans due to their versatility, effectiveness, and rapid deployment in comparison to other control methods. Yet pesticides have had a tumultuous history (mostly outside of public health) with an ever-changing regulatory landscape that creates uncertainty for users and the public alike.

Toxicity is a complex topic that involves a number of factors including the type and degree of exposure, dosage, and the biological traits of the target organism.³⁴ Products used in public health mosquito control are specifically formulated for elimination of mosquitoes and when used in accordance with the label they pose minimal risks to human health and non-target organisms. The use of these products for mosquito control is supported by the U.S. Centers for Disease Control and Prevention and the U.S. Environmental Protection Agency.^{35, 36}



Public health pesticides play a vital role in IVM.

Photo credit: Placer Mosquito and Vector Control District



As applied to mosquito control, there are two main categories of pesticides: “larvicides”³⁷ which are used to control mosquitoes in their aquatic immature stages and “adulticides”³⁸ which target mosquitoes in their terrestrial adult stage.

LARVICIDES: CONTROL TARGETED DIRECTLY TO THE STANDING WATER SOURCE

General categories of larvicides include: surfactants/suffocants (oils that suffocate the immature mosquito), insect growth regulators (products that interfere with larval growth and development), and bacterial-origin larvicides (products that contain insect toxins derived from bacteria). Within these categories there are many active ingredients and different formulations used for various methods of application and duration of effectiveness. Most larvicides are biorationals which means they are relatively non-toxic to humans and have minimal environmental impacts. Since each type of larvicide can only target certain stages of mosquito larvae and pupae an active control program requires the whole range of available tools.

WIDE-AREA LARVICIDING

Most mosquito larvicide applications occur directly to water sources, but mosquito control programs may also treat large areas with larvicides using truck-mounted equipment or helicopters. These applications can disperse small amounts of mosquito larvicide across many acres of land which helps prevent mosquito breeding in hidden water sources.³⁹

Eliminating mosquitoes at the larval stage whenever possible is a core principle of IVM. To this end, mosquito and vector control districts focus their chemical control components primarily on larviciding. The reason for this is simple: at the larval stage the mosquitoes are concentrated in their water source and do not have the capability to feed on humans and animals and spread mosquito-borne pathogens.



A vector control technician treats a stormwater catch basin with a larvicide tablet.

Photo credit: Contra Costa Mosquito and Vector Control District

However, the main advantage of targeting larvae is also its greatest limitation: the water source containing the larvae must be identified and directly targeted. Whether a single storm drain treated by hand or acres of flooded field treated by plane, the larvicide product must find its way into the water. Use of larvicides also poses a challenge for resource management. Long-term residual products can allow for sustained control of a standing water source, but come at a significantly higher cost than short term products. Districts must not only identify active sources, but determine what type of treatment is required based on the mosquito production level and likelihood of recurrence. Districts work to continually identify, control, and when feasible remove active mosquito sources. Despite these efforts, not all sources can be discovered and adult mosquitoes will emerge heightening the public health risk.



A helicopter is used to apply larvicide to a marsh.

Photo credit: San Mateo County Mosquito and Vector Control District

ADULTICIDES PROVIDE WIDE-AREA APPLICATION, BUT HAVE A NARROW USE

Adulticiding involves the use of insecticides typically applied in very tiny droplets, a process known as Ultra Low Volume (“ULV”) application.⁴⁰ During application adult mosquitoes come into physical contact with these droplets exposing them to the toxins. Since efficacy of adulticide applications relies in large part on the number of droplets that impact a flying adult mosquito, adulticiding requires precise timing. Most applications are made when there is the most mosquito activity and may be adjusted to correspond with environmental conditions.⁴¹ Even when applications are made at optimum times, they will not be able to completely eliminate the adult mosquito population in the targeted area. Nonetheless, successful adulticiding has been correlated with reducing the presence of pathogens in mosquitoes within the areas that were treated.⁴²





Adult mosquito control can be conducted using trucks or aircraft.

Photo Credit: San Joaquin County Mosquito and Vector Control District

There are a very limited number of active ingredients that can be used in adulticides that both control mosquitoes and protect public health. Most products used are either pyrethrins or pyrethroids which interfere with nerve function in targeted insects.⁴³ Unfortunately, mosquito populations can develop resistance to any or all of these products. While not widely used in California, organophosphate adulticide use is on the rise as considerable resistance to pyrethrins and pyrethroids is being detected in mosquito species that are a public health concern throughout the state.

Since adulticide applications are often made over large areas and are frequently focused in populated areas to reduce local disease transmission, the public is more likely to be exposed to these products. As a result, adulticiding operations often garner significant attention from the public, some of it negative. Districts work diligently to keep residents informed of their operations and, where feasible, avoid spraying when large crowds of residents may be outside. Districts take measures to ensure proper and safe application of products and adverse impacts on humans are not a realistic concern for adulticiding operations.⁴⁴ The products used present a minimal risk to the public's health and numerous studies have shown that ULV applications result in rates of exposure too low to be of public health concern.⁴⁵ Research also shows that large scale adulticiding events do not result in increased reports of adverse effects among people in the treated areas. When compared to the risks associated with unchecked virus transmission by mosquitoes, the use of adulticides as part of a comprehensive IVM program are easily justified, if not demanded.⁴⁶ Adulticiding remains the sole means districts have for rapidly targeting adult mosquitoes and has been demonstrated to reduce the transmission of West Nile virus and other mosquito-borne pathogens.^{47, 48, 49}

EVALUATING EFFICACY OF OPERATIONS AND ENSURING ONGOING VIABILITY

Control of mosquitoes and other vectors is an ongoing process throughout the organism's active season.⁵⁰ Equally important to identifying and controlling mosquitoes are consistent evaluations of efficacy. The preceding sections have outlined advantages and disadvantages for various control techniques, but this is not a static assessment. What is the most effective tool for controlling mosquitoes in a particular situation involves a great number of variables, and an effective mosquito control program must constantly adapt to changing conditions.



Research and evaluation ensures that mosquito control operations continue to be viable despite ongoing challenges.

Photo credit: San Joaquin County Mosquito and Vector Control District

Evaluating efficacy of mosquito control measures will typically involve all aspects of larval and adult surveillance. By comparing assessments before and after treatment, the degree of reduction can be determined. When there hasn't been a significant reduction in mosquitoes, districts will determine whether there was an error in application (requiring retreatment and possibly revised protocols), a previously unknown source contributing to the problem or most problematically an indication of a pesticide resistant mosquito population.

Some mosquitoes have developed resistance to products used to control them at both the larval and adult stages.^{51,52} To avoid promoting resistance, districts rotate products that have different means of killing mosquitoes. This can be difficult with adulticiding since there is a limited number of active ingredients. By capturing samples from known sources in the wild and comparing them against laboratory-raised mosquitoes that are known to be susceptible to various products districts can evaluate where resistance is appearing geographically and adjust their control programs accordingly. A similar process can be utilized during actual operations to determine whether a product is effectively reaching the target and whether the local mosquito population is susceptible to the product.⁵³ These evaluations provide beneficial information that allow for immediate adjustments to be made during an active mosquito season.



Districts may also carry out applied research projects related to various aspects of the IVM program. Whether designing or testing new surveillance equipment, measuring and classifying mosquito sources, or evaluating novel control techniques, these innovations are essential to maintaining a viable management program.

INTEGRATED VECTOR MANAGEMENT IS A SHARED RESPONSIBILITY

Integrated Vector Management is a rational decision-making process that utilizes public education, surveillance, source reduction and different control methods to reduce mosquito populations and protect public health. Cooperation between districts, elected officials, regulatory agencies, stakeholders and the general public is essential for successful implementation of IVM practices.

Ongoing public education to ensure there is accurate information is critical as is ensuring that residents have the tools to report mosquito activity and prevent mosquito breeding. All Californians must do their part by dumping and draining standing water so they can help eliminate mosquitoes from their communities.

At the same time, it's essential that mosquito and vector control districts have adequate funding to implement all of the various IVM tools needed to protect public health. With the introduction of new mosquito species and increased potential for mosquito-borne disease transmission in California, mosquito and vector control districts are facing new challenges and have increasingly limited resources to implement IVM. Onerous regulations and inadequate funding levels can compromise districts' ability to suppress mosquito populations and prevent the spread of mosquito-borne diseases.

Integrated Vector Management is a shared responsibility. By working together to strengthen collaboration, promote community engagement and education, and ensure there are adequate resources and funding for mosquito and vector control districts, we can minimize the risk mosquitoes pose to human health.

INVASIVE MOSQUITOES REQUIRE INNOVATIVE SOLUTIONS

Invasive *Aedes* mosquitoes (i.e. *Aedes aegypti* and *Aedes albopictus*) exploit small and cryptic water sources and have shown resistance to many commonly used insecticides, limiting the efficacy of traditional control approaches. One technique that is currently being evaluated in California is a form of Sterile Insect Technique that utilizes different strains of a naturally-occurring bacteria called *Wolbachia*.⁵⁴ When *Aedes aegypti* or *Aedes albopictus* males are infected with a particular strain of *Wolbachia* and then are released to breed with wild female mosquitoes infected with a different strain of *Wolbachia* the resulting offspring are not viable. Initial trials in Los Angeles County and Fresno County show great promise, but there are still logistical and regulatory hurdles to overcome. Implementation will likely have considerable costs and will require partnerships between local agencies and the state to ensure success.



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MVCAC
Mosquito and Vector Control Association of California

Appendix B

State Water Resources Control Board Notice of Intent and Pesticide Application Plan

State Water Resources Control Board

July 1, 2016

David Chang
Mosquito and Vector Management District of Santa Barbara County
P.O. Box 1389
Summerland CA, 93067

NOTICE OF APPLICABILITY FOR STATEWIDE VECTOR CONTROL PERMIT; MOSQUITO AND VECTOR MANAGEMENT DISTRICT OF SANTA BARBARA COUNTY;

Dear David Chang:

Thank you for submitting your complete application package for coverage under the Statewide Vector Control Permit¹. Effective July 1, 2016, the Vector Control Permit regulates discharges of biological and residual chemical pesticides resulting from pesticide applications using the following active ingredients:

Larvicides

- Bacillus Sphaericus
- Bacillus Thuringiensis Subspecies Israelensis
- Methoprene
- Monomolecular Films
- Petroleum Distillates
- Spinosad
- Temephos

Adulticides

- Deltamethrin
- Etofenprox
- Lambda-Cyhalothrin
- Malathion
- N-octyl Bicycloheptene
- Dicarboximide (MGK-264)
- Naled
- Permethrin
- Piperonyl Butoxide
- Prallethrin
- Pyrethrin
- Resmethrin
- Sumithrin

In addition to the active ingredient list above, the Vector Control Permit regulates point source discharges of biological and residual pesticides from the application of minimum risk pesticides². Users of products containing these ingredients or minimum risk pesticides are required to obtain

¹ Statewide National Pollutant Discharge Elimination System (NPDES) Permit for Biological and Residual Pesticide Dischargers to Waters of the United States from Vector Control Applications; State Water Board Order 2016-0039-DWQ adopted March 1, 2016 ;

² Minimum risk pesticides are pesticides that the United States Environmental Protection Agency has exempted from the Federal Insecticide, Fungicide, and Rodenticide Act requirements when used in a manner specified in section 152.25 of Title 40, Code of Federal Regulations.

coverage under the Vector Control Permit prior to application at, near, or over waters of the United States.

Notice of Applicability

Based on the information submitted in the application package, including the Notice of Intent and the Pesticide Application Plan dated May 03, 2016, the discharge as described below satisfies the conditions of the Vector Control Permit. Staff has deemed the application package complete and has assigned an enrollee number of 3 42AP00016. This Notice of Applicability implements regulatory coverage under the Vector Control Permit for the application described below, effective as of the date of this letter.

Discharge Description

Santa Barbara County is located in the southern portion of California, on the Pacific coast. The Mosquito and Vector Management District of Santa Barbara County services all of Santa Barbara County with the exception of the five Northern County Cities: Guadalupe, Santa Maria, Solvang, Buellton, and Lompoc. Some of the water bodies that the Mosquito and Vector Management District of Santa Barbara County treats for mosquito and vector control include regularly treated water bodies include: Andree Clark Bird Refuge, Atascadero Creek, Carpinteria Salt Marsh, Chumash Park (City of Pismo Beach), Devereux Lagoon, UC Santa Barbara Lagoon, Lake Los Cameros, North Beach Campground (Pismo State Beach), Oceano Dunes, Pismo Creek, Pismo Ecological Reserve (Pismo State Beach), San Pedro Creek, and Santa Barbara Airport Salt Marshes.

General Permit Requirements

To comply with the Vector Control Permit, the Mosquito and Vector Management District of Santa Barbara County shall:

- a. Provide a copy of the Notice of Intent, the Pesticide Application Plan, and all other related materials to the aquatic pesticide applicators.
- b. Ensure that all entities receiving regulatory coverage under this Notice of Applicability understand the terms and conditions of the permit.
- c. Take all necessary steps to minimize or prevent pesticide spills, biological pesticide and chemical pesticide residue polluted water, and other pollutants from entering waters of the United States (in violation of permit requirements).
- d. Review and update the effectiveness and adequacy of the control measures and best management practices (BMPs). Submit all changes to: (1) the BMPs proposed in the Notice of Intent, (2) the Pesticide Application Plan, or other provided information, to the State Water Board for review and comment.
- e. Submit all information required in this Notice of Applicability and Vector Control Permit to the following address:

State Water Resources Control Board
Division of Water Quality
Attention: Gil Vazquez
1001 I Street, 15th Floor
Sacramento, CA 95814

Discharge Monitoring and Reporting Requirements

To comply with the monitoring and reporting requirements of the Vector Control Permit, the Mosquito and Vector Management District of Santa Barbara County shall:

- a. Timely inspect receiving waters, control measures, and BMPs to detect any conditions which may cause violations of the receiving water limitations and other requirements in the Vector Control Permit.
- b. Conduct monitoring and reporting in compliance with the provisions and requirements in Monitoring and Reporting Program (Attachment C) of the Vector Control Permit.
- c. Submit annual monitoring reports by March 1 of each year.
- d. Include the following certification in all monitoring reports:

"I certify under penalty of law that this document and all enclosures were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

If you have any questions regarding this Notice of Applicability or the Vector Control Permit, please contact Mr. Gil Vazquez in the NPDES Wastewater Unit of the Division of Water Quality at (916) 322-1400 or Gil.Vazquez@waterboards.ca.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Karen Larsen". The signature is fluid and cursive, with the first name "Karen" and last name "Larsen" clearly distinguishable.

Karen Larsen, Deputy Director
Division of Water Quality

cc: Pascal Mues
NPDES Permits Office
U.S. EPA Region 9, WTR-5
75 Hawthorne Street
San Francisco, CA 94105

John M. Robertson
Executive Officer
Central Coast Regional Water Quality Control Board

Sheila M. Soderberg, P.G.
Senior Engineering Geologist
Central Coast Regional Water Quality Control Board

Mosquito and Vector Management District of Santa Barbara County Pesticide Application Plan (PAP)

- 1. Description of ALL target areas, if different from the water body of the target area, in to which larvicides and adulticides are being planned to be applied or may be applied to control vectors. The description shall include adjacent areas, if different from the water body of the target areas;**

The Mosquito and Vector Management District of Santa Barbara County (MVMD) services all of Santa Barbara County with the exception of the five Northern County Cities: Guadalupe, Santa Maria, Solvang, Buellton and Lompoc. In addition, the MVMD contracts with the City of Pismo Beach in San Luis Obispo County. Please see attachment A.

- 2. Discussion of the factors influencing the decision to select pesticide applications for mosquito control;**

In order to accomplish long-range, intelligent, and environmentally sound mosquito control, the management and manipulation of mosquitoes must be accomplished using not just one but all available pest control methods. This dynamic combination of methods into one thoughtful, ecologically-sensitive program is referred to as Integrated Pest Management (IPM). The District's mosquito control program employs IPM principles by first determining the species list and abundance of mosquitoes through larval and adult surveys and then using the most efficient, effective and environmentally sensitive means of control. In some situations, water management or source reduction programs can be instituted to reduce breeding areas. The District also considers biological control such as the planting of mosquito fish. When these approaches are not practical or otherwise appropriate, then a pesticide program is used so that specific breeding areas and/or adult mosquitoes can be treated. Although the MVMD is equipped to perform adulticiding as a means of chemical control we have not utilized this method in over twenty years. Our District focuses on larviciding when all other means of control have proven unsuccessful. In addition, we utilize the lowest toxicity larvicides available that have demonstrated efficacy in our environments.

The MVMD utilizes the following components in their IPM strategy:

- Public Education
- Vector Surveillance
- Disease Surveillance
- Threshold Measures
- Methods of Control
- Continuing Education/Certification

Public Education

The MVMD utilizes an aggressive public education program to inform constituents of the ways in which they can help reduce the potential for breeding of nuisance and public health vectors. Presentations are given to schools, civic groups, homeowner associations, business entities and other public agencies. In addition the MVMD maintains a website with didactic materials which can be downloaded at the user's convenience. The MVMD also works with local organizations to mitigate breeding source issues through proper water and vegetation management.

Vector Surveillance

The MVMD has a well established surveillance program which targets larval and adult mosquito populations. Larval sources are routinely inspected by technicians in the field in addition to seeking out the location of new breeding sources. Technicians or the MVMD biologist will collect adult mosquito samples via overnight trapping both on a routine basis and as warranted by direct observation of adult abundance or through service requests from constituents.

Disease Surveillance

The MVMD maintains five sentinel chicken flocks throughout the District boundaries. Blood samples from these flocks are regularly tested for the presence of disease. In addition, adult mosquitoes are regularly collected and tested. The MVMD also participates in dead bird collection via the West Nile virus hotline maintained by the California Department of Public Health.

Threshold Measures

The MVMD utilizes the California Department of Public Health's Best Management Practices for Mosquito Control and the Mosquito-Borne Virus Surveillance and Response Plan to ascertain the appropriate action based on a number of factors including but not limited to: abundance, species, life stage, disease potential, range, distance to human populations, source size.

Control Methods

First and foremost the MVMD attempts to minimize the use of pesticides as a means of control. Pesticides are utilized as a last resort when all other methods have failed or are not feasible. The MVMD seeks to reduce breeding sources through physical and biological methods such as: debris and vegetation management, water quality improvements and biological control. Following these methods the MVMD will use insecticides that utilize a target specific bacterium to reduce mosquito populations in their larval form. These insecticides typically do not affect non-target species within the water body. Finally chemical control will be utilized when all other measures fail.

Continuing Education/Certification

All staff that interacts with pesticides at the MVMD are certified by the State of California Department of Public Health in all four vector control categories. In addition, regular

continuing education is provided to keep our staff apprised of changes and alternatives in vector management.

3. Pesticide products or types expected to be used and if known, their degradation by-products, the method in which they are applied, and if applicable, the adjuvants and surfactants used;

The following products may be used by the District for larval or adult mosquito control. This list is excerpted from Attachment E and F within the NPDES Permit for Biological and Residual Pesticide Discharges to Waters of the U.S. for Vector Control Applications. All of these products are used according to label directions and may be applied by ground (hand, truck, ATV, backpack, etc) or by air (helicopter or fixed wing aircraft).

List of Permitted Larvicide Products

Larvicide Product Name	Registration Number
Vectolex CG Biological Larvicide	73049-20
Vectolex WDG Biological Larvicide	73049-57
Vectolex WSP Biological Larvicide	73049-20
Vectobac Technical Powder	73049-13
Vectobac-12 AS	73049-38
Aquabac 200G	62637-3
Teknar HP-D	73049-404
Vectobac-G Biological Mosquito Larvicide Granules	73049-10
Vectomax CG Biological Larvicide	73049-429
Vectomax WSP Biological Larvicide	73049-429
Vectomax G Biological Larvicide/Granules	73949-429
Zoecon Altosid Pellets	2724-448
Zoecon Altosid Briquets	2724-375
Zoecon Altosid Liquid Larvicide Mosquito Growth Regulator	2724-392
Zoecon Altosid XR Entended Residual Briquets	2724-421
Zoecon Altosid Liquid Larvicide Concentrate	2724-446
Zoecon Altosid XR-G	2724-451
Zoecon Altosid SBG Single Brood Granule	2724-489
Mosquito Larvicide GB-1111	8329-72
BVA 2 Mosquito Larvicide Oil	70589-1

Larvicide Product Name	Registration Number
BVA Spray 13	55206-2
Agnique MMF Mosquito Larvicide & Pupicide	53263-28
Agnique MMF G	53263-30
Abate 2-BG	8329-71
5% Skeeter Abate	8329-70
Natular 2EC	8329-82
Natular G	8329-80
Natular XRG	8329-83
Natular XRT	8329-84
Natular T30	8329-85
FourStar Briquets	83362-3
FourStar SBG	85685-1
Aquabac xt	62637-1
Spheratax SPH (50 G) WSP	84268-2
Spheratax SPH (50 G)	84268-2

List of Permitted Adulticide Products

Adulticide Product Name	Registration Number
Pyrocide Mosquito Adulticiding Concentrate for ULV Fogging 7395	1021-1570
Evergreen Crop Protection EC 60-6	1021-1770
Pyrenone Crop Spray	432-1033
Prentox Pyronyl Crop Spray	655-489
Pyrocide Mosquito Adulticiding Concentrate for ULV Fogging 7396	1021-1569
Aquahalt Water-Based Adulticide	1021-1803
Pyrocide Mosquito Adulticide 7453	1021-1803
Pyrenone 25-5 Public Health Insecticide	432-1050
Prentox Pyronyl Oil Concentrate #525	655-471
Prentox Pyronyl Oil Concentrate or 3610A	655-501
Permanone 31-66	432-1250
Kontrol 30-30 Concentrate	73748-5
Aqualuer 20-20	769-985
Aqua-Reslin	432-796

Adulticide Product Name	Registration Number
Aqua-Kontrol Concentrate	73748-1
Kontrol 4-4	73748-4
Biomist 4+12 ULV	8329-34
Permanone RTU 4%	432-1277
Prentox Perm-X UL 4-4	655-898
Allpro Evoluer 4-4 ULV	769-982
Biomist 4+4	8329-35
Kontrol 2-2	73748-3
Scourge Insecticide with Resmethrin/Piperonyl Butoxide 18%+54% MF Formula II	432-667
Scourge Insecticide with Resmethrin/Piperonyl Butoxide 4%+12% MF Formula II	432-716
Anvil 10+10 ULV	1021-1688
AquaANVIL Water-based Adulticide	1021-1807
Duet Dual-Action Adulticide	1021-1795
Anvil 2+2 ULV	1021-1687
Zenivex E20	2724-791
Trumpet EC Insecticide	5481-481
Fyfanon ULV Mosquito	67760-34

4. Description ALL of the application areas and the target areas in the system that are being planned to be applied or may be applied. Provide a map showing these areas;

Any site that holds water for more than 96 hours (4 days) can produce mosquitoes. Source reduction is the MVMD's preferred solution, and whenever possible the agency works with property owners to affect long-term solutions to reduce or eliminate the need for continued applications as described in Item 2 above. Mosquito breeding sources and areas that require adult mosquito control are difficult to predict from year to year based on the weather and variations in local environmental conditions. However, the typical sources treated by this agency include:

Please refer to map provided in Item 1 above; regularly treated water bodies include:

1. Andree Clark Bird Refuge
2. Atascadero Creek
3. Carpinteria Salt Marsh
4. Chumash Park (City of Pismo Beach)

5. Cienguitas Creek
6. Devereux Lagoon
7. Lake Los Carneros
8. Mission Creek
9. Pismo Creek
10. Tecolote Creek
11. Santa Barbara Airport salt marshes

5. Other control methods used (alternatives) and their limitations;

With any source of mosquitoes or other vectors, the MVMD's first goal is to look for ways to eliminate the source, or if that is not possible, for ways to reduce the potential for vectors. The most commonly used methods and their limitations are included in the Best Management Practices for Mosquito Control in California.

Specific methods used by the agency include stocking mosquito fish (*Gambusia affinis*), educating residents that mosquitoes develop in standing water and encouraging them to remove sources of standing water on their property, and working with property owners to find long-term water management strategies that meet their needs while minimizing the need for public health pesticide applications.

6. How much product is needed and how this amount was determined;

The need to apply product is determined by surveillance. Actual use varies annually depending on mosquito abundance. The pesticide amounts presented below were taken from the MVMD's 2015 NPDES Annual Report. Other public health pesticides in addition to those listed below may be used as part of the agency's best management practices.

Product	Registration Number	Total Amount (lbs.)	Number Applications
Altosid Briquets	2724-375	12.0119	2
Altosid Pellets	2724-448	100	4
Altosid XR Briquets	2724-421	637.56	5
VectoBac G	73049-10	5488.802	767
VectoLex FG	73049-20	70	1
Natular T30	8329-85	24.611	15
Natular XRT	8329-84	8.272	33

7. Representative monitoring locations and the justification for selecting these monitoring locations

Please see the MVCAC NPDES Coalition Monitoring Plan.

8. Evaluation of available BMPs to determine if there are feasible alternatives to the selected pesticide application project that could reduce potential water quality impacts; and

The MVMD utilizes BMP criteria as stated in the Best Management Practices for Mosquito Control in California. In summary the MVMD utilizes the criteria listed in item #2 above.

9. Description of the BMPs to be implemented. The BMPs shall include at a minimum:

The MVMD's BMPs are described in Item 2 above. Specific elements have been highlighted below under items a-f:

a. measures to prevent pesticide spill;

All pesticide applicators receive annual spill prevention and response training. Agency employees ensure daily that application equipment is in proper working order. Spill mitigation devices are placed in all vehicles and pesticide storage areas.

b. measures to ensure that only a minimum and consistent amount is used

Application equipment is calibrated at least annually as required by the California Department of Pesticide Regulation (DPR) and the terms of a cooperative agreement with the California Department of Public Health (CDPH).

c. a plan to educate Coalition's or Discharger's staff and pesticide applicator on any potential adverse effects to waters of the U.S. from the pesticide application;

This will be included in our pesticide applicators annual pesticide application and safety training, continuing education programs, and/or regional NPDES Permit training programs.

d. descriptions of specific BMPs for each application mode, e.g. aerial, truck, hand, etc.;

The MVMD calibrates truck-mounted and handheld larviciding equipment each year to meet application specifications. Supervisors review application records daily to ensure appropriate amounts of material are being used. Ultra-low volume (ULV) application equipment is calibrated for output and droplet size to meet label requirements. Aerial larviciding equipment is calibrated by the Contractor. Aerial

adulticide equipment is calibrated regularly and droplet size will be monitored by the agency to ensure droplets meet label requirements. Airplanes used in urban ULV applications and the primary airplane used for rural ULV application is equipped with advanced guidance and drift management equipment to ensure the best available technology is being used to place product in the intended area. If a secondary airplane is used in rural ULV applications it will be equipped with an advanced guidance system.

e. descriptions of specific BMPs for each pesticide product used; and

Please see the Best Management Practices for Mosquito Control in California for general pesticide application BMPs, and the current approved pesticide labels for application BMPs for specific products.

f. descriptions of specific BMPs for each type of environmental setting (agricultural, urban, and wetland).

Please see the Item 2 above

The following environmental settings are of interest to the MVMD, BMPs for each can be found in the Best Management Practices for Mosquito Control in California:

- Residential and Landscaped Properties
- Rural Properties
- Wetlands
- Stormwater Management
- Right of Ways and Easements
- Wastewater Treatment Facilities
- Wildlands and Undeveloped Areas

10. Identification of the problem. Prior to first pesticide application covered under this General Permit that will result in a discharge of biological and residual pesticides to waters of the US, and at least once each calendar year thereafter prior to the first pesticide application for that calendar year, the Discharger must do the following for each vector management area:

a. If applicable, establish densities for larval and adult vector populations to serve as action threshold(s) for implementing pest management strategies;

The MVMD staff only applies pesticides to sources of mosquitoes that represent imminent threats to public health or quality of life. The presence of any mosquito may necessitate treatment, however higher thresholds may be applied depending on the agency's resources, disease activity, surveillance data, or local needs. Treatment thresholds are based on a combination of one or more of the following criteria:

- Mosquito species present
- Mosquito stage of development
- Pest, nuisance, or disease potential
- Disease activity
- Mosquito abundance
- Flight range
- Proximity to populated areas
- Size of source
- Presence/absence of natural enemies or predators
- Presence of sensitive/endangered species or habitats.

b. Identify target vector species to develop species-specific pest management strategies based on developmental and behavioral considerations for each species;

Please see Item 2 above.

Specific species of concern for the MVMD are:

- *Culex tarsalis*
- *Culex quinquefasciatus*
- *Culex erythrothorax*
- *Aedes squamiger*
- *Culiseta incidens*
- *Culiseta inornata*
- *Anopheles hermsi*
- *Anopheles françoisianus*
- *Aedes washinoi*
- *Culiseta particeps*
- *Aedes taeniorhynchus*

c. Identify known breeding areas for source reduction, larval control program, and habitat management; and

Any site that holds water for more than 96 hours (4 days) can produce mosquitoes. Source reduction is the agency's preferred solution, and whenever possible the agency works with property owners to implement long-term solutions to reduce or eliminate the need for continued pesticide applications as described in Item 2 above.

d. Analyze existing surveillance data to identify new or unidentified sources of vector problems as well as areas that have recurring vector problems.

This is provided in the Item 2 above that the agency uses. The MVMD continually collects adult and larval mosquito surveillance data, dead bird reports, and sentinel chicken test results, and monitors regional mosquito-borne disease activity detected in humans, horses, birds, and/or other animals, and uses these data to guide mosquito control activities.

11. Examination of Alternatives. Dischargers shall continue to examine alternatives to pesticide use in order to reduce the need for applying larvicides that contain temephos and for spraying adulticides. Such methods include:

a. Evaluating the following management options, in which the impact to water quality, impact to non-target organisms, vector resistance, feasibility, and cost effectiveness should be considered:

- No action
- Prevention
- Mechanical or physical methods
- Cultural methods
- Biological control agents
- Pesticides

If there are no alternatives to pesticides, dischargers shall use the least amount of pesticide necessary to effectively control the target pest.

The MVMD uses the principles and practices of Integrated Vector Management (IVM) as described on pages 26 and 27 of the Best Management Practices for Mosquito Control in California and as discussed in item 2 above. As stated in item #10 above, locations where vectors may exist are assessed, and the potential for using alternatives to pesticides is determined on a case-by-case basis. Commonly considered alternatives include: 1) Eliminate artificial sources of standing water; 2) Ensure temporary sources of surface water drain within four days (96 hours) to prevent adult mosquitoes from developing; 3) Control plant growth in ponds, ditches, and shallow wetlands; 4) Design facilities and water conveyance and/or holding structures to minimize the potential for producing mosquitoes; and 5) Use appropriate biological control methods that are available. Additional alternatives to using pesticides for managing mosquitoes are listed on pages 4-19 of the Best Management Practices for Mosquito Control in California (See previous comment.).

Implementing preferred alternatives is dependent on a variety of factors including availability of agency resources, cooperation with stakeholders, coordination with other regulatory agencies, and the anticipated efficacy of the alternative. If a pesticide-free alternative does not sufficiently reduce the risk to public health, pesticides are considered, beginning with the least amount necessary to effectively control the target vector.

b. Applying pesticides only when vectors are present at a level that will constitute a nuisance.

The MVMD follows an existing IVM program, which includes practices described in the Item 2 above.

A “Nuisance” is specifically defined in California Health and Safety Code (HSC) §2002(j). This definition allows vector control agencies to address situations where even a low number of vectors may pose a substantial threat to public health and quality of life. In practice, the definition of a “nuisance” is generally only part of a decision to apply pesticides to areas covered under this permit. As summarized in the California Mosquito-borne Virus Surveillance and Response Plan, the overall risk to the public when vectors and/or vector-borne disease are present is used to select an available and appropriate material, rate, and application method to address that risk in the context of our IVM program.

12. Correct Use of Pesticides

Coalition’s or Discharger’s use of pesticides must ensure that all reasonable precautions are taken to minimize the impacts caused by pesticide applications. Reasonable precautions include using the right spraying techniques and equipment, taking account of weather conditions and the need to protect the environment.

This is an existing practice of the MVMD, and is required to comply with the Department of Pesticide Regulation’s (DPR) requirements and the terms of our California Department of Public Health (CDPH) Cooperative Agreement. All pesticide applicators receive annual safety and spill training in addition to their regular continuing education.

13. If applicable, specify a website where public notices, required in Section VIII.B, may be found.

<http://www.mvmdistrict.org>

References:

Best Management Practices for Mosquito Control in California. 2011. Available by download from the California Department of Public Health—Vector-Borne Disease Section at <http://www.westnile.ca.gov/resources.php> under the heading *Mosquito Control and Repellent Information*. Copies may be also requested by calling the California Department of Public Health—Vector-Borne Disease Section at (916) 552-9730 or the Mosquito and Vector Management District of Santa Barbara County at (805) 969-5050.

California Mosquito-borne Virus Surveillance and Response Plan. 2010. [Note: this document is updated annually by CDPH]. . Available by download from the California Department of Public Health—Vector-Borne Disease Section at <http://www.westnile.ca.gov/resources.php> under the heading *Response Plans and Guidelines*. Copies may be also requested by calling the California Department of Public Health—Vector-Borne Disease Section at (916) 552-9730 or the Mosquito and Vector Management District of Santa Barbara County at (805) 969-5050.

MVCAC NPDES Coalition Monitoring Plan. 2011. [In development at the time of this draft]

Appendix C

Goleta Slough Ecosystem Biological Technical Report

Table of Contents

1	Goleta Slough Ecosystem Biological Technical Report	C-1
1.1	Goleta Slough Environmental Setting	C-1
1.2	District Activities	C-4
1.2.1	City of Santa Barbara Airport.....	C-4
1.2.2	University of California Santa Barbara	C-6
1.2.3	Storke Ranch	C-6
1.2.4	Goleta Sanitary District	C-6
1.3	Resource Management.....	C-7
1.3.1	Goleta Slough Management Committee	C-7
1.3.2	California Department of Fish and Wildlife.....	C-8
1.3.3	Local Coastal Programs	C-8
1.4	Ecological Setting.....	C-9
1.4.1	Ecological History	C-9
1.4.2	Physical Characteristics	C-12
1.4.3	Biological Characteristics.....	C-14
1.4.4	Treatment Area Habitats and Wildlife.....	C-14
1.5	Regulated Biological Resources.....	C-18
1.5.1	Methodology.....	C-18
1.5.2	Special-Status Species	C-20
1.5.3	Special-Status Wildlife Species	C-23
1.5.4	Birds Protected by the California Fish and Game Code and Migratory Bird Treaty Act	C-33
1.5.5	ESHA and Sensitive Natural Communities	C-33
1.5.6	Aquatic Resources	C-33
1.5.7	Wildlife Movement	C-34
1.6	Coastal Impact Analysis	C-34
1.6.1	Special-Status Species	C-34
1.6.2	ESHA and Sensitive Natural Communities	C-40
1.6.3	Hydrology.....	C-41
1.6.4	Wildlife Movement	C-41
1.6.5	Resources Protected by the Coastal Act, Local Policies, and Ordinances	C-42
1.7	GSEMP Cumulative Impacts.....	C-44
1.8	References	C-46
1.9	List of Preparers	C-51
1.10	Common and Scientific Names of Species Referenced.....	C-52

Tables

Table 1	Santa Barbara Airport Treatment Areas	C-5
Table 2	Goleta Slough Ecosystem General Vegetation Communities and Land Cover.....	C-14
Table 3	Special-Status Plant Species Present in the GSEMP.....	C-21
Table 4	Special-Status Wildlife Species Present with a High Potential to Occur in the Goleta Slough Study Area	C-24
Table 5	Common and Scientific Names of Species Referenced	C-52

Figures

Figure 1	Goleta Slough Treatment Areas and Critical Habitat	C-2
Figure 2	Carpinteria Salt Marsh Treatment Areas and Critical Habitat	C-3

Attachments

Attachment C.1	Goleta Slough Ecosystem Technical Appendix Photographs
Attachment C.2	Natural Resources Regulatory Setting (<i>will be included in the Final Plan</i>)

1 Goleta Slough Ecosystem Biological Technical Report

This Biological Technical Report describes environmental impacts on coastal resources from the Mosquito and Vector Management District of Santa Barbara County (District) surveillance and treatment activities occurring within the Goleta Slough, a coastal ecosystem in southern Santa Barbara County. The Goleta Slough Ecosystem Management Plan (GSEMP; GSMC 2015) depicts the boundaries of the slough, and the illustrated boundaries comprise the Study Area for biological resources evaluated in this report. The Study Area is depicted on Figure 1. The surveillance and treatment activities are described in the Integrated Mosquito and Vector Management Plan (IMVMP, or “Plan”) Section 2, Integrated Mosquito Management Program, and include Special Coastal Procedures for minimizing environmental impacts in coastal areas.

The GSEMP includes areas within the Santa Barbara Airport (SBA), City of Goleta, and University of California Santa Barbara (UCSB), and extends into unincorporated Santa Barbara County near Atascadero and San Pedro creeks and More Mesa. The GSEMP area includes the airport, the historical extent of the Goleta Slough and its surrounding wetland, riparian, and beach habitats, Goleta Beach County Park and More Mesa as described in the GSEMP. The GSEMP Study Area is within the *Goleta, California* United States Geological Survey (USGS) 7.5-minute topographic quadrangle. The GSEMP is surrounded by the Santa Ynez Mountains to the north, Pacific Ocean to the south, City of Santa Barbara to the east, and developed areas of the Goleta Valley to the west.

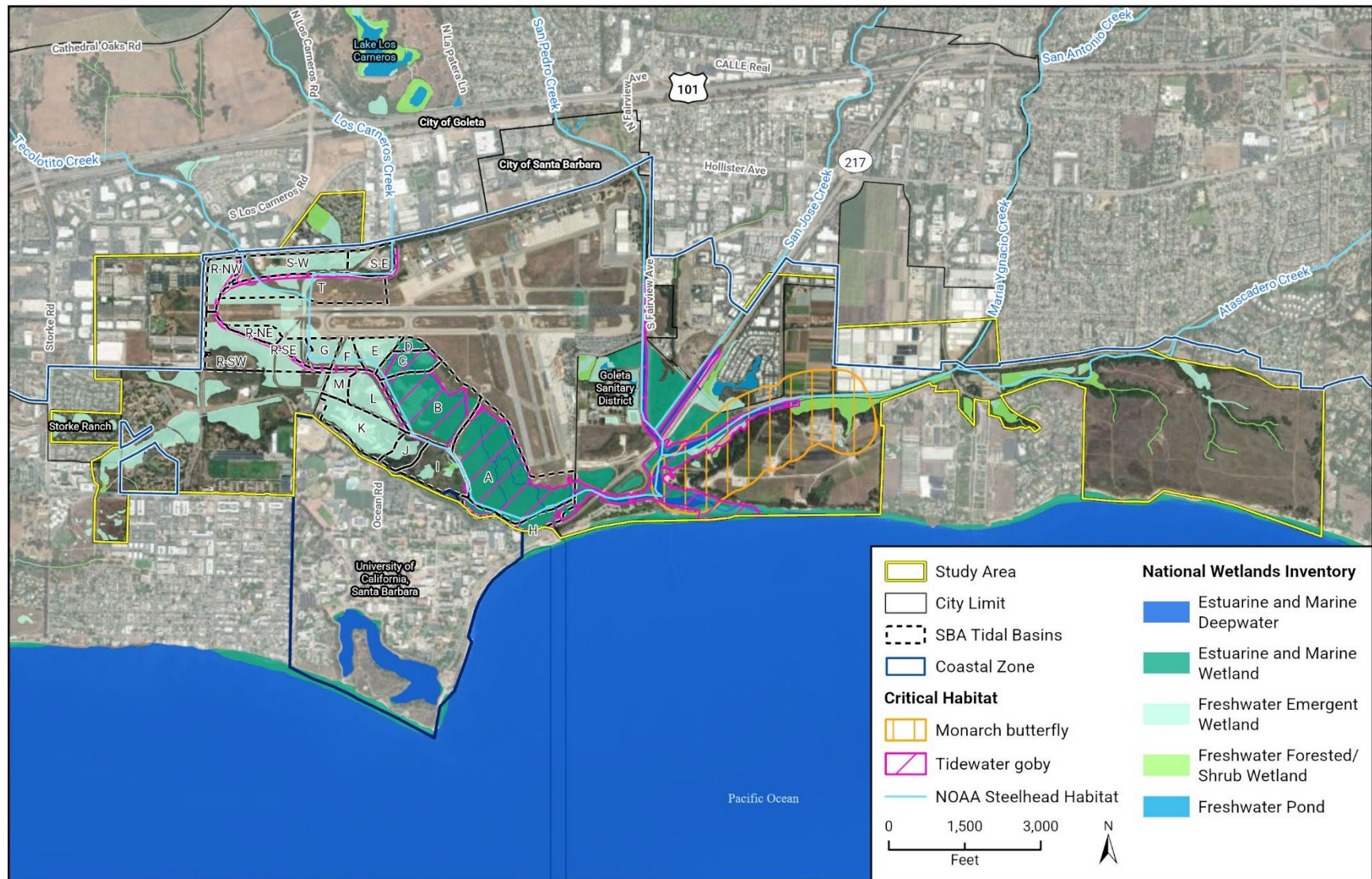
The Goleta Slough is a large wetland and ecological reserve owned in part by the City of Santa Barbara, California Department of Fish and Wildlife (CDFW), and UCSB. The Goleta Slough receives water from six major streams; Atascadero, San Pedro, Maria Ygnacio, and San Jose creeks meet near the mouth of the Goleta Slough on the east side, while Los Carneros and Tecolotito creeks meet upstream to the west. The lower reaches of all these creeks have been subject to regular management actions (including silt removal projects), and structures such as check dams, concrete lining, and sediment basins are present. Tecolotito and Los Carneros creeks had channel realignment projects implemented in 2006 and tidal Basins E/F were restored in 2010 (URS Corporation 2008, Padre 2010).

While not part of the Study Area, the Carpinteria Salt Marsh is depicted under Figure 2 since it is subject to similar surveillance and treatment activities by the District, including the Special Coastal Procedures, and contains resources similar to those found in Goleta Slough.

1.1 Goleta Slough Environmental Setting

The Goleta Slough is in southern Santa Barbara County between the Santa Ynez Mountains and the Pacific Ocean. The 2,250-acre Goleta Slough ecosystem area was identified by the Goleta Slough Management Committee (GSMC) in the mid-1990s. The primary determinant of what to include in the ecosystem was whether an area was historically within the tidally influenced basin of the Goleta Slough, although contiguous freshwater wetland habitats and upland habitats were also included. The ecosystem is mostly in the coastal zone including the Goleta Slough and portions of the six creeks that drain into it (Figure 1).

Figure 1 Goleta Slough Treatment Areas and Critical Habitat



Basemap provided by Esri and its licensors © 2026. Map created by Rincon Consultants, Inc., 2026.

25-18350 BIO
Tidewater Goby and Steelhead Figure

Figure 2 Carpinteria Salt Marsh Treatment Areas and Critical Habitat

Basemap provided by Esri and its licensors © 2026. Map created by Rincon Consultants, Inc., 2026.

25-18350 BIO
Carpinteria Salt Marsh

The Goleta Slough is the northernmost example of a large southern California estuary and represents the northern limit of distribution for several plant and animal species (GSMC 2015). It includes the Goleta Slough Ecological Reserve and the Goleta Slough State Marine Conservation Area, both of which are managed by the CDFW. In addition to its biological importance, the Goleta Slough provides many other functions and values including floodwater storage capacity, filtering of pollutants contained in stormwater runoff, open space, and educational and scientific opportunities. The area is also rich in cultural and historic resources. The Goleta Slough is designated an Environmentally Sensitive Habitat Area (ESHA) in planning documents, as are most of the creeks that drain into it. The Goleta Slough's watershed is about 45 square miles and includes the drainages of six creeks: Atascadero, Carneros, Maria Ygnacio, San Jose, San Pedro, and Tecolotito (Figure 1).

The Goleta Slough was historically an embayment of approximately 18 square miles in size. The name *Goleta* means schooner in Spanish, reflecting the history of the area when the Goleta Slough was a bay with boats sailing inland close to what is now Hollister Avenue. The Goleta Slough and surrounding areas were historically occupied by the Chumash people and supported several Chumash settlements due to the abundance of freshwater, estuarine, and marine resources. Archaeological sites within and adjacent to the Goleta Slough provide evidence of long-term Native American use of the area (Modugno 2021).

The 2,250-acre GSEMP area was identified by the GSMC in the mid-1990s. The primary determinant of what to include in the ecosystem was if an area was historically within the tidally influenced basin of the Goleta Slough. Contiguous freshwater wetland habitats and upland habitats were also included. The ecosystem includes the Goleta Slough and portions of the six creeks that drain into it. Much of the area lies within the coastal zone. Some of the GSEMP area is developed with urban uses, including the SBA, Goleta Sanitary District (GSD) plant, Goleta West Sanitary District (GWSD) plant, multifamily housing, and commercial and industrial uses.

1.2 District Activities

An essential component of an effective and environmentally sensitive IMVMP is the District's proactive approach to the management of vector populations. Continuous surveillance, early detection, a rapid response, and a good public education program to minimize human and vector interactions. Most importantly, a proactive approach minimizes the use of pesticides while maximizing the opportunities to use methodologies that are the least disruptive to non-target organisms and the environment.

Without implementation of proactive or coordinated abatement measures, mosquito abundance in the GSEMP would result in:

- Elevated mosquito nuisance conditions affecting nearby residential areas, UCSB Main Campus, and airport operations
- Increased public health risk and potential for a public health emergency associated with mosquito-borne disease transmission to humans and wildlife, particularly during warm months when viral amplification is greatest

The District has existing management plans and a memorandum of understanding for the selected treatment areas in the GSEMP described below. This list is not inclusive since the District treats multiple areas in the Study Area habitats shown on Figure 1. Proactive surveillance and treatment greatly reduce the potential for public health emergency responses, which may have more severe environmental and public health consequences.

1.2.1 City of Santa Barbara Airport

These basins on the SBA property described under Table 1 are recognized as larval habitats that serve as sources of nuisance and disease-vector mosquitoes.

Table 1 Santa Barbara Airport Treatment Areas

SBA Basin	District Name	Treatment Area	National Wetland Inventory Habitat (NWI) Classification
A	Main Basin	Near radar installation area and adjacent to State Route 217	Tidal marsh
B, C, D	Middle Basin	Middle Basin (located to the northeast of and adjacent to Area L/M)	Tidal marsh
E	East of Panama Basin	SBA restored tidal basin. Tidal and freshwater.	Freshwater marsh (restored to tidal since NWI mapping)
F	Panama Basin	SBA restored tidal basin	Freshwater marsh (restored to tidal since NWI mapping)
G	West of Panama Basin	Tidal and freshwater basin west of "Panama" basin.	Freshwater marsh
H	SR 217 Source	Tidal treatment area	Tidal Marsh
I	White Pole	Field north of UCSB's Laundry Road	Freshwater marsh
J	Tule Pond	Tule Pond	Freshwater pond
K	Duck Pond	Duck Pond, channel on south side of Duck Pond	Freshwater marsh
L/M	Triangle Basin	Freshwater marsh	Freshwater marsh
R	Runways, Chumash field, No go Zone, Field West of West Basin	Freshwater marsh area southwest of the main runway, southwest from the west end of the main runway, on both sides of Tecolote Creek, field near radar Installation	Freshwater marsh
S	Hollister Sources, plant nursery	Wetland south of Hollister Ave. near Los Carneros Rd, Ditch on the south side of Hollister Ave	Riparian corridor
T	Mowed Field	Freshwater areas	Freshwater marsh

The District accesses treatment locations using 4x4 vehicles on existing maintained roads within the SBA. Due to security as well as ecological concerns, access within the SBA is very limited and is granted through a pre-approved airport security badge requirement. Technicians have badges and are required to notify SBA in advance of access and must check in and out with SBA staff each time they access the property. The District does not own or maintain roads and relies on SBA, utility, or Santa Barbara County Flood Control District (SBCFCD) roads. Some locations require additional walking to reach specific treatment locations, depending on road maintenance. Once at the treatment location, treatments are conducted on foot within the basins. Hip wading boots are typically worn when accessing and treating the various basins and ponds when they are flooded. Some locations require an escort for safety and security due to proximity to airplane runways.

The existing roads were developed for airport use in the 1940s, including the original road to Goleta Beach and before State Route (SR) 217 to UCSB was constructed. Since the 1940s, regional infrastructure has been added to SBA property, including flood control levees and berms, SR 217, and above and below ground utilities including water, sewer, telephone, cable, electricity, and internet lines. The District is coordinating with SBA to re-establish vegetation management on existing berms and roads.

All pesticides used at SBA by the District are approved by and registered with the California Department of Pesticide Regulation (CDPR) and United States Environmental Protection Agency (USEPA) as discussed above, and are in compliance with the City of Santa Barbara's Integrated Pest Management Strategy as well as the State Water Resources Control Board's (SWRCB) Vector Management Permit for use in Waters of the United States (City of Santa Barbara 2006, 2023; SWRCB 2016). The District only uses material designated in the green or yellow category as defined in the

Integrated Pest Management Strategy, consistent with Best Management Practice (BMP)-04. The District notifies the SBA prior to treatment, and qualified biologists monitor the surrounding habitat during treatment in the Goleta Slough. While monitoring, the biologists make observations and provide verbal notifications of resources to be avoided.

1.2.2 University of California Santa Barbara

UCSB has considerable acreage of natural lagoons, estuaries, vernal pools, seasonal and permanent freshwater ponds, constructed water features (ornamental ponds, fountains, and drains), bioswales and other wetlands that are significant sources. Boats may be used to apply larvicides at large bodies of water such as Devereux Slough.

Approximately 10.8 acres of treated areas occur within the Study Area which includes freshwater wetlands and freshwater management features, including seasonally flooded marshes, bioswales, vernal pools, ponds, and stormwater infrastructure. Coastal or brackish habitat treated on the UCSB Campus are outside the Study Area and limited to the lagoon-adjacent wetlands along the Campus Lagoon shoreline and the Devereux Slough.

1.2.3 Storke Ranch

Storke Ranch Wetland, historically the southwestern extension of Goleta Slough, has been cut off by berms, drainage ditches, and tide gates (Cheadle Center for Biodiversity and Ecological Restoration [CCBER] 2026). The Storke Ranch Wetland is not in the GSEMP but was added to the study area since it is a notorious source of mosquitoes and is hydrologically connected to the GSEMP and Devereux Slough. The Storke Ranch Development was constructed during the early 2000s, and the Development Plan required a comprehensive Environmental Management Plan (Van Atta Associates 1999), including environmentally sensitive mosquito management under Development Plan Condition of Approval #28:

The marshes and vernal pools shall not be drained. Control of mosquitoes and other pests in these areas shall only occur in consultation with the Goleta Valley Vector Control District and shall use the most environmentally sensitive agent which provides effective control as determined by the District.

Plan Requirements and Timing: The applicant and the Goleta Valley Vector Control District shall be encouraged to enter into an agreement plan concerning monitoring, record keeping, use of approved pesticides, and limitations concerning draining vernal pools.

The treatment area includes three basins of between 0.8 acre and 2.5 acres that form a seasonal wetland that collects runoff rainwater. Depending on the amount of winter rainfall, the wetland may remain flooded for several months. Floodwater mosquitoes hatch out immediately after the basins fill with rainwater. Later in the season, *Culex*, *Culiseta*, and *Anopheles* mosquito species will breed there. In 2025/2026, approximately 13 visits are assumed, and 22 pounds of VectoBac G and less than a pound of VectoMax are anticipated to be used. The number of visits and amount of treatment varies annually depending on flooded acreage.

1.2.4 Goleta Sanitary District

The Goleta Sanitary District's (GSD) wastewater treatment facility has two large mosquito breeding sources on its property. The main source is a wetland at Moffett Place and Fowler Road that consists of a pair of tule-filled freshwater marshes. This 6.5-acre site is a seasonal wetland that floods during winter rainstorms. Dense tule vegetation, which provides an excellent habitat for mosquito breeding, grows throughout the entire wetland except for the southwest corner which has a dense growth of willows.

Floodwater mosquitoes breed in this wetland and their eggs hatch as the wetland floods. The adult females are not known to be disease vectors but are vicious and aggressive biters that cause serious mosquito nuisance problems. Floodwater mosquitoes have only one generation per year and can be controlled with a pre-flood treatment of time-released larvicide applied before flooding occurs. Altosid 30-

day briquettes (47 pounds estimated) are the most effective and efficient way to treat this site for Floodwater mosquitoes due to its 30-day time release formulation and are applied using slingshots either before or after it floods.

The secondary source is three freshwater settling ponds on the east side of the GSD facility. Vegetation growing in the stagnant water plus the effluent in these ponds can create ideal mosquito breeding habitats, especially when vegetation starts growing in the ponds and creates refuges for mosquito larvae. The total area of the ponds is approximately 5.5 acres, of which about 2.5 acres the District has traditionally treated. Because of the sporadic nature of mosquito breeding in this habitat, it is treated only upon request by the GSD.

1.3 Resource Management

State, federal and local agencies regulate development, execute restoration, and conduct or oversee research activities within the Plan area. Regulatory agencies include the Federal Aviation Administration, United States Army Corps of Engineers (USACE), United States Fish and Wildlife Service (USFWS), state and regional water quality control boards, CDFW, State Lands Commission, National Marine Fisheries Service (NMFS), and the California Coastal Commission (CCC). Special districts, such as the Santa Barbara Flood Control District, also conduct activities in the Goleta Slough. Other special districts operating in the Goleta Slough are two sanitary districts GSD and GWSD and the Goleta Water District. Land use permitting authority includes the CCC, City of Santa Barbara, City of Goleta, or County of Santa Barbara depending on the location.

Most of the Goleta Slough Ecosystem is located within the coastal zone. The CCC retains original permit jurisdiction over “tidelands, submerged lands, public-trust lands,” and has appeal authority over local Coastal Development Permit (CDP) decisions in certain zones. The CCC retains “original permit jurisdiction” over portions of the Goleta Slough itself and along tidally influenced portions of Atascadero and San Jose creeks.

1.3.1 Goleta Slough Management Committee

The GSMC was established in 1991 in recognition of the importance of the Goleta Slough and the challenge of managing it comprehensively. SBA is required to support the financing of a GSMC Facilitator who works to bring together all stakeholders on a regular basis to discuss management activities, proposed projects, and resilience strategies.

No single entity has management authority over the entire Goleta Slough area, but a number of agencies play a major role in the area, including the cities of Goleta and Santa Barbara, the County of Santa Barbara, several special districts, UCSB, and several state and federal regulatory agencies. GSMC was formed to work cooperatively with regulatory agencies, property owners, and public interest groups to provide for a healthy ecosystem irrespective of jurisdictional or other boundaries. GSMC continues to identify and resolve issues related to management of the GSEMP and serves in an advisory capacity to lead agencies (e.g., City of Goleta, City of Santa Barbara, Santa Barbara County, and University of California Regents) (GEMC 2016). GSMC serves as a forum to review projects that involve property owners, sensitive habitats, interested parties and multiple jurisdictions. Information is provided to stakeholders via bi-monthly newsletter and meetings that allow for GSMC members to determine whether they will individually support proposed activities or projects in the GSMC area.

1.3.2 California Department of Fish and Wildlife

Goleta Slough Ecological Reserve

In 1988, CDFW (then known as the California Department of Fish and Game) prepared a draft management plan for the Goleta Slough Ecosystem. This plan initially named the sub-areas or basins within the Goleta Slough. The plan was never finalized but the lettering system for the sub-basins is still used today (as shown in Figure 1). The Goleta Slough Ecological Reserve protects 440 acres of a variety of habitat types, including estuarine, riverine, and palustrine wetlands; coastal bluff scrub; introduced grassland; coastal sage scrub; and southern coastal oak woodland.

Mosquito control on state lands is guided by *Best Management Practices for Mosquito Control on California State Properties* (California Department of Public Health [CDPH] 2008), which provides property owners and land managers with BMPs to control and reduce mosquito populations.

Goleta Slough State Marine Conservation Area

In 2007, approximately 160 acres were named the Goleta Slough State Marine Conservation Area located below the mean high tide line (4.51 feet above mean sea level). This area is designated a “no take” zone, where no marine life may be taken or caught and boating, swimming, wading, and diving are prohibited. The District is allowed to enter the State Marine Conservation Area for the purposes of carrying out official duties (California Code of Regulations Title 14, Section 632).

1.3.3 Local Coastal Programs

City of Santa Barbara Airport Local Coastal Program

The City of Santa Barbara has a certified Local Coastal Program (LCP) covering the airport and Goleta Slough. This plan, originally certified in 1982, was updated in 2003 to incorporate the GSEMP.

An Airport Zoning Ordinance adopted in 1974 established the Goleta Slough as a protected natural wildlife area, prohibiting any alterations not directly intended for preservation or enhancement of its natural condition. Additional protection is provided to sensitive environmental resources at SBA within the coastal zone through the City of Santa Barbara’s zoning ordinance. Much of the airport lies within the S-D-3 Coastal Overlay Zone, where City of Santa Barbara-issued CDPs remain appealable to the CCC.

The Santa Barbara City Code Airport Zoning Code (Section 29.25.040.A.4) specifically exempts ongoing mosquito abatement and related maintenance activities from requiring a Goleta Slough CDP.

Like the Coastal Act, Section 29.25.030 lists the uses permitted in the coastal zone subject to a Goleta Slough CDP and include incidental public service projects and repair or maintenance activities. Uses allowed without a Goleta Slough CDP include mosquito abatement activities, public access for educational purposes, and the maintenance of cultural resources.

Development at SBA includes three review paths:

- Exemptions/Exclusions (ministerial review)
- City of Santa Barbara-issued CDPs (Staff Hearing Officer or Planning Commission)
- CCC-issued CDPs (when within retained jurisdiction or on appeal)

County of Santa Barbara Local Coastal Program and Eastern Goleta Valley Community Plan

The western portion of the GSEMP is under the jurisdiction of the County. In 1982, the County’s LCP was certified. In 1993, the Goleta Valley Community Plan provided further protection through the creation of specific policies and development standards regulating land use. The Goleta Community Plan was

replaced with the Eastern Goleta Valley Community Plan, certified in 2017. The County's LCP and Eastern Goleta Valley Community Plan designates Environmentally Sensitive Habitat Areas (ESHA) but does not include specific standards relating to vector management or pesticide use.

UCSB Long Range Development Plan

UCSB has a Long Range Development Plan certified by the CCC in 2014 and includes buffers and management measures that are required to protect ecological integrity and special-status species. Approximately 237 acres of campus land are designated as ESHA. Policy ESH-10 regulates mosquito control in ESHA.

City of Goleta General Plan/Coastal Land Use Plan Conservation Element

The City of Goleta, incorporated in 2002, has adopted a General Plan/Coastal Land Use Plan (referred to as the "GP/CLUP"), but the latter is in the process of consultation with the CCC and is not certified.

The Goleta GP/CLUP includes policies that protect and preserve biological resources by designating specific resources and areas as protected, including ESHAs, restricting activities and uses in protected areas, providing for the management of the resources on City of Goleta lands, specifying impact avoidance and mitigation requirements for types of activities and by type of biological resource, and providing guidance for development and conservation decisions over the long term. Natural resources are regulated and protected through the Conservation Element, which contains policies aimed at protecting ESHAs that are generally mapped in Figure 4.1 of the GP/CLUP.

1.4 Ecological Setting

The primary source for description below is the 2015 GSEMP supplemented with the studies and project specific biological reports.

1.4.1 Ecological History

Historically the Goleta Slough supported 1,800 acres of tidal salt marsh, but the site has been degraded and reduced in size through both natural sedimentation and artificial filling. Both natural and anthropogenic processes have contributed to a reduction in tidal circulation within the Goleta Slough. During this century, approximately 60 percent of the tidal wetlands in the Goleta Slough have been lost (filled) or isolated from tidal action (CCC 2019). Nearly 100 years ago, for cattle grazing purposes, berms were constructed across the Goleta Slough to keep out salt water. Ditches were constructed to drain rainwater runoff into the remaining Goleta Slough to the east and a tide gate was added to keep the salt water out. Ever since then, the Goleta Slough's ecological function has declined, and roads and housing were constructed on-site. In addition, the watershed in and around the western part of the Goleta Slough has become increasingly impermeable and water flow from there has been channelized into storm drains that empty directly into wetlands. In some cases, those wetlands retain high ecological function, and in other cases, drainage features such as channels and ditches have reduced wetland functionality by altering natural hydrology, sediment processes, and habitat conditions (CCBER 2026).

The Marine Corps Air Station, built in 1941, eventually became the Santa Barbara Municipal Airport and portions of UCSB (CCC 2019). The Goleta Slough has also been extensively modified to accommodate several substantial developments and is now the site of the SBA, two wastewater treatment facilities (GWSD and GSD), and has other commercial and industrial uses. Historically, the Goleta Slough was a permanently flooded estuarine embayment, but tidal gates installed in the 1950s prevent the entirety of the site from being tidally influenced. Approximately 100 acres of the Goleta Slough consist of small basins isolated from tidal circulation by berms and/or culverts.

The existing roads were developed for airport use in the 1940s, including the original road to Goleta Beach and UCSB before SR 217 was constructed. Levees and flood control infrastructure, and utilities easements including water, sewer, telephone, cable, electricity, and internet now cross SBA property.

Prior to the 1975 Goleta Slough Management Plan, the SBCFCD had:

- Installed sediment/debris basins at Glen Annie and Carneros Creeks
- Conducted channel widening and deepening to restore conveyance and enhance tidal flushing
- Removed or modified certain levees and culverts to improve saltwater circulation

These actions inadvertently reduced mosquito habitat by decreasing stagnant-water conditions and increasing tidal reach (Hannan 1975).

District Management History

The Isla Vista Mosquito Abatement District was formed in 1959 (renamed the Goleta Valley Mosquito Abatement District in 1961) and primarily focused on mosquito control in wetlands and flood-prone areas including the Goleta Slough. An editorial in the Lompoc Record in 1967 describes the Goleta Slough as “marshy and mosquito ridden” (Modungo 2021). Construction of SR 217 resulted in filling of wetlands, fragmentation of habitat, and temporary closure of the estuary.

Per the California Department of Fish and Game in 1970 abatement control measures included:

- (1) weekly patrols and source reduction as needed; (2) water control work including maintenance of channels and levees, deepening of existing channels, and installation and maintenance of tidegates; and (3) introduction of small fish, particularly sticklebacks, to feed on mosquito larvae.

Historically the District operated two tide gates, one of which was not functional by 1970 (CDFG 1970). As discussed in the 1975 Goleta Slough Management Plan (Hannan 1975) (referred to as the “1975 Plan”), the District approached mosquito control as both a public health necessity and an activity that needed to be compatible with the ecological sensitivity of the Goleta Slough. In 1975, mosquito species and habitat conditions were similar to today.

Unlike earlier historical approaches that relied on marsh filling, draining, or ditching, the District avoided practices that would permanently alter wetland habitat. Page 34 of the 1975 Plan states the following:

The Goleta salt marsh serves as an example of modern, professional mosquito control that is efficient and still compatible with the preservation of the Goleta Slough's natural state.

Consistent with current practices, under the 1975 Plan the District’s operations relied heavily on continuous field surveillance:

Qualified mosquito abatement entomologists conduct continuous appraisals of potential mosquito breeding areas. Information from bi-weekly inspections and spraying operations is systematically recorded and integrated into an abatement program

To reduce mosquito populations while preserving the ecological character of the Goleta Slough, the District implemented a combination of biological and targeted chemical controls, both considered advanced for the time. In isolated and limited freshwater pockets, staff released mosquito fish (*Gambusia affinis*), which preyed naturally on mosquito larvae and did not require supplemental feeding once established.

Chronic breeding areas that could not be controlled biologically were treated through periodic larvicide in highly targeted and restricted to areas where larvae were confirmed through field inspection.

Chronic breeding areas are controlled through periodic larvicide operations. Fortunately, from an environmental viewpoint, the mosquito is one of the easiest insects to exterminate, which allows abatement programs to use a minimum of chemical agents. Goleta Valley larvicide operations are

accomplished through the use of a quick evaporating, low-toxic diesel/organic phosphate compound that is approved by the State Department of Health and the State Department of Agriculture and which has no injurious effect on Slough bird or fish life (1975 Plan, Page 34)

As stated in the 1975 Plan, and as currently required, access was limited for airport safety and ecological preservation, in that vehicle traffic was confined to established berms and maintenance roads and personnel received authorized access explicitly for necessary monitoring and treatment activities.

Similar to current practices, Goleta Slough mosquito management as dictated by the Plan reflected a measured, ecologically aware program that combined biological control, limited chemical larvicide, and frequent field surveillance within the context of evolving hydrologic conditions.

After regular Goleta Slough mouth management ceased in 2012, the closure of the mouth dramatically increased mosquito populations and shifted the species composition from low-risk salt-marsh mosquitoes to high-risk freshwater disease vectors (especially western encephalitis mosquito), and substantially elevated the risk of a West Nile virus (WNV) outbreak, particularly near densely populated areas like UCSB (Rincon et al. 2016).

Goleta Slough Mouth Management History

The mouth of Goleta Slough naturally closes with beach sand periodically, increasing water levels in the Goleta Slough, which in turn increases flood risks, attracts a larger population of waterfowl, and harms fish due to low oxygen levels. One major consequence of a closed Goleta Slough mouth is the accumulation of standing, fresh water that creates prime mosquito breeding habitat. Without tidal flushing, mosquito populations can increase, intensifying the risk of mosquito-borne diseases and biting nuisances for nearby communities.

Under the CDPH's *Best Management Practices For Mosquito Control in California* (2023, BMPs for tidal marshes include physical and hydrological alteration:

Improve water flow through the wetland system to minimize stagnant water and facilitate movement of fish and other natural predators. For example, mosquitoes in coastal tidal wetlands can be managed by constructing and maintaining ditches that drain off the water when the tide falls. (Page 19)

The District does not alter hydrology or maintain ditches as part of their duties. Managing the Goleta Slough mouth likely falls under the jurisdiction of another agency such as SBCFCD or SBA as the landowner and not the District. Historically SBCFCD has opened the mouth of the Goleta Slough to increase tidal flow as part of its routine maintenance operations since at least 1994 until permits expired in 2012. No active routine management of the Goleta Slough mouth has since occurred, other than emergency breaches of the sand bar as authorized by the USACE due to imminent risk of flooding. The Goleta Slough is dredged annually by the SBCFCD to maintain its flow capacity with the dredge spoils discharged onto the beach.

Breaching the Goleta Slough mouth or priming the crest of the berm is a flood-control measure aimed at preventing flooding and improving tidal flushing; it falls under SBCFCD's charter and permits, whereas the District's mandate is public health pest control (e.g., mosquito abatement) rather than major hydrological interventions. In addition, any artificial opening of the Goleta Slough's mouth must comply with strict environmental regulations including protection of sensitive species and water quality and requires multi-agency approvals that only the SBCFCD is authorized and equipped to obtain and implement.

SBA and SBCFCD explored options to implement management actions at the mouth of the Goleta Slough to alleviate hazards created by cessation of SBCFCD's maintenance program at the Goleta Slough mouth. The Goleta Slough mouth is on County Parks property where SBCFCD has existing right-of-entry.

Possible management options have been identified by SBCFCD and SBA based on past management of the Goleta Slough mouth, as well as a review of actions taken in similar coastal California sloughs and estuaries which include mechanical breach of the sand bar blocking the Goleta Slough mouth;

grooming/reshaping the beach and dunes to encourage breach without actually disrupting the bar itself; siphoning or pumping water out of the Goleta Slough to reduce water height, and expansion of temporary flood overflow areas. A Management Plan from SBCFCD and/or SBA and associated permits are pending.

1.4.2 Physical Characteristics

Topography and Geography

The Goleta Valley lies within a coastal valley created by vertical displacement along a syncline to the north along the Santa Ynez Fault and to the south along the east–west trending More Ranch Fault. The mesas of Isla Vista, UCSB, More Mesa and what remains of Mescalitan Island are related anticlines uplifted along the More Ranch Fault. Structurally, the Goleta Slough is a large, shallow basin flooded by tides and fed by several creeks.

The GSEMP was flooded by high sea levels in the early to mid-Pleistocene but later drained during low sea levels associated with the glaciation of the middle Pleistocene. During the latter period, drainages were excavated as much as 230 feet below current levels and the mouth of the Goleta Slough extended southward beyond its current location at Goleta Beach. During the late Pleistocene and continuing into relatively recent times, gradually rising sea levels drowned the valley, producing a navigable coastal embayment of approximately 18 square miles.

In late 1861, heavy rain continued for months in what would be known as the Great Flood of 1862, wreaking havoc throughout California. The over abundant rain caused rapid erosion and muddy water poured down through the creeks, dumping 14 feet of silt into the Goleta Slough. From the 1940s to the 1960s Mescalitan Island was used as fill material for Santa Barbara Municipal Airport, the GSD treatment plant, and SR 217 (Modugno 2021).

Current elevations within the GSEMP vary from mean sea level (2.66 feet North American Vertical Datum [NAVD]) to 140 feet above mean sea level (143-foot NAVD), with the highest points being near the northeastern boundary of the planning area along the eastern edge of More Mesa. Within the Goleta Slough basin itself, elevation gradients are much more gradual. Elevations here range from sea level to 17 feet NAVD, with the highest point immediately east of Los Carneros Road and north of the eastern CDFW Parcel on SBA property. Not coincidentally, this area includes a Native American archaeological site, as it is known to have been a historical high point within the marsh. Other points within the Goleta Slough that are higher than 17 feet NAVD are anthropogenic in nature (e.g., abandoned military bunkers, levees alongside drainages and creeks, and roads).

Watershed and Hydrology

The watershed of the Goleta Slough is approximately 48 square miles. Six creeks: Tecolotito (Glen Annie), Los Carneros, San Pedro, San Jose, Atascadero and Maria Ygnacio, drain southward off the Santa Ynez Mountains, discharging into the Goleta Slough. The San Pedro Creek watershed (Hydrologic Unit Code 180600130202) includes San Pedro, San Jose, Los Carneros, and Tecolotito creeks and their tributaries, and drains approximately 27.6 square miles, while the Atascadero Creek watershed (Hydrologic Unit Code 180600130201) includes Atascadero Creek and its tributaries, and drains approximately 19.8 square miles. Combined watersheds of these creeks drain over 48 square miles according to the National Hydrography Dataset (USGS 2025b). The Devereux Slough, UCSB Lagoon, and Laguna Blanca watersheds are also important adjacent watersheds although they do not drain into the Goleta Slough. Additionally, the Goleta Slough also receives runoff from most of More Mesa and the north-facing bluffs of UCSB.

The natural pattern for many seasonal sloughs/estuaries in Southern California, including the Goleta Slough, is to remain closed during the summer and open during the winter. Summers are characterized by small, low energy waves that deliver sand onshore so that beaches become wider and slough/estuary mouths close. Winters are characterized by large, high-energy waves that erode beach sand, shifting it offshore. Freshwater flows and less sand on the beaches prevent the Goleta Slough mouth from closing

in the winter. Tidal circulation has also been impaired by levee construction, tide gates, and other factors which have increased sedimentation.

In years of heavy precipitation, winter runoff breaches the bar (usually in December or January). The mouth remains open for varied periods (one to seven months) but seldom later than June. No active routine management of the Goleta Slough mouth has occurred since 2012, when previous permits expired, other than emergency breaches of the sand bar. Wildlife hazards, flood risks, increased mosquito breeding habitat, shifts in habitat from marsh to open water, stagnation and water quality problems have been associated with prolonged closure of the Goleta Slough mouth.

The lower reaches of all these creeks have had regular previous management actions, including silt removal projects, and structures such as check dams, concrete lining, and sediment basins are present. Tecolotito and Carneros creeks had channel realignment projects implemented in 2006 (URS Corporation 2008, Padre 2010). Flood control realignment, maintenance of the Goleta Slough creek channels, and airport construction, have also resulted in modifications to original bank configurations. Atascadero Creek was originally located adjacent to and at the base of More Mesa, approximately 100 meters south. Airport construction resulted in the relocation of Los Carneros and Tecolotito creeks (Padre 2010).

The Goleta Slough is described by the CCC as a California Critical Coastal Areas #53 (CCC 2019). Waterbodies in this Critical Coastal Area that are listed as impaired on the current (2026) Clean Water Act 303(d) list are Tecolotito Creek (impaired by sodium, chloride, nitrate, fecal coliform bacteria, *E. coli* bacteria, and enterococcus bacteria); Carneros Creek (impaired by fecal coliform bacteria, *E. coli* bacteria, enterococcus bacteria, nitrate, specific conductivity, and pH); San Pedro Creek (impaired by fecal coliform bacteria, *E. coli* bacteria, enterococcus bacteria, sodium, pH, and water temperature); San Jose Creek (impaired by fecal coliform bacteria, *E. coli* bacteria, enterococcus bacteria, chloride, sodium, specific conductivity, pH, and water temperature); Atascadero Creek (impaired by fecal coliform bacteria, *E. coli* bacteria, enterococcus bacteria, chloride, sodium, dissolved oxygen, nitrate, toxicity, benthic community effects, pH, and water temperature); Maria Ygnacio Creek (impaired by fecal coliform bacteria, *E. coli* bacteria, enterococcus bacteria, turbidity, sodium, and pH); and Pacific Ocean at Goleta Beach (impaired by total coliform bacteria). Potential sources of these pollutants are all listed as Source Unknown or No Analysis Available (CCC 2019, SWRCB 2026).

Geology and Soils

As described in the GSEMP the low-lying portions, like most of the Goleta Valley, are covered with recent, unconsolidated alluvial deposits of silt and sand. Older alluvial deposits cap More Mesa, UCSB and what remains of Mescalitan Island. Along the slopes and ravines of the mesas and Mescalitan Island, older shales, sandstones, and siltstones, primarily the Monterey formation and, more locally, the Santa Barbara formation, are exposed (GSMC 2015).

Most soils within the GSEMP are fine sandy loams, which is to be expected for an alluvial basin at the base of the Santa Ynez range and at the confluence of many creeks and watersheds. A few clay lenses are also found along the tops of the coastal mesas. Soils near the Mescalitan Island Native American archaeological sites are characterized as “Xerorthents” (cut and fill areas), perhaps because these high points around the Goleta Slough margin have been excavated for fill soil, or due to the large amount of midden material in these areas, or both. The central portion of the GSEMP at the SBA is designated as “Aquents – fill areas” or “Aquents – flooded” (GSMC 2015, USDA NRCS2025). More Mesa soils include loamy sand, fine sandy loam, clay and beaches, including Baywood loamy sands, Camarillo fine sandy loam, Concepcion fine sandy loam, and Diablo Clay (USDA NRCS 2026).

The present character of the Goleta Slough also reflects historic and anthropogenic impacts on sediment supply. Actions such as historic overgrazing, altered watershed hydrology due to urbanization and development, channelization of the creek banks, constrained mouth dynamics, and the removal of sediment from the creek channels have all contributed to the disruption of the natural sediment dynamics that shape the Goleta Slough landscape and altered patterns of erosion and deposition within the Goleta Slough’s waterways and wetlands (GSEMP 2015).

1.4.3 Biological Characteristics

Goleta Slough Ecosystem Land Cover

Terrestrial vegetation within the Goleta Slough Ecosystem is strongly influenced by elevation and man-made disturbance. Table 2 summarizes general vegetation types of the GSEMP.

Table 2 Goleta Slough Ecosystem General Vegetation Communities and Land Cover

	Approximate Acres	Potential Treatment Area,
Developed	649	No
Grasslands	449	Portions
Coastal sage scrub & mixed grassland	108	No
Coastal bluff scrub	16	No
Oak woodland	23	No
Non-native woodland	32	No
Agricultural	256	Portions
Beach	16	No
Estuarine wetlands and deepwater habitats	144	Yes, estuarine wetlands
Riverine wetlands	28	Yes
Palustrine wetlands	252	Yes
Transitional wetland habitats	291	Yes
Managed ponds	9	Yes
Source: 1997 GSEMP		

Comprehensive mapping of SBA using the *A Manual of California Vegetation, 2nd edition* (Sawyer et al. 2009) was completed for the SBA in 2012 identified 40 different vegetation associations and alliances (Dudek 2012), incorporated herein by reference. Other areas in the GSEMP have been mapped to the alliance level as part of development proposals or planning efforts (Rincon 2010, 2022).

Several parts of the Goleta Slough have been subject to, and are currently undergoing, restoration activities meant to improve the range of environmental characteristics it provides (GSMC 2015).

1.4.4 Treatment Area Habitats and Wildlife

The discussion below focuses on the National Wetland Inventory (NWI) and treatment areas under each classification included under Figure 1 and Table 1.

Estuarine and Marine

Past studies of the Goleta Slough indicate that the invertebrate fauna is not very rich in number of species or in density of organisms present (Fong et al. 1988). The California jackknife clam (*Tagelus californianus*) is the dominant infaunal (living in bottom sediments) species. Other infaunal species present include the common littleneck clam (*Protothaca staminea*), bent-nose clam (*Macoma nasuta*) and three species of polychaete worm. The epifauna (living on top of the sediments) is characterized by the California horn snail (*Cerithidea californica*), lined shore crab (*Pachygrapsus crassipes*), and mud crab (*Hemigrapsus oregonensis*). Amphipods, such as *Traskorchestia traskiana* and *Megalorchestia californiana*, reside on the banks (Padre 2010). The salt marsh snail (*Melampus olivaceus*) reaches its northern limit at the Goleta Slough. Senile tiger beetle (*Cicindela senilis frosti*) also reaches its northern distributional limit at the Goleta Slough (Padre 2010).

A variety of fish use the Goleta Slough, at least seasonally, and at least 23 species have been reported (Padre 2010; Rincon 2023, 2024, 2025). Numerous fish surveys have been conducted in the Goleta Slough, primarily focusing on determining the distribution of Federal Endangered tidewater goby (TWG; *Eucyclogobius newberryi*). These surveys have been conducted as part of projects by the SBA and Caltrans. Fishes identified during these surveys include topsmelt (*Atherinops affinis*), arrow goby (*Clevelandia ios*), California halibut (*Paralichthys californicus*), California killifish (*Fundulus parvipinnis*), cheekspot goby (*Ilypnus gilberti*), longjaw mudsucker (*Gillichthys mirabilis*), mosquito fish, Pacific herring (*Clupea pallasii*), Pacific staghorn sculpin (*Leptocottus armatus*), prickly sculpin (*Cottus asper*), shadow goby (*Quyetula y-cauda*), and partially armored threespine stickleback (*Gasterosteus aculeatus*). In brackish portions of the Study Area, dense marsh vegetation may also provide shelter for special-status species such as the TWG.

Coastal Salt Marsh/Estuarine and Marine Wetland

Coastal salt marshes are found in the basins south of airport runways and tidal portions of Atascadero Creek where freshwater drainages meet the sea, forming estuaries, and in non-tidal wetlands where high salinities persist due to historic tidal influence. Plants are adapted to soils with high salt concentrations and low oxygen levels, and to periodic flooding and drying from fluctuating tides. Many have succulent leaves and mechanisms for expelling excess salts, as well as the ability to move oxygen to the roots in heavy, anoxic soils. Salt marshes are unique habitats that provide valuable nurseries for many marine fishes, and are vital for both migratory and resident birds, such as the endangered BSS. Special-status fish species including southern California steelhead (*Oncorhynchus mykiss irideus* pop. 10; federally endangered [FE] and state endangered [SE]) and TWG could use these marshes. Channels that have substantial tidal flow and inundation would not support mosquitoes and thus would not need to be treated.

This sensitive natural community occurs in the Goleta Slough in the form of four vegetation alliances: pickleweed mats, alkali heath marsh, salt grass flats, and salt marsh bulrush depicted under Estuarine and Marine Wetland in Figure 2 (Dudek 2012). Special-status plants include Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*; California Rare Plant Ranks [CRPR] 1B.1, Locally Rare [LR]), woolly seablite (*Suaeda taxifolia*; CRPR 4.2, LR), and estuary seablite (*Suaeda esteroa*; CRPR 1B.2, LR). No special-status amphibians or aquatic reptiles occupy these habitats.

Tidal areas and pickleweed habitats support a robust suite of passerine species in the Study Area. Species occurring here year-round include killdeer (*Charadrius vociferus*), Belding's savannah sparrow (BSS; *Passerculus sandwichensis beldingi*, FE), greater yellowlegs (*Tringa melanoleuca*), long-billed curlew (*Numenius americanus*), least sandpiper (*Calidris minutilla*), and long-billed dowitcher (*Limnodromus scolopaceus*). Species occurring here seasonally include migrants such as the western sandpiper (*Calidris mauri*), Baird's sandpiper (*Calidris bairdii*), pectoral sandpiper (*Calidris melanotos*), dunlin (*Calidris alpina*), and short-billed dowitcher (*Limnodromus griseus*) and duck species, particularly green-winged teal (*Anas crecca*).

Large eucalyptus trees northwest of The Ellwood at Goleta Beach and on the Southern California Gas Company (SoCalGas) facility and myoporum along Tecolotito Creek, are historically and currently consistently used for roosting by great blue herons, black-crowned night herons (*Nycticorax nycticorax*), snowy egrets (*Egretta thula*), and double-crested cormorants (*Nannopterum auritum*) (GSMC 2015).

Key mosquito species in coastal salt marshes include:

- Black salt marsh mosquito (*Aedes taeniorhynchus*): The dominant salt marsh species. Eggs are laid on moist soil at marsh edges; when spring tides or winter/spring rains flood these areas, eggs hatch synchronously, producing massive larval cohorts. In the Goleta Slough, black salt marsh mosquito populations can increase 100-fold when the lagoon mouth closes and impounds water. This typically occurs in late winter through spring. Black salt marsh mosquito is an aggressive daytime biter that disperses widely (up to 5 to 10 miles). It can also vector diseases such as Eastern Equine Encephalitis (though rare in California, the species is a competent vector).

- Western encephalitis mosquito (*Culex tarsalis*): A primary WNV vector in California and the dominant nuisance species in coastal marshes and is common at the Andree Clark Bird Refuge, the Goleta Slough, and in many of the creeks (District 2026). This species breeds in a variety of freshwater and brackish habitats, including the edges of coastal marshes, irrigation ditches, and flooded pastures. Spring and early summer are critical for population buildup. WNV amplification in bird reservoirs peaks in late spring/early summer, with virus prevalence rising in mosquitoes by June through July.
- Southern house mosquito (*Culex quinquefasciatus*): Another competent WNV vector, abundant in urban and wetland habitats. Breeds prolifically in stagnant water (storm drains, bird baths, and marsh edges). Peak breeding occurs April through September.
- Tule mosquito (*Culex erythrorhax*): Common in freshwater marsh vegetation. While less implicated in disease transmission, it contributes to severe nuisance biting near wetlands. Larvae develop in standing water in spring.

Lagoon/Estuarine and Marine Deepwater

Lagoons (such as the Goleta Slough mouth when closed), are located at the mouths of creeks or rivers where they enter the ocean or bay, but isolated from the receiving waterbody by a berm, are indirectly influenced by the tide. This may cause freshwater to back up within the lagoon, and may also allow water to percolate through the berm, with the direction of such movement depending on water levels on either side of the berm. As a result, lagoons often contain a lens of freshwater at the surface and brackish water at the bottom. Lagoons may therefore contain species from both creeks and rivers, and from the receiving waterbodies. Amphibians are not likely to occur in lagoons due to elevated salt content but could occur at the upstream end of the lagoon, within the backwater, but above the reach of the saline influence. Lagoons would support mosquitoes in areas of reduced circulation, often associated with emergent vegetation. While not undertaken by the District, physical control in lagoons would include reconnecting isolated areas to the main lagoon in consultation with USFWS, National Marine Fisheries Service (NMFS), and CDFW.

Freshwater Emergent Wetland

Freshwater Marsh/Seeps

Freshwater marshes and seeps may provide ideal habitat for mosquito breeding due to their substantial areas of shallow water, limited circulation, and emergent vegetation. Freshwater marshes and seeps may provide ideal habitat for mosquito breeding due to their substantial areas of shallow water, limited circulation, and emergent vegetation.

Freshwater marshes are found on SBA including the Duck Pond (Area K) and Tule Pond (Area J), the SoCalGas facility, typically occurring in soils that hold rainwater or are fed by springs or seeps. They are characterized by emergent hydrophytes (perennial wetland plants that emerge from rhizomes after dormancy), including cattails, rushes, sedges, and grasses. Also found in these habitats are annuals such as forbs and grasses, and woody perennials like willows. Some freshwater marshes are vernal, filling with available rainwater before drying seasonally, and some are perennially wet.

Sensitive, naturally- occurring freshwater marshes include a California bulrush marsh and cattail marshes. Western rush marshes alliances (Dudek 2012) occur in disturbed wetland and marsh areas.

Songbirds such as song sparrows and common yellowthroats commonly nest in these marshes, while red-winged blackbirds (*Agelaius phoeniceus*) also breed in bulrush and cattail marshes. When inundated in spring, freshwater marshes may support nesting by American coots (*Fulica americana*) and pied-billed grebes (*Podilymbus podiceps*), and they provide suitable habitat for secretive marsh birds such as Virginia rails and soras, with least bitterns occurring infrequently. The edges of these marshes are regularly used by wading birds such as snowy and great egrets for foraging.

Shorebirds known from the Goleta Slough include great egret (*Ardea alba*), great blue heron (*Ardea herodias*; nesting), double-crested cormorant (*Nannopterum auritum*), Caspian tern (*Hydroprogne caspia*), brown pelican (*Pelecanus occidentalis*), snowy egret (*Egretta thula*), mallard (*Anas platyrhynchos*), and violet green swallow (*Tachycineta thalassina*) (Padre 2010). Common medium or large sized mammal species include coyote (*Canis latrans*), Virginia opossum (*Didelphis virginiana*), and common raccoon (*Procyon lotor*).

Seasonal Wetlands/Marsh

For this Plan and for the purposes of determining mosquito breeding habitat, seasonal wetlands are defined as areas that are flooded for one week or more during the year, generally during the rainy season; this differs from the USACE hydrological definition. Examples of forb dominated wetland alliances include non-native Harding Grass Swards, Curly Dock Patches, Giant Reed Breaks, Poison Hemlock Patches, Smartweed-Cocklebur Patches, and Bristly Ox-Tongue Patches (Dudek 2012). These areas are not CDFW sensitive communities but are considered ESHA if sensitive species are present.

Vernal Pool

Vernal pools are seasonal wetlands that occur in shallow depressions where there is an underlying impermeable layer that holds water after saturation. They typically fill with winter rains and dry up by early to late spring. Distinct rings of vernal pool vegetation may become apparent as the water dries. Pools remain dry through the summer months and are generally no more than 18 inches deep at maximum inundation, developing the flora of vernal marshes when deeper. Unique plant and animal species are adapted to this cyclical process of wetting and drying, including coyote thistles, clam shrimp, and many species of birds. Many of these species of plants begin their lives underwater and finish their life cycles in dry, exposed soil. Vernal pools are considered CDFW sensitive and ESHA and example alliances include meadow barley (*Hordeum brachyantherum*) and needle spikerush (*Eleocharis macrostachya*).

Riparian Corridor / Freshwater Forested/Shrub Wetland

Riparian corridors are present along the natural freshwater portion of the Atascadero, Tecolotito, Los Carneros, and Old San Jose creeks; and in the SoCalGas facility. Because their rapid currents do not provide suitable habitat for mosquitoes, creeks generally do not support substantial numbers of mosquitoes; although some mosquitoes can be found in slow eddies, back channels, or in isolated pools on the banks as flows recede. While isolated pools and back channels may provide habitat for mosquito larvae, they may also provide excellent rearing habitat for young fish and amphibians, as they provide warmer water temperatures, higher primary productivity, and protection from predaceous fish. Where native or special-status species are present, these areas could be important nursery areas, depending on location, season, species present, and amount of other habitat available to the species. Treatments in creeks are restricted to sections that run through or directly next to homes or businesses in urban or suburban areas.

Vegetation alliances include Arroyo Willow Thickets (CDFW Sensitive), Mulefat Thickets, and Eucalyptus Grove. Riparian corridors provide nesting, foraging, and wintering habitat for a variety of birds, including the Anna's hummingbird (*Calypte anna*), Nuttall's woodpecker (*Picoides nuttallii*), bushtit (*Psaltirparus minimus*), wrentit (*Chamaea fasciata*), ruby-crowned kinglet (*Regulus calendula*) yellow-rumped warbler (*Setophaga coronata*), common yellowthroat (*Geothlypis trichas*), spotted towhee (*Pipilo maculatus*), song sparrow (*Melospiza melodia*), house finch (*Carpodacus mexicanus*), and lesser goldfinch (*Spinus psaltria*). Wilson's warblers (*Cardellina pusilla*) and warbling vireos (*Vireo gilvus*) are among species that use this habitat during migration. Some special-status bird species have been observed foraging include yellow warbler (*Setophaga petechia*; SSC) and yellow-breasted chat (*Icteria virens*; SSC) (Dudek 2012). Raptors include red-tailed hawks (*Buteo jamaicensis*), Cooper's hawks (*Astur cooperii*; CDFW Watch List [WL]), and great horned owls (*Bubo virginianus*). Medium-sized mammals, such as the common raccoon, striped skunk (*Mephitis mephitis*), and coyote, may follow the riparian edges along creek beds. Baja California treefrogs (*Pseudacris hypochondriaca*) inhabit this community, and reptiles such as the coast range garter

snake (*Thamnophis elegans terrestris*), California alligator lizard (*Elgaria multicarinata multicarinata*), and San Diego gopher snake (*Pituophis catenifer annectens*) may occur here.

Freshwater Pond

Water and Wastewater Management Facilities

These include the two treatment areas on the GSD Treatment Plant and flood control channels and ditches. Wastewater treatment facilities do not provide habitat for native or special-status fish species, although such facilities may be located adjacent to suitable stream habitats, and hydrologic connectivity may exist between the facility and the natural environment that could allow aquatic resources to enter the facility. The extent to which these species may enter these facilities is unknown, but they may support special-status species where they have standing water for sufficient periods of time and have suitable physical and vegetative structure. Generally, sewage treatment ponds do not provide habitat for native fish or special-status fish, amphibian, or reptile species.

Ponds and Lakes

The freshwater habitats that could be treated include the margin of reservoirs and ponds (including artificial ponds such as golf course ponds) and include Rancho Goleta Lake in the Study Area. These areas are generally man-made habitats, and if they support fish, these fish will largely consist of introduced species.

Agricultural areas, Urban Interface and infrastructure

The term “temporary standing waters” refers waters refers to water ponding on an upland habitat because of rainfall or irrigation. These areas are generally not considered ESHA or sensitive habitat.

1.5 Regulated Biological Resources

1.5.1 Methodology

The Goleta Slough has been extensively studied through numerous biological, ecological, and environmental investigations conducted over multiple decades, resulting in a robust body of published and unpublished survey data and resources applicable to the Study Area.¹ The following sections describe the methodology for the literature review.

Protected Resources

For the purposes of this report, Regulated or sensitive resources studied herein include protected and special-status species, nesting birds and raptors, ESHA, and coastal wetlands and include the following:

- Species listed as candidate, threatened, endangered, or proposed under the federal Endangered Species Act (ESA)
- Species listed as candidate, threatened, endangered, or rare by the CDFW under the California Endangered Species Act or Native Plant Protection Act

¹ Note that this study did not include field surveys, and the findings in this report are based on literature review as defined in the Methodology section. Standard data sources relied upon during the completion of this report, such as the California Natural Diversity Database (CNDDB), may vary regarding accuracy and completeness. In particular, the CNDDB is compiled from research and observations reported to CDFW that may or may not have been the result of comprehensive or site-specific field surveys. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources it has used. Additionally, pursuant to our contract, the data sources reviewed included only those that are practically reviewable without the need for extraordinary research and analysis.

- Species designated as Fully Protected by the California Fish and Game Code (CFGF), and SSC by the CDFW
- Species listed as State Rare under the Native Plant Protection Act
- Species on the CDFW Special Animals List with a State Rank imperilment status of S1-S3
- Species with California Native Plant Society (CNPS) CRPR 1A, 1B, 2A 2B, and 4
- Sensitive Natural Communities listed as Sensitive on CDFW's California Natural Community List (CDFW 2025)
- Waters of the United States that are subject to the jurisdiction of the USACE and Regional Water Quality Control Board (RWQCB) under Sections 404 and 401 of the federal Clean Water Act
- Waters of the State that are subject to the jurisdiction of the RWQCB under the Porter-Cologne Water Quality Control Act, Lakes and streambeds under CDFW jurisdiction pursuant to CFGF Sections 1600 et seq., and CCA Section 30231
- Coastal resources protected under the CCA and certified Local Coastal Programs: City of Santa Barbara Land Use Plan, County of Santa Barbara Eastern Goleta Valley Community Plan, UCSB Long Range Development Plan

Literature Review

This analysis is a literature review for baseline information on biological resources potentially occurring in the GSEMP Study Area, and surrounding area. Rincon conducted a literature review to characterize the nature and extent of biological resources on and adjacent to the Study Area largely based on the GSEMP and updated where applicable. The literature review included an evaluation of current and historical aerial photographs of the site regional and site-specific current and historical topographic maps, and climatic data (UCSB 2026, SBCFCD 2026, Google Earth 2026).

Queries of the USFWS Information for Planning and Consultation system (USFWS 2025a) and USFWS Critical Habitat Portal (USFWS 2025b), CDFW California Natural Diversity Database (CNDDDB; CDFW 2025a), The CNPS online Inventory of Rare and Endangered Plants of California (CNPS 2026) were conducted to obtain comprehensive information regarding special-status plant species, considered to have potential to occur within the *Goleta, California* USGS 7.5-minute topographic quadrangle and the surrounding five quadrangles (*Dos Pueblos Canyon, Lake Cachuma, San Marcos Pass, Little Pine Mountain, and Santa Barbara*).

The results of database-queries and lists of special-status species were reviewed by Rincon's regional biological experts for accuracy and completeness. The final list of biological resources (special-status species and sensitive natural communities) was evaluated based on documented occurrences within the nine-quadrangle search area and biologists' expert opinions on species known to occur in the region.

To aid in characterizing the nature and extent of coastal wetlands occurring within the Study Area, resources including the most recent *Goleta, California* USGS 7.5-minute topographic quadrangle map, and the United States Department of Agriculture, Natural Resources Conservation Service (USDA, NRCS) Web Soil Survey (USDA, NRCS 2026) were reviewed. Additionally, the National Hydrography Dataset (USGS 2026) and National Wetlands Inventory (USFWS 2025c) were reviewed to determine whether any potential wetlands and/or other waters have been previously mapped within the Study Area.

The literature review included site-specific and surrounding reports, information in peer-reviewed journals, and standard and location-specific reference materials (Lehman 2025, Xerces 2025, Smith 1997, Meade 2017). Other sources of information about the Study Area included aerial photographs, topographic maps, geologic maps, climatic data, past management plans, and activity descriptions. The Rare Plants of Santa Barbara County list was also reviewed (Santa Barbara Botanical Gardens [SBBG] 2018). Previous biological studies for projects overlapping the Study Area and in the immediate watershed were reviewed (URS 2008; Dudek 2012; Rincon 2016, 2021, 2022, 2025; City of Goleta 2008, 2022, 2024; Caltrans 2020; Coffman and Associates, Inc. 2017; Padre 2010). Where applicable citizen science databases were also

reviewed (Santa Barbara Audubon Society [SBAS] 2026, Cornell Lab of Ornithology 2026, iNaturalist 2026).

1.5.2 Special-Status Species

The analysis below focuses on the GSEMP area; however, each treatment area in the coastal zone is anticipated to have similar wildlife and plant species.

This section discusses special-status species and regulated biological resources observed on the Study Area and evaluates the potential for the Study Area to support additional regulated biological resources. Assessments for the potential occurrence of special-status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDDB and other sources, and previous reports. The potential for each special-status species to occur in the Study Area was evaluated according to the following criteria:

- **Not Expected.** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime), and species would have been identifiable on the site if present (e.g., oak trees). Protocol surveys (if conducted) did not detect species. The species is not expected to be found on the site.
- **Low Potential.** Few of the habitat components (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime) meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. Protocol surveys (if conducted) did not detect species. The species has a low probability of being found on the site.
- **Moderate Potential.** Some of the habitat components (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime) meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential.** All the habitat components (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime) meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has been reported on or adjacent to the Study Area in the last two to five years and suitable habitat is still present on-site. The species has a high probability of being found on the site.
- **Present.** The species was observed on the site or has been recorded (e.g., CNDDDB, other reports) on the site recently (within the last two years).

Special-Status Plant Species

Special-status plant species typically have specialized habitat requirements, including plant community types, soils, and elevational ranges. The literature review identified 30 special-status plant species that have been previously recorded within the nine-quadrangle vicinity of the Study Area. Of the 30 special-status plant species identified in the CNDDDB review (excludes Locally Rare), 14 are not expected to occur because habitat on and adjacent to the Study Area is clearly unsuitable for the species' based on a variety of factors, including the disturbance history of the site, lack of suitable soils or habitat, elevation of the site, or inappropriate hydrologic conditions. Two of these species have a low potential to occur based on site conditions in the Study Area. Of these 30 special-status plant species, six are assumed present (Table 3). The species with low potential to occur are not expected to occur based on a variety of factors, including the lack of suitable habitat, soils, and/or other required microhabitat conditions, and/or the Study Area location in relation to the species known geographic and/or elevational range and are therefore omitted from further discussion.

As discussed below under Table 3 Coulter's goldfields and southern tarplant (*Centromadia parryi* ssp. *australis*; CRPR 1B.1) preferred habitat is margins of coastal salt marsh and mudflats, which occur in the Study Area. Other upland species are known from upland (Santa Barbara honeysuckle [*Lonicera*

subspicata var. *subspicata*; CRPR 1B.2]) or beach habitats (red sand verbena [*Abronia maritima*; CRPR 4.2]) as summarized under Table 3 and discussed below.

Table 3 Special-Status Plant Species Present in the GSEMP

Species	Status (Federal/State)	Reasoning
red sand verbena <i>Abronia maritima</i>	None/None CRPR 4.2	Red sand verbena is a trailing succulent sand-dune plant found mostly on coastal strand. The species was observed at Goleta Beach and west of the Goleta Beach Park (County of Santa Barbara 1998). Recently observed at the Goleta Slough mouth north of the tidal connection at the base of the bluffs near the SoCalGas property. Outside any treatment areas and is not discussed further.
southern tarplant <i>Centromadia parryi</i> ssp. <i>australis</i>	None/None CRPR 1B.1	The species has been recently documented within the Study Area, specifically along the edges of the wetlands and access roads at the western portion of the Goleta Slough. Planted in 2010 at the Basins E and F restoration, considered to be present in the SBA salt marsh vegetation.
Coulter's goldfields <i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	None/None CRPR 1B.1	Observed in Basins. Planted in 2010 at the Basins E and F restoration, considered to be present in the salt marsh vegetation (Rincon 2025).
Santa Barbara honeysuckle <i>Lonicera subspicata</i> var. <i>subspicata</i>	None/None CRPR 1B.2	Multiple CNDDDB occurrence within five miles of the Study Area, and the species has been recently documented within the Study Area, specifically in woodland habitat at the southern portion of the Goleta Slough. Often used in Study Area upland restoration projects
woolly seablite <i>Suaeda taxifolia</i>	None/None CRPR 4.2 SBBG Rare	Planted in 2010 at the Basins E and F restoration, considered to be present in the salt marsh vegetation (Rincon 2025).
estuary seablite <i>Suaeda esteroa</i>	None/None CRPR 1B.2	One historical CNDDDB occurrence from 1979 at the southern portion of the Goleta Slough. Planted in 2010 at the Basins E and F restoration, considered to be present in the salt marsh vegetation (Rincon 2025).

CDFW 2026a

CRPR = California Department of Fish and Wildlife (CDFW) California Rare Plant Rank

CRPR 1B.1 = Rare, Threatened, or Endangered in California and elsewhere; seriously threatened in California

CRPR 1B.2 = Rare, threatened, or endangered in California and elsewhere; moderately threatened in California

CRPR 1B.3 = Rare, threatened, or endangered in California and elsewhere; not very threatened in California

CRPR 4.2 = Limited distribution, moderately threatened in California

SBBG = Santa Barbara Botanical Garden

Locally rare species designated by SBBG or the GSEMP in potential treatment areas at SBA include Leopold's rush (*Juncus acutus* ssp. *leopoldii*; CRPR 4.2), Parish's glasswort (*Arthrocnemum subterminale*), shore grass (*Distichlis littoralis*), and short-seeded waterwort (*Elatine brachysperma*), and on More Mesa include Lemmon's phalaris (*Phalaris lemmonii*), water pygmy weed (*Crassula aquatica*), bur-reed (*Sparganium eurycarpum*), southern water saltmarsh (*Symphyotrichum subulatum* var. *ligulatum*), and horned pondweed (*Zannichellia palustris*) (SBBG 2018; GSMC 2015; Rincon 2010, 2025).

Southern Tarplant

Southern tarplant is a CRPR 1B.1 species known from margins of marshes and swamps, vernal mesic valleys and grasslands, and vernal pools at elevations ranging from sea level to 425 meters elevation. Southern tarplant is an annual herb that typically blooms between May and November and is locally common on sandy mesas in the Goleta area (Rincon et al. 2016). Fourteen CNDDDB occurrences are documented within five miles of the Study Area, including four occurrences that overlap with the Study

Area, primarily on the western portion of the Study Area and one along SR 217 at the southern portion of the Study Area (Occurrence 32, 33, 99, and 100). Southern tarplant has been documented in the Study Area in restoration areas, dredge spoil areas, edges of wetlands, and other open sites (Rincon 2025). Recent observations are documented along the paved access roads within the SBA, along the edges of the Goleta Slough wetlands included where planted for restoration at Basins E and F. The species is present within the Study Area and was observed where populations are known during 2026 SBA treatment monitoring.

Coulter's Goldfields

Coulter's goldfields is a CRPR 1B.1 species known from saltwater marshes, swamps, playas, and vernal pools at elevations ranging from sea level to 1,220 meters. Coulter's goldfields is an annual herbaceous plant that typically blooms between February and June. It has been documented in the Study Area, and known occurrences are presumed extant (Rincon 2025); however, this plant only germinates during years of extensive and prolonged rain and can go several years without being present. It is known from the western Study Area near the Tecolotito Creek branch of the Goleta Slough and was planted as part of restoration project at Basins E and F.). It is reported growing in moist silty soil of an alkaline mudflat with pickleweed (*Salicornia pacifica*), meadow barley (*Hordeum brachyantherum*), and alkali weed (*Cressa truxillensis*). The species is present within the Study Area and was observed where populations are known during 2026 SBA treatment monitoring.

Santa Barbara Honeysuckle

Santa Barbara honeysuckle (*Lonicera subspicata* var. *subspicata*) is a perennial evergreen shrub/vine commonly found in chaparral, cismontane woodland, and coastal scrub habitats and is often a component of restoration on the Study Area. The species is ranked by the CNPS as a List 1B.2 species, meaning the species is moderately threatened in California. Suitable woodland habitat is present along portions of the Goleta Slough basin edges and maintained access roads, specifically along the southern portion of the Goleta Slough, near the GWSD, Duck Pond (Area K), Tule pond (Area J), and White Pole (Area I). Sixteen CNDDDB occurrences are documented within five miles of the Study Area, including one occurrence from 2013 within the Study Area along Los Carneros Road, west of the Goleta Slough on UCSB (Occurrence 26, CDFW 2025a).

Estuary Seablite

Estuary seablite (*Suaeda esteroa*) is a CRPR 1B.2 plant species known to occur in coastal salt marshes and swamps at elevations ranging from sea level to 5 meters elevation. The Study Area is within this species' known geographic and elevational range, and this species was documented within the Goleta Slough from 1948 to 1979. One historical (1979) CNDDDB occurrence at an unknown location within the Goleta Slough was mapped south of the SBA (Occurrence 21; CDFW 2025a). It was previously reported from the Study Area in 2001 in Area I near SR 217, though 2012 surveys did not find any individuals; this area was degraded with stands of black mustard in 2012 (Dudek 2012). Suitable habitat persists in the Study Area in pickleweed and alkali heath marsh, and it could occur in other areas of the site such as the mid-marsh areas that are not often accessed. The species has a high potential to occur within the Study Area coastal salt marsh treatment areas.

Woolly Seablite

Woolly seablite (*Suaeda taxifolia*), a CRPR 4.2 species that occurs in coastal bluff scrub, coastal dunes, and the margins of coastal salt marshes and swamps. This shrub is found from sea level to 50 meters (0-164 feet) elevations and is known to bloom from January to December. It was found in the Study Area in a dredge spoils area near the GWSD in 1980, and on several occasions around nearby Goleta Beach, between 1927 and 1964. Smith (1998) considers it common around salt marshes. It was not detected during 2012 surveys (Dudek 2012). Although coastal bluff scrub and coastal dunes are absent in the

Study Area, this species has the potential to occur at the margins of pickleweed mats, alkali heath marsh, salt flats, mud flats, and saltgrass flats.

1.5.3 Special-Status Wildlife Species

The literature review identified 53 special-status animal species that are known to occur within five miles of the Study Area. Of these 53 species, 18 animals were evaluated as present or with a high potential to occur with the treatment areas. A discussion of the findings is provided in each section below and summarized in Table 4.

Table 4 Special-Status Wildlife Species Present with a High Potential to Occur in the Goleta Slough Study Area

Species	Status (Federal/State)	Study Area Potential	Reasoning
Invertebrates			
Crotch's bumble bee <i>Bombus crotchii</i>	None / California Endangered Species Act Candidate	High (foraging) Low (nesting)	Female observed in 2017 foraging in the Study Area in the Cabrillo Business Park coastal sage scrub restoration site. Seven individuals were observed since 2017 within four miles of the Study Area (CDFW 2025a). Nests are often more commonly thought to be underground in abandoned rodent dens but may be above ground in tufts of grass, old bird nests, rock piles, or cavities in dead trees (Hatfield et al 2015). Nests are found in upland areas and are not anticipated to be in treatment or access areas. Not discussed further in this section.
monarch butterfly – California overwintering population <i>Danaus plexippus</i> pop. 1	FPT / None	Present	Proposed critical habitat is designated within the Study Area, extending from Goleta Beach to approximately 0.85 miles northeast along Atascadero Creek (89 FR 100662-100716; USFWS 2025a). Four known overwintering sites overlap the Study Area: Xerces Site #2765, #3174, and #3177. Monarchs have been observed overwintering in two locations on the SoCalGas Facility along Atascadero Creek at Xerces Site ID 2765 Although the population has decreased with the California-wide population trend, this site remains one of the most populated sites in the County (Xerces 2026, Griffiths 2017)
Fish			
tidewater goby <i>Eucyclogobius newberryi</i>	FE / SSC	Present	Critical habitat designated in Goleta Slough Complex and species has recently been recorded in San Jose Creek aquatic habitat (Rincon 2023, 2024, and 2025).
southern California steelhead <i>Oncorhynchus mykiss irideus</i> pop. 10	FE / SE	Moderate (transient during high flows)	Critical habitat designated in Goleta Slough Complex. No documented CNDDB records of this species within five miles of the Study Area (CDFW 2025). However, there are multiple historical sightings of the species within the Goleta Slough Complex, as documented in Stoecker et al. 2002.
Reptiles			
southwestern pond turtle <i>Actinemys pallida</i>	FPT / SSC	Present	Known only from an SBCFCD pond turtle mitigation site in Atascadero Creek at the Patterson Avenue Bridge (CCC 2025).
Birds			
Belding's Savannah sparrow (BSS) <i>Passerculus sandwichensis</i> <i>beldingi</i>	None / SE	Present	There are many recorded occurrences of BSS in the Study Area in suitable tidal habitat in Basins A-G, with historical sightings in H. (SBAS 2025, Dudek 2021).

Species	Status (Federal/State)	Study Area Potential	Reasoning
western snowy plover <i>Charadrius nivosus nivosus</i>	FT / SSC	Moderate (transient/foraging) Not expected (nesting)	Two known CNDDDB occurrences are documented within the Study Area, including within Goleta Beach, which is a historic breeding ground for the species. Continued high disturbance levels from humans and dogs are likely to continue deterring this species from nesting here (Rincon et al. 2016). Given the lack of nesting habitat in treatment areas, this species is not discussed further.
California least tern <i>Sternula antillarum browni</i>	FE / SE, FP	Moderate (transient/foraging) Not expected (nesting)	Low potential to forage past the Goleta Slough over creek channels. No Study Area nesting habitat. Given the lack of nesting habitat in treatment areas, not discussed further.
yellow warbler <i>Setophaga petechia</i>	None / SSC	High (transient/foraging) Low (nesting)	No known CNDDDB occurrences within five miles of the Study Area (CDFW 2025a). Several detections are recorded from 2023 at the GWSD and UCSB campus, within and adjacent to the Study Area (SBAS 2026). Detected in or adjacent to the Old San Jose Creek riparian corridor within the Study Area (Rincon 2021).
yellow breasted chat <i>Icteria virens</i>	None/ SSC	High (transient/foraging) Low (nesting)	No known CNDDDB occurrences within five miles of the Study Area (CDFW 2025). One detection is recorded from 2023 at the Arroyo Burro Open Space, approximately 2.5 miles east of the Study Area (SBAS 2026). Detected in or adjacent to the Old San Jose Creek riparian corridor within the Study Area, nests not detected (Rincon 2021)
white-tailed kite <i>Elanus leucurus</i>	None / FP	Present	Recent occurrences within More Mesa and the Goleta Slough (CDFW 2025, SBAS 2026). The species is known to nest in trees (e.g., coast live oak) only in More Mesa in the Study Area.
Cooper's hawk <i>Accipiter cooperii</i>	None / WL	High (nestling/ transient/foraging)	Four known CNDDDB occurrences within five miles of the Study Area, including one occurrence from 2009 that overlaps with the Study Area at More Mesa (Occurrence 137, CDFW 2025). The SBAS documents several recent detections within More Mesa, including nesting activity in 2022, and within the northeastern portion of the Goleta Slough, adjacent to Henry T. Yang Drive (SBAS 2026).
Mammals (bats)			
pallid bat <i>Antrozous pallidus</i>	None/SSC	Low (roosting) Moderate (foraging)	Occasionally forages aerially over the Study Area at night. One CNDDDB occurrence from 2017 approximately 0.70 miles west of the Study Area, detected acoustically (Occurrence 431; CDFW 2025a).
yuma myotis <i>Myotis yumanensis</i>	None/SSC	Present (foraging) Not Expected (roosting)	CNDDDB record (2008) that occurs at More Mesa. Detected foraging during nocturnal survey (Smallwood 2025). There are no suitable roosting sites (e.g., caves, mines, or abandoned buildings) within the Study Area treatment areas, but foraging habitat is present (e.g., riparian corridors).

Species	Status (Federal/State)	Study Area Potential	Reasoning
western mastiff bat <i>Eumops perotis californicus</i>	None/SSC	Low (roosting) Moderate (foraging)	Two CNDDDB occurrences within five miles of the Study Area, including two occurrences from 2008 that overlap the Study Area at More Mesa (Occurrence 127 and 128; same occurrence locations/date as western red bat below; CDFW 2025a). The species was detected during acoustic surveys in April and August 2008.
western red bat <i>Lasiurus frantzii</i>	None/SSC	Low (roosting) Moderate (foraging)	Three CNDDDB occurrences within five miles of the Study Area, including two occurrences from 2008 that overlap the Study Area at More Mesa (Occurrence 127 and 128; same occurrence locations/date as western mastiff bat above; CDFW 2025a). The species was detected acoustically during surveys in April and August 2008 on More Mesa.

CDFW 2026b

SBAS = Santa Barbara Audubon Society; SBCFCD = Santa Barbara County Flood Control District

Federal Status

FE = Federal Endangered

FT = Federal Threatened

FPT = Federal Proposed
Threatened

FC = Federal Candidate

State Status

SE = State Endangered

ST = State Threatened

SCE = State Candidate Endangered

SSC = CDFW Species of Special Concern

FP = CDFW Fully Protected

WL = CDFW Watch List

Monarch Butterfly

The monarch butterfly (*Danaus plexippus*) is a Federal Proposed Threatened (FPT) insect that is known for their long-distant annual migration. The California overwintering populations overwinter in roost sites that extend along the Pacific coast from northern Mendocino County to Baja California, Mexico. The overwintering season occurs from early October to mid-March. Roosts are in wind-protected tree groves (typically eucalyptus, Monterey pine, or Monterey cypress), with nectar and water sources nearby. The large aggregations are typically in groves that offer wind protection, slightly warmer temperatures, and basking sites. Large aggregations are fairly predictable as monarchs typically use the same sites each year (Meade 1999). Roosting branches are often located above drainages because these areas allow cold air to escape during extreme weather, which helps safeguard butterflies from freezing (Meade 2018).

Proposed critical habitat is designated within the Study Area, extending from Goleta Beach to approximately 0.85 mile northeast along Atascadero Creek (89 FR 100662-100716; USFWS 2025). Four known overwintering sites overlap the Study Area: Xerces Site #2765, #3174, and #3177, which are verified sites per Xerces, and Xerces Site #2806, which is a potential site per Xerces (Xerces 2026). These overwintering sites are discussed in further detail below.

- **Xerces site #2765 (Atascadero Creek, Santa Barbara)** is within the southeastern portion of the Study Area, south of Atascadero Creek, and adjacent to the La Goleta Facility, at approximately 34.422839, -119.820035. The site consists of a eucalyptus grove, likely planted to shield the gas facilities (CDFW 2025). The most recent observation recorded was 968 monarchs in 2023. The highest recorded count at this site was in 1997 (approximately 20,000 monarchs recorded), and counts remained in the thousands each year until 2002 (4,000 monarchs in 1999, 8,912 in 2000, 5,470 in 2001). No monarchs were recorded from 2002 to 2012. Monarchs were again observed in 2013 and fluctuated from thousands to hundreds each year until the most recent observations in 2023 (CDFW 2025, Xerces 2026). The proposed critical habitat described above overlaps with this overwintering site.
- **Xerces site #2806 (Santa Barbara Orchid Estate)** overlaps with a portion of the eastern section of the Study Area, south of Atascadero Creek along Orchid Drive, at approximately 34.422749, -119.806523. The site consists of a dense stand of various native and non-native trees and vegetation surrounded by residential development and roads. No monarchs have been observed at this site in over 20 years, and no suitable roosting or overwintering habitat was observed at the site in 2016 (CDFW 2025).
- **Xerces site #3174 (Boys and Girls Club, Goleta)** at the northeast corner of the Study Area, behind the Goleta Community Center, formerly the Boys and Girls Club, at approximately 34.432525, -119.824757. The site consists of a stand of eucalyptus surrounded by commercial development. The most recent observation recorded was 33 monarchs in 2023. The highest count at this site was 140 monarchs observed in 2016 prior to development of adjacent housing (CDFW 2025, Xerces 2026).
- **Xerces site #3177 (More Ranch Road, Near Goleta Beach)** is within the southern portion of the Study Area, approximately 0.35 mile east of the Goleta Slough mouth, at approximately 34.417486, -119.816266. The site consists of small clumps of eucalyptus along the cliff edge. The most recent observation recorded was 31 monarchs in 2017. Four thousand five hundred monarchs were recorded in 2000, and then numbers drastically declined in the years following (30 monarchs observed in 2002) (CDFW 2025, Xerces 2026).

Suitable habitat for overwintering may be present within the overwintering sites that overlap with the Study Area, as described above. Overwintering populations have been observed as recently as 2023 within the known overwinter sites, as discussed above. Individual monarchs are present within the Study Area and may transit through the Study Area. Eucalyptus trees within the Study Area are limited, as the Study Area consists primarily of tidal areas and pickleweeds mats. Individual monarchs are present within the Study Area and may overwinter within suitable habitat in the Study Area.

Tidewater Goby

TWG is a federally listed endangered species by the USFWS and a CDFW SSC. TWG is a small, elongate, gray-brown fish rarely exceeding two inches in length. TWG is a short-lived species; the lifespan of most individuals appears to be approximately one year (Swift et al. 1989). TWG populations are typically sequestered into local lagoon environments. However, although TWGs have rarely been captured in the marine environment (Swift et al. 1989), individuals can disperse between lagoons and estuaries in close proximity. TWG is benthic (e.g., lives on the bottom of a water body) and lives in habitats that include brackish, shallow lagoons and lower stream reaches where the water is relatively still but not stagnant (Love and Passarelli 2020; Wang 1984; Irwin and Soltz 1984; Swift et al. 1989; Swenson 1999). TWGs prefer sandy substrate for breeding, but can also be found on rocky, mud, and silt substrates (USFWS 2006).

TWG was listed as an endangered species by USFWS in 1994 and critical habitat was re-designated in 2008, which did not include the Goleta Slough or its tributaries. TWG final critical habitat is designated in the tidally influenced portion of the Goleta Slough, and USFWS considers lower trial stream reaches of the Goleta Slough suitable and accessible to TWG, including San Jose, San Pedro, and Atascadero creeks (78 FR 8746-8819; USFWS 2019). The physical and biological features that are present in the GSEMA include water depth [physical and biological feature 1], substrate [Physical and Biological Feature 1a], and seasonal sandbar mouth [physical and biological feature 1c] (USFWS 2019). TWG was listed as extirpated from the Goleta Slough in the Recovery Plan for the species (USFWS 2006). Since 2008 it has been observed recently throughout most sections of the Goleta Slough and is considered present in tidal areas of the Study Area where critical habitat is designated (CDFW 2025a, Rincon 2023, 2024, and 2025).

Southern California Steelhead

Southern California steelhead Distinct Population Segment (*Oncorhynchus mykiss irideus* pop. 10; steelhead) is a FE and SE species. The range of the species is from the Santa Maria River along the San Luis Obispo/Santa Barbara County line in the north to the Tijuana River just north of the United States/Mexico border in the south. Southern California steelhead (steelhead) requires cool, clear, well-oxygenated water with sufficient food, but they have adapted to living under highly variable environmental conditions. Important aquatic environmental factors for steelhead include temperature, dissolved oxygen, salinity, and water depth.

NMFS designated critical habitat for steelhead in portions of the Goleta Slough Complex including San Jose, San Pedro, Maria Ygnacio, and Atascadero creeks. Habitat quality for steelhead within the Goleta Slough Complex varies greatly within the watershed. Little data on steelhead spawning timing exists for the Goleta Slough, although both spawning timing and distribution within the basin is related to timing, frequency, and duration of sandbar opening and winter flow conditions. Adult steelhead occurrence in the Goleta Slough is necessarily limited to periods when the estuary is open, at which point adults are expected to use it as a migration corridor to the upper watershed as soon as water depth in the river allows. Out-migration of juveniles from natal streams to the ocean, sometimes with substantial residence in estuaries, while undergoing physiological and morphological changes for life in the marine environment are termed smolt). Timing of smolt outmigration depends on multiple environmental factors, including streamflow and breaching of the sandbar at the estuary mouth, which provide connectivity between freshwater habitats and the ocean NMFS 2012, Rincon et al. 2016).

Juvenile steelhead may rear for extended periods within upstream freshwater habitats of the Goleta Slough depending upon seasonal variations in rainfall that control the extent of wetted channel and connectivity from the Goleta Slough to upstream locations. There are no documented CNDDDB records of this species within five miles of the Study Area (CDFW 2025). However, there are multiple historical sightings of the species within the Goleta Slough Complex (Stoecker et al. 2002). Juvenile steelhead have been reported in upstream habitats of Atascadero, San Jose, San Pedro, and Tecolotito creeks as well as in some of their tributaries including West Fork San Jose Creek, and Maria Ygnacio and San Antonio creeks which flow into Atascadero Creek (Stoecker 2002). Adult steelhead have been reported in the lower sections (south of Highway 101) of San Pedro, Atascadero, and Maria Ygnacio creeks (Stoecker

2002). In 2013, two adult steelhead and numerous juveniles were observed by NMFS staff in Atascadero Creek below the drop structure (i.e., grade control) at the Patterson Avenue Bridge (NMFS 2013).

Water quality in Goleta Slough supports steelhead rearing during winter and spring but becomes unsuitable in summer due to high temperatures and salinity, regardless of whether the sandbar is open or closed (Rincon et al. 2016). Unlike more northerly California lagoons where freshwater inflows and stratification create summer refugia for steelhead (e.g., Scott Creek lagoons, Pescadero Creek, and San Gregorio Creek), Goleta Slough lacks sufficient freshwater input and beneficial stratification to moderate poor summer conditions. As a result, Goleta Slough does not appear capable of supporting extended summer lagoon rearing for steelhead, though brief rearing may occur during fall, winter, or spring migration periods (Rincon et al. 2016). Therefore, steelhead have a moderate potential to occur within the Goleta Slough complex and creeks in the Study Area.

Southwestern Pond Turtle

Southwestern pond turtle (SWPT; *Actinemys pallida*) is a FPT species and CDFW SSC. SWPT occur in a variety of man-made and natural aquatic habitats, including rivers, creeks, estuaries, lakes, ponds, marshes, and reservoirs. SWPT, during the day, bask on land or near the water on logs, branches, or boulders. Females nest in adjacent upland areas within 328 feet of aquatic habitat, although nests as far away as 1640 feet have occasionally been reported. Both sexes will move into adjacent upland habitat to estivate (enter summer dormancy) when aquatic habitat dries up. The species can persist, at least over moderate periods of time, in highly modified habitats with high human traffic and/or little basking substrate (Thompson et al. 2016).

There are two recorded occurrences of SWPT overlapping the eastern portion of the Study Area along Atascadero Creek, including one occurrence (Occurrence 894) from 2015 and another historical occurrence (Occurrence 963) from 1982. Additionally, three recorded occurrences less than 1.5 miles to the east in Atascadero Creek in a mitigation area managed by SBCFCD (CDFW 2025a, CCC 2025). A pair of SWPT was also documented in 2018 within the Study Area, approximately 0.3 mile upstream of the Goleta Slough mouth, south of SR 217 (iNaturalist 2025). SWPT has a high potential to transit through the Study Area from SBCFCD mitigation areas but has a low potential to be found breeding within the Study Area.

Special-Status Birds

Sensitive bird species that have been observed foraging or soaring in the Study Area but lack suitable nesting habitat are not presumed to be present. The discussions below include only those species anticipated to nest in treatment areas.

Belding's Savannah Sparrow

BSS is a FE species that is a rare subspecies of the savannah sparrow. It is distinguished from the savannah sparrow by having heavier and darker streaking, and a smaller beak profile. As with most ground-dwelling species, this bird is inconspicuous and blends well with its environment. Breeding territories can be very small and the bird's nest semi-colonially or locally concentrated within a larger block of habitat. They can be difficult to count accurately since they are secretive and forage throughout a marsh, often well away from nesting sites (Zembal and Hoffman 2015). BSS is a small, brown and white streaked, non-migratory songbird in the New World sparrow family, Passerellidae. They measure about 4.5-7 inches and have a thinner crown stripe than other sparrows, with a yellow patch in front of the eye. The CDFW listed this bird in 1974 as endangered. BSS occurs along coastal areas of Southern California and Baja California in coastal salt marshes and associated mudflats and salt flats. BSS are largely associated with pickleweed and utilizing the low dense habitat for foraging and nesting. This species forages throughout the vegetation within marshes, along mudflats, and occasionally on adjacent sand dunes (Zembal et al. 1988). BSS primarily eat insects and marine invertebrates, but will also eat seeds of grasses and tips of pickleweed.

Incubation within the subspecies' range may occur anywhere from mid-March to mid-July, although the peak is probably in April (Kiff and Irwin 1987). Preferred nesting habitat for BSS includes dense stands of pickleweed low to the ground but in the upper region of salt marshes that flood only during extremely high spring tides. In the Study Area, BSS nests are largely limited to within and adjacent to pickleweed (*Salicornia pacifica*) marsh and adjacent low-growing grass and herbaceous communities, which in the above-mentioned basins include areas dominated by alkali heath (*Frankenia salina*) and saltgrass (*Distichlis spicata*), and small areas dominated by beardless wildrye (*Leymus triticoides*). Nests are typically placed on or near the ground. Both adults incubate for 12 to 13 days and feed young. Clutch size is two to six eggs and pairs often produce one to two broods per year. Young fledge in eight to 11 days.

BSS resides year-round in Southern California coastal salt marshes. BSS is a non-migratory sparrow subspecies; this songbird is state-listed endangered. The BSS inhabits coastal marshes, from Santa Barbara south through San Diego County. It is one of only two wetland-dependent avian species that reside year-round in the coastal salt marshes of Southern California. From 1973 to 2015, focused surveys of Southern California estuaries, including the Goleta Slough, were conducted and summarized every five years by CDFW.

Loss and degradation of about 75 percent of coastal wetlands led to a dramatic decline in BSS numbers. However, a 2015 census found that the BSS population has increased by 11.3 percent since the 2010 population estimate (Zemba and Hoffman 2015). The most critical measure to protect BSS remains to effectively protect coast wetlands from degradation due to overgrazing, recreational use, channelization, and development. In most instances, narrow habitat belts and edges near uplands and freshwater marsh are simply not occupied by BSS due to competition and predation. Unless the upper marsh belt is much greater than 32 feet across, it will either not be occupied or occurrences will be extremely spotty (Zemba and Hoffman 2010).

At Goleta Slough, this species nests in pickleweed marsh and adjacent habitats, and forages on nearby beaches and in grass and forb-dominated habitat on or near the SBA (Dudek 2012). Studies conducted for Goleta Slough mouth management have found that suitable habitat for BSS decreases significantly as floodwater water surface elevation exceeds 5.5 feet for prolonged periods, higher water surface elevation negatively impacts existing BSS habitat within Goleta Slough (Rincon et al. 2016).

There are multiple recent recorded occurrences of BSS from 2020-2025 in the Study Area in suitable habitat in the Goleta Slough (SBAS 2026, Storrer 2025). Outside SBA tidal Basins territorial BSS have also been recorded occasionally along Tecolotito Creek upstream of Basin G and in areas of herbaceous vegetation outside the tidal marsh but within SBA property. A pair with a juvenile was along lower Atascadero Creek just east of Goleta Slough in May 1993 and five individuals were there in March 1994 (Lehman 2024).

The 2016 Goleta Slough Mouth Management Biological Assessment describes the Belding Savannah sparrow population in the SBA tidal basins, as follows:

A nesting population of Belding Savannah Sparrow, (Passerculus sandwichensis beldingi), a state endangered species. Other than one or two territories present irregularly at Devereux Slough, approximately 1.25 miles west of Goleta Slough, the population at Goleta Slough is the furthest northwestern occurrence for the subspecies. Periodic surveys (approximately every five years) have yielded counts of between 52 and 68 territories since 2001, although more extensive surveys in 1992 and 1994 recorded 117 and 140 pairs, respectively (Zemba and Hoffman 2010, Compton 2015, Holmgren and Burnell 1992, Holmgren and Kisner 1994). (GSMC 2015 Page 2-81, Rincon et al. 2016).

The latest CDFW survey (2015) indicated a total of 52 territories within the Goleta Slough loosely demarcated by territorial behavior such as singing, scolding, extended perching together of mates, nest building, feeding young, aerial chases, and prolonged posting under certain circumstances (Zemba and Hoffman 2015)

While outlying territories occur in most years, the species is virtually confined to Basins A/H, B/C, D, E/F, G, and L/M (with most territories occurring in A/H and B/C). During surveys in 1987, 1992, 1994, 2001, and 2006, densities of BSS territories were highest in Basin A/H and Basin B/C, and D, which are relatively large, tidal areas dominated by pickleweed (Lehman 2024, Holmgren and Brunell 1992, Holmgren and Kisner 1994, SBAS 2026, Storrer 2024). BSS territories were observed during District activity monitoring during the 2026 nesting season in Basin A/H and Basin B concentrated in high marsh habitat, shrub edges, and elevated areas.

Yellow-Breasted Chat

The yellow-breasted chat is a CDFW SSC that occurs as a migrant and summer resident, primarily from late March to late September and breeds from late April through early August. The species prefers nests on understory and shrubby riparian vegetation, with nesting habitat usually restricted to the narrow border of streams, creeks, sloughs, and rivers, and seldom forms extensive tracks. There are no known CNDDDB occurrences within five miles of the Study Area (CDFW 2025a). In 2021 a transient or foraging individual was detected in the Study Area in the Old San Jose Creek Riparian Corridor (Rincon 2021). The species was detected breeding in 2023 at the Arroyo Burro Open Space, approximately 2.5 miles east of the Study Area (SBAS 2026). The yellow-breasted chat has a low potential to nest given the lack of narrow width of riparian vegetation and high ambient disturbance in the Study Area, but may forage or migrate through the Study Area.

Yellow Warbler

The yellow warbler is a CDFW SSC that is a small (approximately 4.7-5.1 inches long) uniformly yellow songbird with a medium-length tail, rounded head, and a straight thin bill. Males are a bright, egg-yolk yellow with reddish streaks on the underparts. Both sexes flash yellow patches in the tail. The face is unmarked, accentuating the large black eye. Yellow warblers are frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders. There are no known CNDDDB occurrences within five miles of the Study Area (CDFW 2025). Several detections are recorded from 2023 at the GWSD and UCSB campus, within and adjacent to the Study Area (SBAS 2026). The yellow warbler has a high potential to nest and/or occur as a transient, foraging, or migratory species.

Special-Status Raptor Species

White-Tailed Kite

White-tailed kite (*Elanus leucurus*), a state Fully Protected (FP) species that breed regularly along the Santa Barbara coastline. This species nests in trees, usually with a dense canopy, but nest trees can vary from single, isolated trees to trees within large woodlands, including (in order of frequency used) oaks, pines, Monterey cypress, eucalyptus, and willows (Holmgren 2000). Nest and roost trees are typically found in woodlands next to grasslands, meadows, or marshes, which serve as feeding areas. The Study Area provides suitable nesting and roosting habitat for the species, as large eucalyptus are present within the Study Area. There are four known CNDDDB occurrences within five miles of the Study Area, including one occurrence from 2009 that overlaps with the Study Area at More Mesa (Occurrence 179, CDFW 2025). The Santa Barbara Breeding Bird Study documents many recent detections within More Mesa, including nesting activity in 2025 (SBAS 2026). Winter roosting has occurred in willows near Area K (Dudek 2017). This species is present in all life phases within the Study Area.

Cooper's Hawk

The Cooper's hawk (*Astur cooperii*) is a CDFW Watchlist species that typically inhabits woodlands and forest edges but can also be found in urban parks and neighborhoods where trees are present. Nests are constructed 25 to 50 feet high in a variety of tree species, including pines, oaks, beeches, and spruces. Nests are made of sticks and are often lined with bark flakes and green twigs. Cooper's hawks are aerial

predators that feed primarily on medium-sized birds, such as mourning dove (*Zenaida macroura*), American robin (*Turdus migratorius*), California quail (*Callipepla californica*), and European starling (*Sturnus vulgaris*). In addition to preying on adult birds, Cooper's hawks will also occasionally rob nests and hunt rabbits, rodents, and bats (Cornell Lab of Ornithology 2026a). Suitable foraging habitat for the species is present throughout the Study Area, and suitable nesting habitat for the species exists in eucalyptus and coast live oak trees in the Study Area. There are four known CNDDDB occurrences within five miles of the Study Area, including one occurrence from 2009 that overlaps with the Study Area at More Mesa (Occurrence 137, CDFW 2025). The Santa Barbara Breeding Bird Study documents several recent detections within More Mesa, including nesting activity in 2022, and within the northeastern portion of the Goleta Slough, adjacent to Henry T. Yang Drive (SBAS 2026). The Cooper's hawk has a high potential to forage and nest within the Study Area.

Special-status Bat Species

Pallid Bat

The pallid bat (*Antrozous pallidus*) is a state SSC that occurs over a wide variety of habitat types, including deserts, grasslands, shrublands, woodlands, and forests. While it is most common in open, dry habitats with rocky areas for roosting, it can be found roosting under bridges and in some areas in old structures such as barns. They are very sensitive to disturbance of their roost sites, and these sites must protect bats from high temperatures. The pallid bat is a resident species that occurs throughout the state, commonly at elevations below 6,000 feet. Marginally suitable woodland habitat is present along the woodland areas at the southern portion of the Goleta Slough. However, the woodland areas are adjacent to a heavily trafficked road (Henry T. Yang Drive) within UCSB and Atascadero Creek which was affected by a 2022 fire and is subject to anthropogenic disturbance. No suitable shrubland, rocky and open dry areas, or low disturbance roosting areas are present within the Study Area. There is one CNDDDB occurrence from 2017 approximately 0.18 miles west of the Study Area, west of Storke Road and north of Coal Oil Point detected acoustically during a survey for a restoration project (Occurrence 431; CDFW 2025a). The pallid bat has a low potential to roost since the Study Area is subject to disturbance and high potential to forage within the Study Area.

Western Red Bat, Western Mastiff Bat, Yuma Myotis, and Hoary Bat

Other bat species that may occur within the Study Area include the western red bat (*Lasiurus frantzii*), western mastiff bat (*Eumops perotis californicus*), Yuma myotis (*Myotis yumanensis*), and hoary bat (*Lasiurus cinereus*). The western red bat and western mastiff bat are state SSC, and Yuma myotis and hoary bat are not state or federally protected. The western red bat is locally common in California from Shasta County west of the Sierra Nevada/Cascade crest and deserts. This species is found in a variety of habitats, from grasslands, woodlands, and agriculture (Zeiner et al. 1988). This species typically roosts in trees and occasionally in shrubs, primarily within edge habitats adjacent to streams. Western red bats are highly migratory compared to other bat species, and their winter range includes western lowlands and coastal regions south of San Francisco. The western mastiff bat is an uncommon resident of the southeastern San Joaquin Valley and Coastal ranges. The species typically occupies open, semi-arid to arid habitats and is closely associated with rugged terrain and large expanses of open airspace that facilitate its high-altitude, fast flight foraging strategy (Zeiner et al. 1988). Day and night roosting sites include crevices in cliff faces, rock outcrops, high buildings, large trees, and tunnels. The species exhibits high roost fidelity and is sensitive to disturbance at roost sites, particularly during the maternity season. Yuma myotis are commonly associated with riparian corridors, open water, and adjacent upland habitats where they forage extensively over streams, ponds, and other water bodies, typically roosting in crevices, bridges, buildings, and occasionally trees. Hoary bats are widespread but generally solitary tree-roosting bats that occur in forested and woodland habitats, including riparian areas, where they roost in the foliage of large trees and migrate seasonally across much of western North America.

A More Mesa acoustical bat detection survey in April through August in 2008 detected four bat species SSC: The western mastiff, western red bat, Yuma myotis, and hoary bat (CDFW 2025a, Rincon 2010). However, no bat roosts were recorded, nor did the acoustic data indicate that specific roosts were present (Rincon 2010).

In addition, one CNDDDB occurrence from 2017 for the western red bat approximately 0.18 miles west of the Study Area, west of Storke Road and north of Coal Oil Point was detected acoustically during a survey for a restoration project (Occurrence 431; CDFW 2025a). There is marginal roosting habitat within large trees, such as cottonwood, sycamore, or willow trees, along the Atascadero Creek riparian corridor near More Mesa within the Study Area. However, the area is subject to human disturbance from the bike path, agriculture, and the SoCalGas Facility and was affected by the 2022 fire. Foraging habitat for these bat species is present and may provide roosting habitat for hoary bat (in foliage of both coniferous and deciduous trees), and Yuma myotis (under tree bark). The special-status bats have a low potential to roost and are high potential to forage within the Study Area.

1.5.4 Birds Protected by the California Fish and Game Code and Migratory Bird Treaty Act

The Study Area contains habitat that can support nesting birds, including raptors, protected under CFGC Section 3503 and the Migratory Bird Treaty Act (MBTA; 16 United States Code Sections 703–712). Potential nesting sites for raptors within the Study Area are located within the woodland, eucalyptus grove, and riparian habitats. Other species of birds are also likely to utilize the shorter chaparral shrub habitat (i.e., coyote brush) within the Study Area.

1.5.5 ESHA and Sensitive Natural Communities

The CCC has long recognized that parts of the Goleta Slough provide sensitive habitat areas. The Goleta Slough is one of the largest remnant coastal wetlands in this part of California and supports a diverse set of habitats, including several types of freshwater, estuarine, coastal, riparian, and upland areas.

The primary CDFW Sensitive Natural Community occurring in the Study Area and mapped by CNDDDB is Southern Coastal Salt Marsh, and summer mosquito habitat countywide is southern coastal salt marsh. According to Dudek (2012a), this sensitive natural community occurs in the Goleta Slough in the form of four vegetation communities: alkali heath marsh, pickleweed mats, salt grass flats, and salt marsh bulrush. These communities, particularly pickleweed mats, provide the primary nesting habitat for the BSS, listed as endangered under the California Endangered Species Act. Creeks and riparian corridors are vegetated in part by arroyo willow thickets, which is a CDFW Sensitive Natural Community (CDFW 2026).

Study Area ESHA is designated in all areas mapped as waters/wetlands under Figure 1 by the City of Santa Barbara, UCSB, City of Goleta, and the County. Upland ESHA is not affected by District activities and is not discussed further.

1.5.6 Aquatic Resources

The Study Area treatments areas shown in Figure 1 are based on the National Wetlands Inventory and are potentially under the jurisdiction of the USACE, RWQCB, CDFW, and CCC. Since the National Wetland Inventory (NWI) mapping the SBA Goleta Slough Tidal Restoration Demonstration Project created both full and partial tidal regimes within the E/F basin area. No formal wetland delineation was prepared because the activity does not include ground disturbance, fill, excavation, or habitat modification; activities are limited to surveillance and larvicide application with vehicles restricted to existing routes and interior access on foot.

1.5.7 Wildlife Movement

The Goleta Slough is a coastal wetland ecosystem that functions as habitat for resident and migratory wildlife, including birds associated with the Pacific Flyway, and contains salt marsh vegetation communities dominated historically by pickleweed (*Salicornia* spp.). The Goleta Slough supports diverse wildlife use and has long been recognized as a biologically productive tidal marsh system in Southern California.

Wildlife migration corridors connect habitat areas and allow physical and genetic exchange between otherwise isolated animal populations. These corridors may be local—linking foraging and nesting or denning areas—or regional. In contrast, “habitat linkages” are corridors with continuous native vegetation that provide cover and forage for temporary use by ground-dwelling species (Padre 2010). Such corridors are vital to regional ecology, supporting genetic flow and allowing animals to shift territories as conditions change. The Goleta Slough and its tributaries may serve as important movement routes for fish and wildlife traveling between the Pacific Ocean, coastal areas, upper watersheds, and the Santa Ynez Mountains. The riparian vegetation occurring along these creeks could also provide migration habitat for upland species and nesting birds; however, due to the constructed channelization of these creeks, intermittent flows, and disturbed creek habitat up and downstream of the work area, it is expected that the Study Area contains low quality, largely transitory corridor habitat for aquatic species and amphibians (Rincon 2025).

At the regional/landscape level scale, the Study Area is not within any mapped landscape models, such as an Essential Connectivity Area or Natural Landscape block in the *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California* (Spencer et al. 2010). The *City of Goleta Creek and Watershed Management Plan* maps wildlife corridors locally along creeks.

The Study Area includes major creeks, including Atascadero, Los Carneros, Maria Ygnacio, San Jose, San Pedro, and Tecolotito creeks, as well as waterways and the Goleta Slough mouth, which opens to the Pacific Ocean and may serve as a wildlife movement corridor. Surrounding vegetated areas at the western end of the Study Area, adjacent to the Camino Corto Open Space, provide suitable small-scale wildlife movement corridors for wildlife to travel locally and are important in linking non-contiguous or fragmented wildlife habitats. The Pacific Ocean is directly to the south of the Study Area and could also serve as a wildlife movement corridor. The Study Area is surrounded by urban development, including Highway 101 to the north, UCSB to the south and west, SBA and residential and commercial development to the east, which make it less ideal as a wildlife movement route. The Goleta Slough provides habitat for migrating birds along the Pacific Flyway.

1.6 Coastal Impact Analysis

Under modern IMM, mosquito control emphasizes source reduction and habitat BMPs (reducing standing water, reducing stagnation, improving flow, and managing vegetation) and targeted larval control, using least-toxic measures and integrated planning with land managers. However, the IMM BMPs for source reduction such as hydrological modification or habitat management such as vegetation removal is not proposed or conducted by the District. This analysis includes incorporation of District proposed BMPs into the activity description (Section 3).

1.6.1 Special-Status Species

Potential impacts include temporary disturbance during field access and localized disruption of sensitive wildlife if access is not properly managed. Routine foot access and periodic larvicide applications could disturb plants, nesting birds or other wildlife if conducted near active nests, roosts, or sensitive use areas.

Special-Status Plant Species

Southern tarplant, Santa Barbara honeysuckle, estuary seablite, and Coulter's goldfields are known to occur or have a high potential to occur within the treatment areas in GSEMP Study Area.

No heavy equipment, source reduction, or vegetation trimming is proposed. Surveillance activities occur along existing access routes that have already been established and are regularly maintained. Direct impacts could occur from impact by foot or where adjacent to the road by vehicle while accessing treatment areas. However, impacts from technicians on foot and from minor trimming of vegetation would be less than significant due to the negligible area involved, and that special-status individuals would not suffer mortality or be removed from foot or vehicle access. Impacts would be further reduced through District BMPs, which include vehicle restrictions under SCP-01, worker education SCP-05, ESHA avoidance SCP-06, and resource mapping under SCP-07. District BMPs would avoid indirect impacts to special-status plants by preventing the introduction of invasive species (SCP-07).

With incorporation of District BMPs into the Plan, direct and indirect impacts to special-status plants will be less than significant.

Special-Status Animal Species

The District conducts routine mosquito surveillance in and around Goleta Slough to monitor mosquito populations and detect any mosquito-borne diseases. Key surveillance methods include:

- **Larval Surveys and Treatment Access:** Trained technicians regularly inspect aquatic sites for mosquito larvae. Using long-handled dippers, they sample standing water in salt marsh pools, ditches, and other mosquito breeding spots. Larval counts and species are recorded. Dipping is minimally invasive since it involves the gentle scooping of water and causes negligible disturbance. Technicians typically access sites on foot via existing trails, levees, or by small boat in channels, avoiding impacting of vegetation or bottom sediments as much as possible. District surveillance and treatment (foot traffic, dispersal) could temporarily disturb wildlife, including nesting birds, if conducted in proximity to active nests or sensitive areas. Activities would be conducted in accordance with the BMPs relating to agency communication, pretreatment screening, environmental training, disturbance minimization (SCP-05), and nesting bird avoidance (SCP-12), tidal marsh specific BMPs (SCP-10), and saltmarsh nesting season mapping and monitoring (SCP-11) as detailed in IMVMP Section 5.
- **Adult Trapping:** Though adulticide spraying is excluded from this study, adult mosquito traps are used for surveillance. Carbon dioxide-baited light or dry-ice traps and BG-Sentinel traps are placed strategically (e.g., at the wetland margin or near public areas) to sample adult mosquito populations. These traps run on battery power and modest light; they are small (half gallon-sized) and placed in open spots, causing no habitat damage. Some non-target insects (like midges or moths) can be attracted and caught, but in very low numbers relative to their populations. The traps do not use broad-spectrum sticky glues or pesticides; insects are typically collected alive. Thus, the impact on non-target terrestrial insects from trapping is minor and localized (traps might remove a few dozens of moths or flies over a night in an area that supports thousands).

Larval Treatment Toxicity

The District implements larval control treatments using environmentally compatible larvicides that target mosquito larvae in the water. The primary active ingredients in the larvicides, *Bacillus thuringiensis israelensis* (Bti), *Bacillus sphaericus* (Bs), methoprene are described in Section 2. The foremost concern is whether these larvicides, which are introduced into aquatic environments, could harm other aquatic organisms like fish, amphibians, aquatic invertebrates, or the food base for birds. All four active ingredients in the larvicides used in Goleta Slough are either highly target-specific or of low toxicity to non-targets at operational concentration.

- **Bacterial Larvicides (Bti and Bs):** These natural bacterial products are extremely specific to mosquito and closely related fly larvae. Bti and Bs spores produce proteins that, when ingested by filter-feeding

insect larvae, destroy the gut lining of mosquitoes and certain biting flies, causing larval death. Importantly, most other organisms do not have specific gut conditions to activate these toxins. As a result, Bti and Bs show minimal to no toxicity on non-target aquatic life such as fish, amphibians, or aquatic beetles/bugs. Some non-biting midge larvae (Chironomidae, close relatives of mosquitoes) can be slightly affected by high doses of Bti/Bs, but field studies indicate no lasting impact on midge populations under normal use rates (CDPH 2023, USEPA 2021). Bti/Bs do not harm predatory aquatic insects (dragonfly nymphs, beetles), crustaceans, or mollusks at field application rates. For special-status fish like the TWG or steelhead, the bacterial larvicides are essentially non-toxic. The EPA has determined Bti has no significant direct effect on fish or amphibians. Bti and Bs must be ingested by mosquito larvae to be effective. Their toxicity is limited to certain members of the order Diptera (mosquitoes, some flies). They do not affect vertebrates, including fish, amphibians, birds, mammals, or bats. They degrade naturally in aquatic environments and do not bioaccumulate. Because Bti/Bs act only on larvae with specific digestive physiology, most aquatic invertebrates remain unaffected. Bacterial larvicides showed good results for sustained control with similarly limited environmental effects, except for spinosad (see below) (Lawler 2017, Cardno 2013).

- **Insect Growth Regulator (Methoprene):** Health agencies, the public and environmental groups have especially debated the use of methoprene because some studies have shown toxic effects on non-target organisms (Lawler 2017). Methoprene is a synthetic analog of an insect hormone that prevents mosquito larvae from maturing to adults. It is highly selective to insect growth; most vertebrates and plants lack the hormonal pathways that methoprene affects. Within the aquatic environment, methoprene has a half-life of a few hours to a couple of days, but is sometimes applied in an extended-release format, which may persist for many days or even months in the environment. At the label application rates used in the field (e.g., ~0.5 ppb or less in water), methoprene has little to no acute toxicity to fish, amphibians, or aquatic mammals. For example, bluegill sunfish have an LC50 (lethal concentration for 50% of individuals) around 4.6 million µg/L, orders of magnitude above the ~0.5 µg/L used for mosquitoes. Some sensitive aquatic invertebrates (a few species of zooplankton, larval stages of some other crustaceans, certain species of midges, mosquitoes, and related flies) are affected by methoprene; by design, it disrupts their life cycle. Studies in natural habitats have not documented population reductions except in small Diptera (flies) (Lawler 2017). There could be slight temporary reductions in populations of non-biting midge larvae in treated pools. However, these insects reproduce rapidly and can recolonize from untreated areas, so any decreases in their numbers are short-lived and localized. While in laboratory trials some crustaceans and insects that were similar or smaller in size to mosquitoes showed mortality or developmental changes in response to exposures similar to those expected in mosquito control, field studies have not detected negative impacts of methoprene. Studies show no significant change in overall invertebrate community structure in wetlands and marine area following methoprene treatment at recommended doses (Cardno 2013, Lawler 2017).
- **Biorational Insecticide (Spinosad):** Spinosad, derived from a soil bacterium, is a larvicide that targets a broad range of insect larvae via neurotoxicity. It is effective on mosquito larvae and some other pests. Spinosad is more toxic to non-target insects than Bti/Bs, but its use in mosquito control is limited and highly controlled. Spinosad is typically formulated in micro-doses (e.g., 0.5–1 ppm in water) and used sparingly in rotation with Bti/Bs to prevent resistance. At these levels, spinosad has low to moderate toxic effects on certain aquatic invertebrates (e.g., some crustaceans or aquatic stages of insects), but the key is its rapid environmental degradation. Spinosad breaks down quickly in sunlight and under warm conditions its half-life in water is on the order of hours to days. This means non-target organisms experience only brief exposure. Research and the District's Program Environmental Impact Report (PEIR) found no long-term impacts on aquatic invertebrate populations from spinosad when applied per label; any initial reductions in susceptible invertebrates are followed by quick recovery due to recolonization and the short persistence of the compound. Spinosad is considered low in toxicity to fish and amphibians; and while highly toxic to bees in laboratory exposure, it becomes practically nontoxic to adult bees after a few hours once dry. Since spinosad is applied to water bodies (not flowering plants) in this program, exposure to pollinators is minimal to none. Overall, spinosad's short-

lived environmental profile, non-bioaccumulative properties, and usage in limited areas ensures that non-target impacts are constrained and not significant.

The larvicides used are environmentally selective and applied in a manner that avoids significant harm to non-target aquatic organisms. This conclusion is backed by empirical evidence: for instance, a multi-year monitoring study across California vector control programs found no significant toxicity in water samples and no observable impact on fish or aquatic invertebrates following larvicide applications at recommended rates (compiled under Cardno 2013). The reduced environmental risk of using these larvicides is further reinforced by using label-required, untreated buffer zones adjacent to flowing water in some situations (though the Goleta Slough's channels are only treated mouth is closed, adjacent open coast waters would not be directly treated).

Food Web

A related consideration is whether reducing mosquito larvae populations affects the food base for predators (like fish or amphibians), or whether any sublethal pesticide exposure could impact special-status species prey availability. The effect of suppressing a species depends on whether its functions are distinct or redundant with other taxa, considering the roles it fills across both space and time. If a species filling an ecological role is dominant or unique, larger effects of suppressing it are likely than if it has low abundance and its functions are redundant with other taxa (Lawler 2017).

Predators of mosquitoes are generally dietary generalists that utilize a wide variety of aquatic and terrestrial invertebrate prey; therefore, localized reductions in mosquito abundance resulting from larval control are not expected to measurably affect food-web function or predator populations (Merritt et al. 1992; Batzer and Wissinger 1996; Walton 2007). Bacterial larvicides leave non-mosquito species unaffected, preserving alternate prey (Bti does not kill crustaceans, beetles, worms, etc.). Even mosquito fish consume many other types of prey, although they are sometimes said to be specialists (Lawler 2017). Localized reductions in mosquito abundance are not expected to affect overall predator populations due to their broad foraging ranges and use of alternative prey (compiled under Cardno 2013). Therefore, the food web impacts are minimal and predators in the Goleta Slough continue to have ample alternative food sources (chironomid midges, fly larvae, small crustaceans, etc.).

No direct or indirect impacts on special-status species, ESHA, aquatic resources, or wildlife movement are expected from larvicide. No direct or indirect impacts on special-status species are expected from larvicide use. For example, the TWG feeds on small aquatic invertebrates and detritus; as noted, Bti and methoprene have little effect on those prey organisms. The endangered gobies themselves were tested in risk assessments and found to not be adversely affected by label larvicide concentrations. Similarly, bird species like the BSS or waterfowl that may ingest treated water or prey are not at risk – the larvicides do not bioaccumulate or persist in prey. Bioaccumulation is not a concern with the larvicides used: Bti and Bs are non-living toxins that eventually break down, methoprene is quickly metabolized in the environment and in organisms (and it's applied in low doses), and spinosad is not known to accumulate in animal tissue (it degrades to innocuous metabolites).

Special-Status Insects

Special-status insects, if present, could only potentially be affected by the emergency use of adulticides. Monarch butterfly roosts in eucalyptus groves would be unaffected by surveillance and treatment since no tree trimming or removal would occur. Any impacts to special-status insects would be reduced through adherence to existing regulations for application: BMP-06 restricting adulticide use and BMP-05 interagency communication, and SCP-04 environmental training, and SCP-06 ESHA and resource mapping database.

Special-Status Aquatic Species

Channels that have substantial tidal flow and inundation would not support mosquitoes and thus would not need to be treated. Fish can also escape technician foot traffic since they are mobile. Thus, fish would not be directly affected.

The TWG feeds on small aquatic invertebrates and detritus; as noted, Bti and methoprene have little effect on those forage organisms. Endangered goby species have been evaluated in USEPA pesticide risk assessments for larvicides through fish toxicity testing and conservative exposure modeling, and negative effects determinations have concluded that label-compliant larvicide applications are not expected to result in adverse effects to listed fish species (EPA 2026). Mosquito fish are prohibited from release into natural areas under SCP-03.

Belding's Savannah Sparrow

BSS is known to occur (nesting and foraging) within pickleweed and tidal basins within the Goleta Slough in Basins A-H and K, as well as in the Carpinteria Salt Marsh and Devereux Slough.

No vegetation removal or noise generating activities are proposed under typical surveillance and treatments. Technical routine surveillance and treatment activities are consistent with ambient noise in the area. Technicians on foot may cause brief, minor disturbance (e.g., flushing BSS approaching a sampling site), but outside the breeding season these effects are temporary and BSS quickly resume normal behavior after technicians leave. There is no lasting alteration of habitat from surveillance. Even in sensitive areas, surveillance is done by hand with small equipment, ensuring that, for example, marsh substrate is not damaged and no plants are removed.

District activities on foot in the coastal salt marsh mid-March through mid-August have potential to impact BSS nests or fledglings. The BSS nests are cryptic in low-lying pickleweed and the young cannot escape impacts. The treatments and surveillance are conducted concurrently approximately once per month. Surveillance and treatments in March occur at the end of the season for winter mosquitoes. Activities after April transition to targeting mosquito species that are most active in the summer with specific dates based on monthly tidal patterns. Therefore, it is infeasible to schedule surveillance and treatment activities outside of the BSS nesting and breeding season (March 15 through July 15). Potential direct and indirect impacts to BSS would be less than significant with the implementation of District Proposed Measures, specifically SCP-11.

Belding's Savannah Sparrow Avoidance Considered

To completely eliminate disturbance to nesting BSS during their reproductive season, an option considered was to prohibit activities during the period from mid-March through mid-July in coastal salt marsh habitat (Goleta Slough, Devereux Slough, Carpinteria Salt Marsh, and similar habitats).

- Black salt marsh mosquito: Without larvicide use during March to July, these populations would develop unchecked and could create a severe nuisance for UCSB students, airport workers, and Goleta residents. It can also vector diseases such as Eastern Equine Encephalitis (though rare in California, the species is a competent vector).
- Western encephalitis mosquito: Suspending surveillance from March to mid-July would mean no disease testing of mosquitoes during the prime virus transmission season, and no larvicidal suppression of vector populations before they reach peak abundance.
- Southern house mosquito: The seasonal restriction would cover the critical early buildup (March to June), allowing populations to explode before any control resumes in mid-July.

By prohibiting all larval treatments from mid-March to mid-July, the District would restrict the ability to prevent the spring "first generation" of mosquitoes. Mosquito populations grow exponentially: a single untreated pool can produce thousands of adults in 7 to 10 days, which then lay eggs for the next generation. Missing 5 months of control (March 15 to July 15) effectively means missing 5 to 10

generations of mosquitoes (depending on temperature and species). For example, at 25° Celsius (77° Fahrenheit), *Culex* species can complete a generation in ~2 weeks; over 5 months, that allows roughly 10 generations, each multiplying the population. Conservative estimates suggest summer mosquito abundance could increase 10- to 100-fold compared to a scenario with spring larvicide use.

This option is infeasible for several reasons:

- The District is legally obligated to abate mosquito breeding. Choosing not to do so for five months would expose the District to lawsuits, regulatory enforcement, and potential loss of state funding (the CDPH provides grants to vector control districts conditioned on active mosquito management).
- Once mosquito populations explode, regaining control is extremely difficult. The District lacks the resources (staff, equipment, and budget) to mount the scale of emergency response that would be needed post-July 15.
- **Public Health Infeasibility:** This alternative would result in significant public health consequences while providing only marginal additional environmental benefits compared to the proposed SCP-11 measure. The seasonal restriction would:
 - Eliminate mosquito control during the peak breeding season, allowing unchecked population explosions of disease-vector species.
 - Increase summer mosquito populations by an estimated 10–100 fold compared to baseline control, based on the exponential reproductive capacity of coastal mosquito species.
 - Elevate WNV transmission risk to humans and wildlife, as surveillance would be suspended during critical spring virus amplification periods.
 - Violate the District's statutory mandate to abate mosquito breeding as a public health nuisance under H&S Code Section 2000–2093.

State and local health authorities would not approve a plan that leaves the public unprotected from disease vectors for half the year. The County of Santa Barbara Public Health Department works closely with the District and would object, possibly seeking intervention from the CDPH.

The seasonal restriction alternative (no mosquito surveillance or treatment from mid-March to mid-July) is incompatible with responsible public health protection and statutory obligations. The spring and summer treatment would provide minimal incremental environmental benefit, since the IMVMP already implements real-time avoidance of nesting birds through qualified biologist oversight, to be memorialized through SCP-11 measure, which avoids nesting BSS through real-time biological oversight.

Other Special-Status Birds and Nesting Birds

The Goleta Slough has historically supported extensive avian use and includes habitat types recognized as sensitive to disturbance. The Study Area contains habitat capable of supporting nesting birds, including raptors protected under the CFGC and the federal MBTA. The loss of a nest through mortality or abandonment of nests due to treatment activities would be a violation of the MBTA and CFGC Section 3503.

Modern IMM emphasizes surveillance and evaluation to determine when control actions are necessary and can reduce unnecessary treatments and entry. Nonetheless, repeated access or operations conducted during breeding season could indirectly disrupt nesting behavior if not properly managed. Treatments on foot could potentially directly affect ground nesting species, such as killdeer, by crushing nests. Potential activity impacts would be less than significant with implementation of SCP-04 Worker Education Program, SCP-05 ESHA Avoidance, SCP-06 treatment prescreening, and SCP-19 requiring nesting bird season avoidance to ensure compliance with the MBTA and CFGC Section 3503.

The Goleta Slough historically supported diverse bird communities, including many insectivorous species. Birds cannot be harmed by ingestion of treated water or consuming insect prey exposed to Bti/Bs application because the toxins are activated only within specific mosquito larval gut receptor and birds lack these receptors entirely.

Bird diet is rarely dominated by mosquito larvae, especially among adult songbirds and marsh birds. Most gleaning and aerial-hawking birds rely on midges, flies, beetles, lepidopterans, and aquatic insects other than mosquitoes. Since Bti/Bs do not significantly affect these other taxa, prey availability remains intact. Bti/Bs use in modern Integrated Mosquito Management (IMM) programs does not significantly affect food availability for insectivorous birds, and therefore does not create risk of reduced breeding success or energetic stress.

Special-Status Bats

Like birds, bats lack the physiological receptors required for Bti/Bs toxicity. Because CDPH classifies these larvicides as “least-toxic biorational materials” intended to maximize safety for the environment, including mammals, no direct exposure pathway results in toxicity. Since Bti/Bs target only mosquito larvae, not adult flying insects, they do not reduce the adult insect community that bats rely on. Even if localized mosquito abundance decreases, bats feeding on mixed insect swarms experience no meaningful reduction in available biomass, as mosquitoes typically represent a small fraction of the aerial insect assemblage in coastal wetlands. Use of Bti/Bs poses no significant risk to bat foraging resources or population health.

Potential impacts associated with mosquito surveillance and larval control include temporary disturbance from foot access and localized exposure of non-target organisms to larvicides. The IMVMP does not include ground disturbance, vegetation removal, or hydrological modification.

With implementation of District BMPs and SCPs, impacts to special-status plants, wildlife species, sensitive natural communities, ESHA, and aquatic resources would be less than significant.

1.6.2 ESHA and Sensitive Natural Communities

ESHA generally includes all treatment areas in the coastal zone. Treatment areas shown in the GSEMP ESHA can be broadly interpreted to include native vegetations in the GSEMP.

Surveillance and Treatment Application

Surveillance, foot access, and larvicide application could result in temporary and localized disturbance to sensitive vegetation or soils if personnel enter marsh margins or traverse sensitive habitat areas. Overall, surveillance activities cause negligible physical disturbance to habitats. There is no lasting alteration of habitat from surveillance. Even in sensitive areas, surveillance is done by hand or with small handheld equipment, ensuring that, for example, marsh substrate is not damaged and no plants are removed.

Activities involve surveillance and larvicide only and do not include grading, fill, dredging, or habitat modification. Habitat alterations to drain such areas are not conducted by the District, but the District may provide technical assistance to landowners to develop effective water management systems in accordance with applicable environmental laws and mosquito reduction BMPs. Modern IMM approaches emphasize surveillance to minimize unnecessary entry and treatment and encourage non-chemical BMPs where feasible to reduce mosquito production. Because interior access would occur on foot and vehicles would remain on the existing roads, disturbance potential would be limited in area and duration. The Goleta Slough’s recognized sensitivity to disturbance supports maintaining strict access controls and limiting intrusion.

Coastal salt march impacts would be further reduced under SCP-06 and -11 which would limit access routes through undisturbed areas during the BSS breeding season.

Treatment Chemicals

As discussed above, impacts to habitat from treatments would be less than significant with adherence to label requirements and state and federal laws governing pesticide use.

The use of adulticides has not been required in direct association with mosquito production in vernal pools, and this is not anticipated to be an issue in the foreseeable future. If adulticide use were to become necessary within proximity (relative to swath widths of ultra-low volume (ULV) application equipment) to vernal pools, applications would be performed in strict accordance with the product label, using the appropriate measures and practices listed in Section 2.2 and in consultation with property owners.

Adulticide use, if triggered as a contingency response, could increase risk of non-target effects (e.g., effects on non-target insects) and could increase potential for disturbance within sensitive habitats. Adulticides can affect non-target insects and are typically more broadly dispersive and have a wider range of insecticidal effects than larvicides. Adult mosquito control is considered a response tool implemented when surveillance indicates elevated public health risks and other control measures are insufficient. If adulticide were applied, it would be implemented under strict operational controls and only when warranted.

Because larvicides are applied to water, direct impacts to terrestrial habitats and wildlife are extremely limited. The only conceivable route is overspray drift or movement of treated water into upland areas. In practice, drift is minimized by using granular or briquette formulations applying when winds are calm. For example, methoprene is often applied as small granules using a horn seeder or backpack blower or as small briquettes by hand; this method places the material precisely into marsh pools, avoiding upland plants. Under a public health emergency adulticide liquid sprays (if ever used) are applied with ULV equipment calibrated to produce fine droplets that settle quickly and do not disperse far. The chance of significant pesticide deposition on surrounding upland vegetation is extremely small and impacts from adulticide would be less than significant.

1.6.3 Hydrology

Larval control treatments could affect non-target aquatic organisms if misapplied or overapplied, potentially altering local food-web components relied upon by fish and birds. Bti/Bs do not persist in water and would not violate a water quality standard.

Modern IMM emphasizes elimination and reduction of water sources and hydrologic improvements to reduce stagnation, improve flow, and manage vegetation, to reduce mosquito breeding and chemical intervention. However, source reduction and hydrologic improvements, such as vegetation removal or drainage, introduction of fish, or herbicide application may have significant impact on these habitats and is not proposed as part this Plan.

The Plan as proposed would have no direct impact on hydrology since direct removal, filling, or hydrological interruption is not considered. The implementation of all the plan components would not result in any significant impacts on aquatic or wetland resources. All impacts are either less than significant or none. Therefore, no mitigation is required. The pesticide applications are constantly under surveillance and are monitored for total pesticide use, amount used per acre, timing of applications, and parameters affecting application scenarios. Under the National Pollutant Discharge Elimination System Permit annual reports are provided for chemical use in aquatic systems to the SWRCB,

Larvicides used under the IMVMP are non-persistent, do not bioaccumulate, and are authorized under the statewide National Pollutant Discharge Elimination System Vector Control Permit. No changes to hydrology, water circulation, or wetland function are proposed.

1.6.4 Wildlife Movement

No mapped wildlife movement corridors are present within the Study Area. However, the Study Area is within the Goleta Slough, which wildlife may travel through. Surrounding vegetated areas provide suitable small-scale wildlife movement corridors for wildlife to travel locally and are important in linking non-contiguous or fragmented wildlife habitats. Wildlife movement corridors could be indirectly impacted during District activities through the introduction of noise and increased human presence.

Increased human activity could affect essential behavioral activities and physiology of wildlife. The Study Area itself is primarily surrounded by urban development, including Highway 101 and SR 217, UCSB campus, and residential and commercial development, which make it less ideal as a wildlife movement route. Furthermore, the Study Area is within an active airport. The noise impacts from the District would be limited to occasional light-vehicle travel on existing roads; and no heavy machinery use is proposed. Access is limited to up to six technicians and a biological monitor during daylight hours which would not substantially increase human presence. Surveillance improves efficiency and reduces unnecessary treatments. Any disruption of migration patterns would be due to the presence of personnel on foot.

District activities do not involve habitat modification, pollutant discharge, or wildlife harassment. They are carefully conducted to respect the sensitive setting and timing in this coastal salt marsh and nesting bird habitat. Surveillance is the foundation of an IMM approach; it allows the District to target problem areas and times, thereby reducing unnecessary interventions and ensuring that any larval treatments are truly needed.

District activities will not introduce new barriers to movement of resident or migratory wildlife species (i.e., fish or birds), as the District's activities are focused on treating basins for mosquito and vector control. No permanent or temporary fences, barriers or other impediments to wildlife movement would be constructed. In all cases, this occurrence would be very short term, generally not more than a few hours in any given location. Therefore, this effect would be minimal, would have no substantial adverse effect on the movement of native resident or migratory fish or wildlife, and would not affect wildlife migration corridors or nursery areas, as no physical disturbance would occur.

Food Web

The proposed IMVMP would target identified vector threats and use various methods to protect the public from vector-borne disease and nuisances and is not intended to interfere with the movement of any native resident or migratory fish or wildlife species. The majority of IMVMP activities would focus on the surveillance and monitoring of potential vector breeding sources and populations through noninvasive methods (i.e., aerial surveys [not currently conducted], mosquito trapping, etc.), and control of vector populations through application of larvicides and, only in emergencies, by adulticides. Surveillance and monitoring activities would not result in the removal or alteration of native habitats. Surveillance and source treatment activities may temporarily occur near local wildlife movement areas due the presence of personnel and equipment, but any potential disruptive effects would be minimal and last no longer than a few hours in any given location. Wildlife would be expected to move back into the area once activities have ceased and no major habitat or ground disturbance has occurred. Therefore, these activities would not impede the movement of native, resident, or migratory fish or wildlife species nor interfere with established native, resident, or migratory wildlife corridors, and would not impede the use of native wildlife nursery sites.

Use of Bti/Bs under the Plan is expected to result in less-than-significant impacts to aquatic food webs, insectivorous birds, and bats. These larvicides are targeted, biorational products that affect only mosquito larvae and do not harm vertebrates or most aquatic invertebrates. Therefore, while mosquito larvae may decrease locally following treatment, the overall insect community remains intact, and food availability for insect-feeding birds and bats is not significantly altered.

No barriers to wildlife movement would be created. Activities are short-duration, localized, and conducted using non-intrusive methods. Wildlife corridors and nursery sites would remain functional.

1.6.5 Resources Protected by the Coastal Act, Local Policies, and Ordinances

The County and City of Santa Barbara general plans, LCPs, and community plan and their goals and policies pertaining to natural resources are protective of aquatic resources and focused on conservation of existing resources including riparian, wetland, marsh, and slough communities. District activities would

not result in the conversion of natural habitats to other land uses in the long term or permanent dislocation of plant and animal species from natural areas, except indirectly for mosquitoes and vectors of disease and discomfort. Surveillance activities would not affect trees, and therefore, would not conflict with any tree ordinances.

The CCA defines alteration of coastal wetlands as “development,” often needing a CDP. However, the District’s routine mosquito control (surveillance and larvicide use) is an ongoing maintenance activity that does not significantly disrupt habitat. The District has cooperated with the CCC to ensure its practices are consistent with Coastal Act policies. For example, after concerns about the District’s amphibious all-terrain vehicle’s (Argo) impact on marsh ESHA, the CCC and District reached consensus to discontinue its use in such habitats.

City of Santa Barbara Airport Local Coastal Program

1982 and 2003 LCP policies pertaining to vector management:

Mosquito Abatement Policy C-2: The City shall cooperate with Goleta Valley Mosquito Abatement District to see that mosquito abatement practices be limited to the minimum necessary to protect health and prevent damage to natural resources. Spraying shall be avoided during nesting seasons to protect wildlife, especially the endangered light-footed clapper rail and Belding’s savannah sparrow. Biological controls are encouraged.

Policy C-7: Any on-going activities of special districts such as Flood Control or Mosquito Abatement, etc., which constitutes development as defined in the Coastal Act shall be reviewed for approval by the City and must receive a Coastal Development Permit (or its equivalent) prior to commencement of activities.

Actions:

In order to determine consistency with Policy C-9, investigate and define the nature and timing of permitted on-going activities conducted in the slough by the Mosquito Abatement District and the Flood Control District.

Encourage the Goleta Valley Mosquito Abatement District’s use of biological methods for mosquito control.

Policy C-10: All development and mitigation of impacts on Goleta Slough shall be consistent with the policies of the Goleta Slough Ecosystem Management Plan, which is adopted and incorporated herein as Appendix G as it pertains to the Airport property.

Consistent. Surveillance and larval treatment do not constitute development that would require a CDP and are specifically exempted under the City of Santa Barbara Airport Zoning Ordinance (§ 29-25.030). If future emergency treatment provisions require “development” a Goleta Slough CDP would be obtained. Biochemical controls are used for larvicide. Under the IMM principles implemented by the District, the practices and chemicals used is the minimum necessary to protect public health at and abate nuisances.

2015 Goleta Slough Area Sea Level Rise and Management Plan

The Goals, Policies and Actions of the 2015 Goleta Slough Area Sea Level Rise and Management Plan pertaining to Vector Control include:

Action A-2.6 - Coordinate with the Goleta Valley Vector Control District in the management of mosquitoes and other species under their jurisdiction that occur in the Slough area. Pursue alternatives to District vehicle access in the Slough to minimize disruption of wetland habitat.

Consistent. BMP-05 requires interagency communication and SCP-08 stakeholder communication includes participation in the GSMC. Vehicle access is confined to existing roadways to minimize disruption of wetland habitat as reflected under SCP-01.

UCSB LRDP

Policy ESH-10 – The University shall use mosquito control methods with the least effect upon non-target organisms and shall use environmentally sensitive pesticides (such as VectoBac®). Wetlands shall not be drained for this purpose, nor shall native wetland vegetation be removed, nor shall non-native larval predators be introduced.

Consistent. As discussed above IMM require the use of mosquito abatement techniques that have the least effect upon non-target organisms and shall use environmentally-sensitive pesticides, including VectoBac. Additionally, District chemical use must be consistent with those approved under the UCSB Integrated Pest Management Plan (UCSB 2010) under BMP-04. Mosquito fish are prohibited from being introduced into natural areas under SCP-03. The District does not drain wetlands or remove native vegetation.

The UCSB LRDP emphasizes hazard management and ecological stewardship in campus-adjacent areas. Mosquito abatement supports these goals by preventing disease outbreaks (public safety) while adhering to environmental constraints. UCSB has historically collaborated with the District and regulators to allow larval treatments in campus and adjacent wetlands.

City of Goleta

CE 1.10: Management of ESHAs. The following standards shall apply to the ongoing management of ESHAs:

- a. *The use of insecticides, herbicides, artificial fertilizers, or other toxic chemical substances that have the potential to degrade ESHAs shall be prohibited within and adjacent to such areas, except where necessary to protect or enhance the ESHA itself.*

[...]

- c. *Mosquito abatement within or adjacent to ESHAs shall be limited to the implementation of the minimum measures necessary to protect human health Tecolote Creek Lagoon and shall be undertaken in a manner that minimizes adverse impacts to the ESHAs*

Policy C-7: Ongoing activities of special districts require City approval and Coastal Development Permit. Action: Encourage Goleta Valley [Vector Control]'s use of biological methods of mosquito control.

Consistent. The larvicides used for treatments are not considered a toxic chemical substance that have the potential to degrade ESHA. As discussed above under IMM principles, the District's activities are the minimum required. The use of bacterial-based larvicides is considered a biological method of mosquito control.

1.7 GSEMP Cumulative Impacts

The ongoing mosquito surveillance and larval treatment activities in Goleta Slough present *no significant adverse cumulative impacts* on the environment. In fact, these targeted, small-scale interventions mitigate public health risks without undermining broader ecological and planning goals. Under the California Environmental Quality Act (CEQA), the incremental effects of these vector control actions are *not* "cumulatively considerable" meaning they do not add appreciably to any environmental degradation when considered alongside other projects. District activities align with the local resource management policies by ensuring that public health protection (through mosquito abatement) is achieved in harmony with habitat conservation and regulatory compliance.

Santa Barbara County Flood Control District Beach SMART

Beach SMART (Beach Sediment Management and Resilience Tactics) is being led by the SBCFCD and takes a comprehensive approach to analyzing the movement of sediment on the south coast of Santa Barbara County and developing a watershed-wide management process for more tailored and appropriate strategies for beach enhancement (i.e., sediment deposition on beaches). Beach SMART is a collaboration to inform and improve the way sediment is managed in Santa Barbara County. By focusing on natural watershed processes and exploring nature-based solutions, the project aims to build long-term resiliency for our beaches, creeks, and coastal communities. Goleta Slough mouth management may be included under the Regional Sediment Management Plan and environmental analysis.

The mouth of Goleta Slough naturally closes with beach sand periodically, increasing water levels in the Goleta Slough, which in turn increase flood risks, attract a larger population of waterfowl, and supports larger populations of mosquitoes. SBCFCD historically maintained the mouth of Goleta Slough as part of its routine maintenance operations since at least 1994. Periodic breaching of the Goleta Slough mouth was incorporated in the management program as described and evaluated under the 2010 a Final Supplemental Environmental Impact Report certified in 2010 (Padre 2010). Under this management strategy the mouth was opened any time sand buildup caused a closure lasting more than two weeks. This practice was discontinued when permits expired in 2012, and NMFS indicated that continued breaching would require further study (Coffman Associates 2013). This maintenance has not occurred from 2012 onward, and is not covered in the existing permits. Prolonged mouth closure results in increased water depth, changed water quality, altered habitat conditions, increased potential for wildlife airport hazards, increased mosquito breeding habitat, flood risks, shifts in habitat from marsh to open water, stagnation, and water quality problems.

Goleta Slough mouth management under SMART would have beneficial effect activities since it would reduce standing freshwater and encourage tidal circulation and reduce the scope of the District's activities in the coastal salt marsh, particularly in the spring and summer.

Santa Barabra Airport Local Coastal Program Update and Emergency Flood Permitting

SBA is developing a Climate Adaptation Plan (CAP), focusing on potential adaptation measures to address flooding issues along with ongoing and planned adaptation measures, such as sediment management and storm drain improvements. Comprehensive analysis of flood management options for the SBA include near-term, mid-term, and long-term groundwater management, storm drainage improvements, and airfield modifications. The ESHA team recommended a feasibility and effectiveness study along with development of conceptual plans for three selected adaptation measures that would include preliminary cost estimates. The three intermediate measures for consideration are: a permanent berm along Carneros Creek, wetland floodplain restoration north of Carneros Creek, and a stormwater detention facility north of Runway 15R. The next steps include completing the CAP report, preparing for public workshops, and considering a feasibility study.

Following the storms and flooding in winter 2025, SBA submitted and emergency permit for flood control measures.

The SBA implementation of flood control and sea level rise adaption may reduce MVMD's need to treat the area since it may reduce standing freshwater and encourage tidal circulation and reduce the scope of the District's activities in the coastal salt marsh, particularly in the spring and summer.

UCSB Western Goleta Slough Tidal Restoration Project.

The UCSB CCBER manages more than 340 acres of open space between Ellwood Mesa and Goleta Slough. CCBER received a grant from the Wildlife Conservation Board to study and permit reconnecting up to 18 acres of estuarine wetlands and development of a restoration plan for 62 acres of upland, emergent wetland, and tidal wetland habitats located on UCSB property and CDFW's Goleta Slough Ecological Reserve. The CCBER is currently working on assessing the ecological function of tidal and non-

tidal portions of the project site and adjacent Goleta Slough for birds, aquatic invertebrates, plant diversity, and vigor.

The long-term cumulative impact would be beneficial since reducing standing freshwater and encouraging tidal circulation would reduce the scope of the District's treatment in the coastal salt marsh. However, in the short term, alteration of hydrology could temporarily increase the amount of shallow standing water in the basin due to manipulation of the water control structures draining these areas in wet years and flooding could persist for several days. Past tidal restoration projects have required CDFW to contract with the local vector control district to monitor and treat the basins in these situations (URS 2005, Mitigation Measure PS-1).

Development Projects

Based on cursory review of local development projects, none have the potential for cumulative impacts except for creation of on-site swales and detention basins (required under state law) which could create new treatment areas. While this impact is not significant, since these areas are worked into the existing program, BMP-05 encourages coordination with the environmental review process for local discretionary applications.

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1.9 List of Preparers

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1.10 Common and Scientific Names of Species Referenced

Table 5 Common and Scientific Names of Species Referenced

Common Name	Scientific Name
Plants	
red sand verbena	<i>Abronia maritima</i>
Parish's glasswort	<i>Arthrocnemum subterminale</i>
coyote brush	<i>Baccharis pilularis</i>
ice plant	<i>Carpobrotus edulis</i>
southern tarplant	<i>Centromadia parryi</i> ssp. <i>australis</i>
water pygmy weed	<i>Crassula aquatica</i>
shore grass	<i>Distichlis littoralis</i>
saltgrass	<i>Distichlis spicata</i>
short-seeded waterwort	<i>Elatine brachysperma</i>
needle spikerush	<i>Eleocharis macrostachya</i>
alkali heath	<i>Frankenia salina</i>
meadow barley	<i>Hordeum brachyantherum</i>
Leopold's rush	<i>Juncus acutus</i> ssp. <i>leopoldii</i>
Coulter's goldfields	<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>
beardless wildrye	<i>Leymus triticoides</i>
Santa Barbara honeysuckle	<i>Lonicera subspicata</i> var. <i>subspicata</i>
Lemmon's phalaris	<i>Phalaris lemmonii</i>
pickleweed	<i>Salicornia pacifica</i>
arroyo willow	<i>Salix lasiolepis</i>
tule	<i>Schoenoplectus acutus</i> var. <i>occidentalis</i>
bur-reed	<i>Sparganium eurycarpum</i>
estuary seablite	<i>Suaeda esteroa</i>
woolly seablite	<i>Suaeda taxifolia</i>
southern annual saltmarsh aster	<i>Symphyotrichum subulatum</i> var. <i>ligulatum</i>
horned pondweed	<i>Zannichellia palustris</i>
Invertabrates	
Crotch's bumble bee	<i>Bombus crotchii</i>
California horn snail	<i>Cerithidea californica</i>
senile tiger beetle	<i>Cicindela senilis frosti</i>
monarch butterfly, California overwintering population	<i>Danaus plexippus plexippus</i> pop. 1
mud crab	<i>Hemigrapsus oregonensis</i>
bent-nose clam	<i>Macoma nasuta</i>
California beach flea	<i>Megalorchestia californiana</i>
salt marsh snail	<i>Melampus olivaceus</i>
lined shore crab	<i>Pachygrapsus crassipes</i>

Common Name	Scientific Name
common littleneck clam	<i>Protothaca staminea</i>
California jackknife clam	<i>Tagelus californianus</i>
Pacific beach hopper	<i>Traskorchestia traskiana</i>
Fish	
topsmelt	<i>Atherinops affinis</i>
arrow goby	<i>Clevelandia ios</i>
Pacific herring	<i>Clupea pallasii</i>
prickly sculpin	<i>Cottus asper</i>
tidewater goby	<i>Eucyclogobius newberryi</i>
California killifish	<i>Fundulus parvipinnis</i>
partially armored threespine stickleback	<i>Gasterosteus aculeatus</i>
longjaw mudsucker	<i>Gillichthys mirabilis</i>
cheekspot goby	<i>Ilypnus gilberti</i>
Pacific staghorn sculpin	<i>Leptocottus armatus</i>
southern California steelhead	<i>Oncorhynchus mykiss irideus pop. 10</i>
California halibut	<i>Paralichthys californicus</i>
shadow goby	<i>Quietula y-cauda</i>
Birds	
green-winged teal	<i>Anas crecca</i>
mallard	<i>Anas platyrhynchos</i>
great egret	<i>Ardea alba</i>
great blue heron	<i>Ardea herodias</i>
Cooper's hawk	<i>Astur cooperii</i>
great horned owl	<i>Bubo virginianus</i>
dunlin	<i>Calidris alpina</i>
Baird's sandpiper	<i>Calidris bairdii</i>
western sandpiper	<i>Calidris mauri</i>
least sandpiper	<i>Calidris minutilla</i>
California quail	<i>Callipepla californica</i>
Wilson's warbler	<i>Cardellina pusilla</i>
house finch	<i>Carpodacus mexicanus</i>
western snowy plover	<i>Charadrius nivosus nivosus</i>
killdeer	<i>Charadrius vociferus</i>
snowy egret	<i>Egretta thula</i>
Caspian tern	<i>Hydroprogne caspia</i>
yellow-breasted chat	<i>Icteria virens</i>
short-billed dowitcher	<i>Limnodromus griseus</i>
long-billed dowitcher	<i>Limnodromus scolopaceus</i>
double-crested cormorant	<i>Nannopterum auritum</i>

Common Name	Scientific Name
long-billed curlew	<i>Numenius americanus</i>
black-crowned night heron	<i>Nycticorax nycticorax</i>
Belding's Savannah sparrow	<i>Passerculus sandwichensis beldingi</i>
brown pelican	<i>Pelecanus occidentalis</i>
Nuttall's woodpecker	<i>Picoides nuttallii</i>
ruby-crowned kinglet	<i>Regulus calendula</i>
yellow warbler	<i>Setophaga petechia</i>
California least tern	<i>Sternula antillarum browni</i>
European starling	<i>Sturnus vulgaris</i>
violet-green swallow	<i>Tachycineta thalassina</i>
greater yellowlegs	<i>Tringa melanoleuca</i>
American robin	<i>Turdus migratorius</i>
warbling vireo	<i>Vireo gilvus</i>
mourning dove	<i>Zenaida macroura</i>
pectoral sandpiper	<i>Calidris melanotos</i>
white-tailed kite	<i>Elanus leucurus</i>
Mammals	
pallid bat	<i>Antrozous pallidus</i>
coyote	<i>Canis latrans</i>
Virginia opossum	<i>Didelphis virginiana</i>
western mastiff bat	<i>Eumops perotis californicus</i>
hoary bat	<i>Lasiurus cinereus</i>
western red bat	<i>Lasiurus frantzii</i>
yuma myotis	<i>Myotis yumanensis</i>
common raccoon	<i>Procyon lotor</i>

Attachment C.1

Goleta Slough Ecosystem Biological Technical Appendix Photographs



Photograph 1. View of Santa Barbara County Mosquito Vector Management District (District) field technicians using existing, maintained road to access Triangle basin (Area M and L) at the Goleta Slough via 4x4 trucks, facing east. Road consists primarily of clover species and annual grasses (December 9, 2025).



Photograph 2. View of Fourstar Briquettes deployed for pre-treatment. Briquettes are carried in buckets by District field technicians (December 9, 2025).



Photograph 3. View of tidal basins and pickleweed mats at Goleta Slough, facing north. District field technicians enter water to begin pre-treatment at Triangle basin in the Goleta Slough. Fourstar briquettes are carried in buckets. Treatment is deployed by foot, and foot traffic through pickleweed is the minimum necessary to conduct the pre-treatments (December 9, 2025).



Photograph 4. View of pickleweed mats at Goleta Slough, facing northwest. District field technicians deploy fourstar briquettes by hand at Triangle basin in the Goleta Slough. Treatment is deployed by foot, and foot traffic through pickleweed is the minimum necessary to conduct the pre-treatments (December 9, 2025).



Photograph 5. View of existing, maintained road to access Tule pond (Area J) and White Pole (Area I) at the Goleta Slough, facing north. Road consists of bare ground surrounded by native vegetation, such as arroyo willow (*Salix lasiolepis*) and coyote bush (*Baccharis pilularis*) (December 10, 2025).



Photograph 6. View of tule (*Schoenoplectus acutus* var. *occidentalis*). District field technicians use the polyvinyl chloride (PVC) pipe method to deploy multiple Fourstar briquettes at Tule pond, facing northeast (December 10, 2025). District staff deploy briquettes on foot from the maintained access road due to restricted access in dense tule.



Photograph 7. View of tidal basins and pickleweed mats at Goleta Slough, facing west. A District field technician conducts surveillance activities at the Duck Pond (Area K) (December 10, 2025).



Photograph 8. View of a sampling cup with a single mosquito larvae. District staff use sampling cups to check for the presence of mosquito larvae prior to treatment. Any bycatch is released back into the basin (December 10, 2025).



Photograph 9. View of VectoBac G (granule) deployed for treatment. Granules are carried by District field technicians in horn seeder equipment (see next photograph; December 10, 2025).



Photograph 10. View of horn seeder equipment carried by District field technicians to deploy granules. The horn seeder includes a heavy duty vinyl bag that holds granules, and a PVC pipe that disperses them. (December 10, 2025).



Photograph 11. View of tule and tidal areas at the Hollister Sources (Area S), facing east. District access is along Hollister Avenue (a portion is visible on the left) (December 12, 2025).



Photograph 12. View of Santa Barbara Airport facing northwest. District access along paved roads within Santa Barbara Airport, with Santa Barbara Airport escort (January 13, 2026).



Photograph 13. Northeast view from GWSD of freshwater Duck Pond (Area/Basin K) treatment area and pickleweed mats following above average precipitation in December 2025. Ice plant (*Carpobrotus edulis*) is present directly behind GWSD (January 14, 2026).



Photograph 14. View of oil film at surface of water at the Duck pond observed prior to treatment activities, facing east. Oil film is likely natural or runoff from a January 2026 rain event, and is not District-activity related (January 14, 2026).



Photograph 15. View of a yellow fever mosquito (*Aedes aegypti*) and battery powered Biogents Sentinel trap used in urban areas that has been developed specifically for detection of the yellow fever mosquito and the Asian tiger mosquito (*Aedes albopictus*). (Source: [MVDSBC 2026](#))



Photograph 16. View of a CO₂ trap, which lures many species of mosquitoes with dry ice, which mimics the smell of an exhaling animal. These traps are set overnight at the margins of vegetation transitions. (Source: [MVDSBC 2026](#))

Attachment C.2

Natural Resources Regulatory Setting

(Public review note: Appendix C, Attachment A.2 will be included in the Final Plan)

Appendix D

Walking In the Marsh: Methods to Increase Safety and Reduce Impacts to
Wildlife/Plants (USFWS)

Walking In the Marsh:
Methods to Increase Safety and Reduce Impacts to Wildlife/Plants

I. Safety

- A. *Before heading out into the marsh check the tides:* tides can affect your ability to move through the marsh. Be aware of how long you plan to be in the marsh, what channels you may have to cross, and how the tides will change while you are in the field.
- B. *Plan your route through the marsh:* use existing aerial imagery and maps to identify channels and sloughs that may impede access. When available, use high points such as boardwalks or levees to scope out a route. Scoping a route can be especially important in scenarios where visibility across the marsh is low (e.g., South Bay, Suisun). It may be necessary to flag stations and/or access corridors through the marsh prior to surveys. If more than one person is accessing the marsh, travel together along major access routes to avoid the development of multiple paths. At the end of the sampling period, persons furthest out should walk out first, meeting up with others along the major access route...this minimizes the potential of people getting lost and ensures that anyone who is injured will be found in a timely manner (before everyone else has left the marsh). The goal should be to plan a safe route into and out of the marsh while minimizing travel and pathways.
- C. *Channels and sloughs:* Avoid jumping channels in locations where you cannot see through vegetation on the opposite bank. Thick vegetation (e.g., pickleweed, gumplant) can obscure the edge of the bank. Considerations before jumping: depth of water/channel, steepness of the channel edges, tide levels. If you are not confident that you can make the jump and the edges have high dense vegetation that you cannot see through.....DO NOT JUMP.
- D. *Getting stuck in the mud:* If you are sinking into mud, try to keep moving to avoid getting stuck further. If a leg gets stuck, try to twist your leg to break the suction while leaning your weight on your other leg or knee. Use whatever material you have available (e.g., clipboard, backpack) for leverage (e.g., lean on those items).

- E. *Other*: Besides general items such as water and food, it's a good idea to bring a flashlight and a phone (+GPS) in cases of an emergency. Let someone know what marsh area you will be in and when you plan to complete work for the day. Designate an end time and final meeting place when more than one person is out in the marsh at the same time.

II. Avoiding Impacts to Wildlife and Plants

- A. *Movement through the Marsh*. While walking through the marsh, keep noise to a minimum. Avoid using multiple pathways through the marsh. Use trails if they exist. Plan and map your route to minimize environmental impacts and decrease running into hazards/barriers such as large channels. When looking for a suitable place to jump a channel, do not walk along the edge of the channel/slough because these areas provide nesting habitat for many species including the endangered CA clapper rail. To find an alternate jump site, walk parallel to the channel at a distance where vegetation is lower in height and where visibility of the ground surface is greater. At all times, observe the environment you are walking through to avoid disturbance. Choose channel jump sites where vegetation is lower or you can clearly discern what you are jumping onto. In general, avoid walking adjacent and parallel to channels/sloughs.
- B. *Avoiding nests and nest substrates*. Tidal marsh species have nests that are well concealed and therefore easy to disturb when walking through the marsh. To avoid stepping on a nest, do not walk through thick vegetation or areas where you cannot see through to the ground. Avoid walking on vegetation whenever possible since plants serve as nesting substrate for many species in the marsh. In general, be aware of the area you are walking through. See Tables 1 for nest characteristics of common tidal marsh birds.
- C. *Bird Behavior*. If a bird vocalizes or flushes within close range of where you are standing or walking (e.g., < 10-m), it is possible that a nest or young are nearby. When these circumstances arise, stop whatever you are doing and leave the immediate area (be sure to watch where and what you are walking on). Choose an alternate route through the marsh, identify the new route and location of the sighting/occurrence on a map, and record coordinates of the location if possible. Be sure to pass this information on to others that may use the same route or are conducting surveys in the same area. Be very observant of where you walk as you leave the area. There exists the possibility that you could step on a nest or young, both of which can be

concealed by vegetation or cryptic. When alarmed, individuals may freeze in place (especially juveniles).

- D. *Tidal lagoons/ponds*. Avoid walking along tidal lagoons and ponds in marsh interiors that support foraging, roosting, or nesting shorebirds and waterfowl. Be observant of the distance at which birds flush or become alarmed.

- E. *Tides*. Avoid conducting surveys during high tides as much as possible. These are periods when many wildlife species are at greatest risk (e.g., predation). If your surveys require a high tide, be aware of the increased risk you may cause for wildlife and take all precautions to reduce that risk (e.g., avoiding areas where sensitive species are known to occur).

2026 Conflict of Interest Code Biennial Notice Instructions for Local Agencies

The Political Reform Act requires every local government agency to review its conflict of interest code biennially. A conflict of interest code tells public officials, governmental employees, and consultants what financial interests they must disclose on their Statement of Economic Interests (Form 700).

By **July 1, 2026**: The code reviewing body must notify agencies and special districts within its jurisdiction to review their conflict of interest codes.

By **October 1, 2026**: The biennial notice must be filed with the agency's code reviewing body.

The FPPC has prepared a 2026 Local Agency Biennial Notice form for local agencies to complete or send to agencies within its jurisdiction to complete before submitting to the code reviewing body. The City Council is the code reviewing body for city agencies. The County Board of Supervisors is the code reviewing body for county agencies and any other local government agency whose jurisdiction is determined to be solely within the county (e.g., school districts, including certain charter schools). The FPPC is the code reviewing body for any agency with jurisdiction in **more than one county** and will contact them.

The Local Agency Biennial Notice is not forwarded to the FPPC.

If amendments to an agency's conflict of interest code are necessary, the amended code must be forwarded to the code reviewing body for approval within 90 days. An agency's amended code is not effective until it has been approved by the code reviewing body.

If you answer yes, to any of the questions below, your agency's code probably needs to be amended.

- Is the current code more than five years old?
- Have there been any substantial changes to the agency's organizational structure since the last code was approved?
- Have any positions been eliminated or re-named since the last code was approved?
- Have any new positions been added since the last code was approved?
- Have there been any substantial changes in duties or responsibilities for any positions since the last code was approved?

If you have any questions or are still not sure if you should amend your agency's conflict of interest code, please contact the FPPC. Additional information including an online webinar regarding how to amend a conflict of interest code is available on [FPPC's website](https://www.fppc.ca.gov).

**MOSQUITO AND VECTOR MANAGEMENT DISTRICT
OF SANTA BARBARA COUNTY
CONFLICT OF INTEREST CODE**

Adopted August 14, 2014

Amended August 20, 2026

The Political Reform Act, Government Code sections 8100 et seq., requires state and local governmental agencies to promulgate and adopt conflict of interest codes. The Fair Political Practices Commission has adopted a regulation, 2 California Code of Regulations section 18730, which contains the terms of a standard conflict of interest code. Section 18730 can be adopted by governmental agencies through incorporation by reference and may be amended by the Fair Political Practices Commission to conform to amendments in the Political Reform Act after public notice and hearings.

The terms of 2 California Code of Regulations section 18730 and any amendments to it duly adopted by the Fair Political Practices Commission are hereby incorporated by reference. The Conflict of Interest Code of the Mosquito and Vector Management District of Santa Barbara County (the "District") is hereby amended and is hereafter comprised of (i) the terms of 2 California Code of Regulations section 18730, together with any amendments to it duly adopted by the Fair Political Practices Commission, (ii) the attached Appendix A (Designated Employees), and (iii) the attached Appendix B (Disclosure Categories).

Designated employees may file their statements of economic interests online using eDisclosure, which will submit the Form 700 to the County Clerk, Recorder and Assessor. Statements will be made available for public inspection and reproduction (Government Code Section 81008). Your District's filing official can give you access.

Designated employees who file using a paper Form 700 shall file with the Code Agency. Upon receipt of the Statement filed by the designated employee, a copy shall be retained with the Code Agency and the original shall be forwarded to the County Clerk, Recorder and Assessor.

Appendix A

**MOSQUITO AND VECTOR MANAGEMENT DISTRICT
OF SANTA BARBARA COUNTY
DESIGNATED EMPLOYEES**

It has been determined that the persons occupying the designated positions ("Designated Employees") listed below make or participate in the making of decisions which may foreseeably have a material effect on financial interests. Designated Employees must disclose financial interests in those categories described in *Appendix B*, which are listed opposite the respective Designated Employees.

<u>Designated Employees</u>	<u>Disclosure Categories</u>
Trustees	1-5
General Manager	1-5
Operations Manager Biologist	1-5
Attorney	1-5

Appendix B

MOSQUITO AND VECTOR MANAGEMENT DISTRICT OF SANTA BARBARA COUNTY DISCLOSURE CATEGORIES

CATEGORY 1

Any real property in which the Designated Employee has a direct or indirect interest, but only if the real property is located in whole or in part within the jurisdiction of the Mosquito and Vector Management District of Santa Barbara County. Real property interests include any leasehold, beneficial or ownership interest or option to acquire such interest in real property, if the fair market value of the interest is \$2,000.00 or more.

CATEGORY 2

Business positions or direct or indirect investments in or income from persons or business entities engaged in the appraisal, acquisition, or disposal of real property within the jurisdiction of the Mosquito and Vector Management District of Santa Barbara County.

CATEGORY 3

Business positions or direct or indirect investments in business entities and income from any source or sources of income, if:

- (a) The business entities or the source or sources of income are of the type which, within the previous two years, have provided or contracted to provide, or in the future with reasonable foreseeability might provide or contract to provide services, supplies, materials, machinery or equipment to or for the use of the Mosquito and Vector Management District of Santa Barbara County; and
- (b) Within the previous two years, the Designated Employee has made, participated in making, or in any way has attempted to use his or her official position to influence the governmental decision to obtain or procure services, supplies, materials, machinery or equipment of the same or a similar type as those so provided or contracted to be provided to the Mosquito and Vector Management District of Santa Barbara County or if the duties of the Designated Employee's position make it reasonably foreseeable that he or she might engage in such activity.

CATEGORY 4

Business positions or direct or indirect investments in business entities and income from any source or sources of income, if :

- (a) The business entities or the source or sources of income are of the type which, within the previous two years, have furnished or contracted to furnish, or in the future with reasonable foreseeability might furnish or contract to furnish services, supplies, materials, machinery or equipment as a subcontractor in any contract with the Mosquito and Vector Management District of Santa Barbara County; and
- (b) Within the previous two years, the Designated Employee has made, participated in making, or in any way has attempted to use his or her official position to influence the governmental decision to obtain or procure services, supplies, materials, machinery or equipment of the same or a similar type as those so provided or contracted to be provided to the Mosquito and Vector Management District of Santa Barbara County or if the duties of the Designated Employee's position make it reasonably foreseeable that he or she might engage in such activity.

CATEGORY 5

Business positions or direct or indirect investments in business entities and income from any source or sources of income, if:

- (a) The business entities or the source or sources of income are of the type which are subject to the regulation or supervision of the Mosquito and Vector Management District of Santa Barbara County; and
- (b) The Designated Employee's duties involve the supervision of regulation (including, but not limited to, the issuance of permits) of that type of business entity or source of income.

* * * * *

For purposes of the foregoing disclosure categories 1 through 5:

- (a) "Indirect investment" or "indirect interest" includes any investment or interest with a fair market value of \$2,000.00 or more that is owned by the spouse or dependent child of a Designated Employee, by an agent on behalf of a Designated Employee, or by a business entity or trust in which the Designated Employee, the Designated Employee's agents, spouse, and depended children own directly, indirectly, or beneficially a ten percent (10%) interest or greater.
- (b) "Sources of income" shall include gifts, but shall exclude loans from commercial lending institutions made in the regular course of business on terms which are available to the public without regard to official status.

**MOSQUITO AND VECTOR MANAGEMENT DISTRICT
OF SANTA BARBARA COUNTY
CONFLICT OF INTEREST CODE**

Adopted August 14, 2014

Amended July 20, 2020

The Political Reform Act, Government Code sections 8100 et seq., requires state and local governmental agencies to promulgate and adopt conflict of interest codes. The Fair Political Practices Commission has adopted a regulation, 2 California Code of Regulations section 18730, which contains the terms of a standard conflict of interest code. Section 18730 can be adopted by governmental agencies through incorporation by reference and may be amended by the Fair Political Practices Commission to conform to amendments in the Political Reform Act after public notice and hearings.

The terms of 2 California Code of Regulations section 18730 and any amendments to it duly adopted by the Fair Political Practices Commission are hereby incorporated by reference. The Conflict of Interest Code of the Mosquito and Vector Management District of Santa Barbara County (the "District") is hereby amended and is hereafter comprised of (i) the terms of 2 California Code of Regulations section 18730, together with any amendments to it duly adopted by the Fair Political Practices Commission, (ii) the attached Appendix A (Designated Employees), and (iii) the attached Appendix B (Disclosure Categories).

Designated employees may file their statements of economic interests online using eDisclosure, which will submit the Form 700 to the County Clerk, Recorder and Assessor. Statements will be made available for public inspection and reproduction (Government Code Section 81008). Your District's filing official can give you access.

Designated employees who file using a paper Form 700 shall file with the Code Agency. Upon receipt of the Statement filed by the designated employee, a copy shall be retained with the Code Agency and the original shall be forwarded to the County Clerk, Recorder and Assessor.

Appendix A

**MOSQUITO AND VECTOR MANAGEMENT DISTRICT
OF SANTA BARBARA COUNTY
DESIGNATED EMPLOYEES**

It has been determined that the persons occupying the designated positions ("Designated Employees") listed below make or participate in the making of decisions which may foreseeably have a material effect on financial interests. Designated Employees must disclose financial interests in those categories described in *Appendix B*, which are listed opposite the respective Designated Employees.

<u>Designated Employees</u>	<u>Disclosure Categories</u>
Trustees	1-5
General Manager	1-5
Attorney	1-5

Appendix B

**MOSQUITO AND VECTOR MANAGEMENT DISTRICT
OF SANTA BARBARA COUNTY
DISCLOSURE CATEGORIES**

CATEGORY 1

Any real property in which the Designated Employee has a direct or indirect interest, but only if the real property is located in whole or in part within the jurisdiction of the Mosquito and Vector Management District of Santa Barbara County. Real property interests include any leasehold, beneficial or ownership interest or option to acquire such interest in real property, if the fair market value of the interest is \$2,000.00 or more.

CATEGORY 2

Business positions or direct or indirect investments in or income from persons or business entities engaged in the appraisal, acquisition, or disposal of real property within the jurisdiction of the Mosquito and Vector Management District of Santa Barbara County.

CATEGORY 3

Business positions or direct or indirect investments in business entities and income from any source or sources of income, if:

- (a) The business entities or the source or sources of income are of the type which, within the previous two years, have provided or contracted to provide, or in the future with reasonable foreseeability might provide or contract to provide services, supplies, materials, machinery or equipment to or for the use of the Mosquito and Vector Management District of Santa Barbara County; and
- (b) Within the previous two years, the Designated Employee has made, participated in making, or in any way has attempted to use his or her official position to influence the governmental decision to obtain or procure services, supplies, materials, machinery or equipment of the same or a similar type as those so provided or contracted to be provided to the Mosquito and Vector Management District of Santa Barbara County or if the duties of the Designated Employee's position make it reasonably foreseeable that he or she might engage in such activity.

CATEGORY 4

Business positions or direct or indirect investments in business entities and income from any source or sources of income, if :

- (a) The business entities or the source or sources of income are of the type which, within the previous two years, have furnished or contracted to furnish, or in the future with reasonable foreseeability might furnish or contract to furnish services, supplies, materials, machinery or equipment as a subcontractor in any contract with the Mosquito and Vector Management District of Santa Barbara County; and
- (b) Within the previous two years, the Designated Employee has made, participated in making, or in any way has attempted to use his or her official position to influence the governmental decision to obtain or procure services, supplies, materials, machinery or equipment of the same or a similar type as those so provided or contracted to be provided to the Mosquito and Vector Management District of Santa Barbara County or if the duties of the Designated Employee's position make it reasonably foreseeable that he or she might engage in such activity.

CATEGORY 5

Business positions or direct or indirect investments in business entities and income from any source or sources of income, if:

- (a) The business entities or the source or sources of income are of the type which are subject to the regulation or supervision of the Mosquito and Vector Management District of Santa Barbara County; and
- (b) The Designated Employee's duties involve the supervision of regulation (including, but not limited to, the issuance of permits) of that type of business entity or source of income.

* * * * *

For purposes of the foregoing disclosure categories 1 through 5:

- (a) "Indirect investment" or "indirect interest" includes any investment or interest with a fair market value of \$2,000.00 or more that is owned by the spouse or dependent child of a Designated Employee, by an agent on behalf of a Designated Employee, or by a business entity or trust in which the Designated Employee, the Designated Employee's agents, spouse, and depended children own directly, indirectly, or beneficially a ten percent (10%) interest or greater.
- (b) "Sources of income" shall include gifts, but shall exclude loans from commercial lending institutions made in the regular course of business on terms which are available to the public without regard to official status.

STAFF REPORT

DATE: August 18, 2026
TO: The Board of Trustees
FROM: Staff
SUBJECT: Approval of (A) Extension of District's Current Mosquito and Vector Management Practices Under the Existing Memorandums of Understanding and Their Associated Mosquito Management Plans for (1) Santa Barbara Airport, (2) Wynmark, and (3) Goleta Sanitary District until the Board approves the Integrated Mosquito and Vector Management Plan; and (B) the Notice of Exemption for the MOUs

RECOMMENDATION

It is recommended that the Board (A) approve the extension of the District's current mosquito and vector management practices under the existing Memorandums of Understanding and their associated Mosquito Management Plans (the "MOUs") for (1) Santa Barbara Airport ("SBA"), (2) Wynmark, and (3) Goleta Sanitary District ("GSD") until the Board approves the Integrated Mosquito and Vector Management Plan ("IMVMP"); and (B) approve the notice of exemption ("NOE") for the MOUs and direct staff to file the NOE.

BACKGROUND

The District has been providing mosquito and vector management services at SBA, Wynmark, and GSD under existing MOUs for many years. The IMVMP is currently under development and will be reviewed by the Board of Trustees and undergo environmental review. The proposed action is an interim extension of the current practices until that approval. The only revisions to the MOUs will be the prices which will be changed to reflect existing prices and rate structure of providing the mosquito and vector services. No other MOU term, service, or operational practice is being revised.

ANALYSIS

The services provided by the District ensure the health and safety from mosquitos and vectors and it is imperative that these MOUs be extended.

CEQA DETERMINATION

I. Not a Project Under CEQA

Staff has reviewed the proposed action to determine whether the action is considered a "project" under the California Environmental Quality Act ("CEQA") and determined that the

MOUs are not a “project” under CEQA. CEQA Guidelines section 15378 defines a project as the whole of an action with the potential to result in a direct physical change or reasonably foreseeable indirect physical change in the environment. The action here is a continuation of already-authorized practices with no change to the scope, location, volume, intensity, equipment, treatment methods, staffing, or manner of services. It does not commit the District or any other party to a new activity capable of causing a physical change. The action is therefore not a project subject to CEQA under section 15378.

II. Ministerial Action

CEQA does not apply to “[m]inisterial projects proposed to be carried out or approved by public agencies.” (Pub. Resources Code § 21080(a)(1).) Under the Mosquito Abatement and Vector Control District Law (Health & Saf. Code §§ 2000–2093) (the “Law”), the Legislature declared its intent “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.” (Health & Saf. Code § 2001(c).) The Legislature further found that “[t]he 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.***” (*Id.* at § 2001(b)(3) [emphasis added].) As such, once a public nuisance is confirmed, the District has a mandatory duty to abate the nuisance. (See Health & Saf. Code §§ 2040-41, 2060.)

Staff have been treating mosquitoes in the areas listed in the MOUs and the presence of larva and adult mosquitoes is confirmed. Because the District has both a statutory duty and an established procedure for abating mosquito larvae and pupae, the abatement activities here are ministerial and categorically exempt from CEQA review.

III. Exemptions

Further, the execution of the MOUs and associated vector management activities are exempt from CEQA. The action is limited to approving an extension of the current practices under the existing MOUs until approval of the IMVMP, together with the related price-only revision described below. There will be no change to the scope, location, volume, intensity, equipment, treatment methods, staffing, or manner of services. The action therefore causes no physical or operational change.

As discussed in detail below, the MOUs is exempt under Class 4 (Minor Alterations to Land), Class 6 (Information Collection categorical exemption per Section 15306 of the State Guidelines for Implementing the California Environmental Quality Act (CEQA), Class 7 (Action by Regulatory Agencies for Protection of Natural Resources), Class 8 (Action by Regulatory Agencies for Protection of the Environment), Class 9 (Inspections), and the

Common Sense Exemption under Section 15061(b)(3). The NOE is attached hereto as **Exhibit A.**

Categorical Exemptions

Class 4 consists of minor public or private alterations in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees except for forestry or agricultural purposes. The MOUs are within the scope of this exemption which may include disturbance of minor vegetation or sediment in creeks and other natural channels, agricultural irrigation and drainage ditches, other ditches and flood control channels, storm water retention basins, waste water ponds, spreading grounds, and other environments to assist in preventing breeding of mosquitoes.

Class 6 consists of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. The MOUs are within the scope of this exemption because it consists of surveying specific areas to collect data on mosquito populations and vector-borne diseases, and will not result in a serious or major disturbance to an environmental resource.

Class 7 consists of actions taken by regulatory agencies as authorized by state law or local ordinance to assure the maintenance, restoration, or enhancement of a natural resource where the regulatory process involves procedures for protection of the environment. The MOUs fall within this exemption because the MOUs involve detailed procedures for protection of the environment by controlling mosquito populations and vector-borne diseases that impact the wildlife in the area.

Class 8 consists of actions taken by regulatory agencies, as authorized by state or local ordinance, to assure the maintenance, restoration, enhancement, or protection of the environment where the regulatory process involves procedures for protection of the environment. The MOUs fall within this exemption because the MOUs involve detailed procedures for protection of the environment by controlling mosquito populations and vector-borne diseases that impact the wildlife in the area.

Class 9 consists of activities limited entirely to inspections, to check for performance of an operation, or quality, health, or safety of a project. The MOUs fall within this exemption because the MOUs involve inspections for the presence of vectors at the locations specified in the MOUs, and other activities to determine the efficacy of specific control operations.

Exceptions to the Exemptions Do Not Apply

Although the MOUs include activities within a marine protected area (MPA), staff finds that the location exception under CEQA Guidelines §15300.2(a) does not bar reliance on the categorical exemptions cited. The proposed activities are routine, limited in scope, and specifically designed to avoid impacts on sensitive habitat. Moreover, the District has incorporated protective measures into the MOUs to ensure environmental resources are not adversely affected.

Staff further finds that no other exceptions to categorical exemptions apply under CEQA Guidelines §15300.2. The activities will not result in cumulative impacts, involve unusual circumstances, affect scenic highways, be conducted on a hazardous waste site, or impact historical resources. In addition, the statutory exemptions cited above independently apply, given that the activities address urgent public health and safety concerns associated with vector-borne disease.

Common Sense Exemption

The proposed amendment to the MOUs are exempt from CEQA under the common-sense exemption set forth in CEQA Guidelines section 15061(b)(3). The action does not authorize any new services, activities, operational changes, facilities, or physical improvements. Rather, it merely extends the existing MOUs and updates the compensation rates applicable to services that are already being provided. Because this will not result in any change to the nature, scope, or extent of mosquito control operations, and does not create the potential for any direct or indirect physical change in the environment, it can be seen with certainty that there is no possibility that the amendment may have a significant effect on the environment. Accordingly, the MOUs are exempt from CEQA pursuant to the common sense exemption.

STAFF RECOMMENDATION

Staff recommends that the Board ((A) approve the extension of the District's current mosquito and vector management practices under the existing Memorandums of Understanding and their associated Mosquito Management Plans (the "MOUs") for (1) Santa Barbara Airport ("SBA"), (2) Wynmark, and (3) Goleta Sanitary District ("GSD") until the Board approves the Integrated Mosquito and Vector Management Plan ("IMVMP"); and (B) approve the notice of exemption ("NOE") for the MOUs and direct staff to file the NOE.

Respectfully submitted,

Brian Cabrera

General Manager



**MEMORANDUM OF UNDERSTANDING FOR
MOSQUITO CONTROL SERVICES**
Mosquito and Vector Management District of
Santa Barbara County and City of Santa Barbara



THIS MEMORANDUM OF UNDERSTANDING FOR MOSQUITO CONTROL SERVICES (this “MOU”), dated for reference purposes as of August 20, 2026, is made and entered into by and between the **MOSQUITO AND VECTOR MANAGEMENT DISTRICT OF SANTA BARBARA COUNTY**, a California Special District (“MVMDSBC”), and the City of **SANTA BARBARA**, a municipal corporation (“the City”), as follows:

Recitals

- A. WHEREAS**, the California Health and Safety Code Sections 2000 et seq., known as the Mosquito Abatement and Vector Control District Law, provides the statutory authority for the formation, governance, and operation of mosquito abatement and vector control districts in the State of California;
- B. WHEREAS**, the Legislature has declared 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” (H&S Code § 2001(b)(3));
- C. WHEREAS**, mosquito abatement and vector control districts are empowered to conduct surveillance, prevention, abatement, and control programs to manage and reduce populations of mosquitoes and other vectors that pose a threat to public health and safety (H&S Code § 2001(c));
- D. WHEREAS**, under Health and Safety Code Section 2002(j), a public nuisance includes any property or water that supports the development, attraction, or harborage of vectors, and the presence of vectors in their developmental stages is prima facie evidence of such a nuisance;
- E. WHEREAS**, Health and Safety Code Sections 2060–2067 authorize mosquito abatement and vector control districts to enter property, inspect for vectors, and abate public nuisances, including through physical, chemical, or biological control measures;
- F. WHEREAS**, The City owns the real property (the “Property”) known as Santa Barbara Airport (the “SBA”) which includes the mosquito breeding sites listed in Exhibit B - Mosquito Management Plan (the “MMP”) attached hereto;
- G. WHEREAS**, MVMDSBC was established to provide vector surveillance, prevention, abatement and control services to properties within its district to ensure protection of property owners and residents from vector annoyance and vector-borne diseases;
- H. WHEREAS**, the City requires the services of MVMDSBC to control the breeding of mosquitoes within the mosquito breeding habitats located on the Property to minimize potential transmission of mosquito-borne diseases;
- I. WHEREAS**, pursuant to Health and Safety Code Section 2045, MVMDSBC may contract with the City to provide mosquito control services; and
- J. WHEREAS**, the parties desire to set forth herein the terms of their agreement regarding the provision of mosquito control services by MVMDSBC to the City.

NOW, THEREFORE, for valuable consideration, the receipt and sufficiency of which are hereby acknowledged, MVMDSBC and the City agree as follows:

1. **Incorporation of Recitals.** The foregoing Recitals are true and correct and are incorporated herein by reference.

2. **Services by MVMDSBC.** MVMDSBC agrees to perform mosquito control services for the City in accordance with the Exhibit B of the MMP, a copy of which has been presented to and approved by the City. The MMP depicts the mosquito breeding habitats located on the Property, including, but not limited to, wetland habitats, water drainage impoundment sites, permanent and vernal pools and/or ponds, and existing wet areas. The services to be provided by MVMDSBC pursuant to this MOU include the following:

(a) Monitor/Survey mosquito breeding sites by inspecting aquatic habitats for the presence of mosquito larvae and survey adult mosquito populations using carbon dioxide-baited traps.

(b) Apply appropriate chemical, biological, and/or microbiological agents to suppress larval infestations of mosquitoes, and take reasonable steps to control mosquito breeding on the Property, as delineated in the MMP. All pesticides used on SBA property and their application will comply with the City of Santa Barbara Integrated Pest Management (“IPM”) program. The MVMDSBC only uses materials designated in the Green or Yellow category as defined in the City of Santa Barbara IPM Strategy/Pesticide Hazard and Exposure Reduction (“PHAER”) Zone report.

(c) Assign adequate personnel, materials, and equipment as projected in the MMP to carry out the mosquito control services to be provided by MVMDSBC hereunder.

(d) Maintain records of all labor time spent, materials furnished, equipment utilized, and expenses incurred in connection with the services provided under this MOU, and submit a summary of such records with invoices. MVMDSBC shall make detailed records available to the City upon reasonable notice.

3. **Additional Services.** The parties acknowledge that, due to cyclical climate changes and seasonal conditions (including, but not limited to, wet years with above-normal rainfall), additional mosquito breeding habitats not identified in the MMP may occur on the Property. If MVMDSBC discovers any such additional mosquito breeding habitats, it shall promptly inform the City. The Parties shall then meet and attempt in good faith to agree upon (i) additional services to be provided by MVMDSBC to control mosquito breeding in such additional habitats, and (ii) the amount to be charged by MVMDSBC for the increase in the scope of its services. If the Parties are unable to reach such an agreement, there shall be no increase in the scope of services or in the amount to be charged by MVMDSBC.

4. **Safety.** MVMDSBC personnel shall avoid activities that may pose a hazard, directly or indirectly, to aeronautical activities at the Property. At no time shall MVMDSBC personnel enter the Controlled Movement Area of the SBA or aprons without prior approval and escort by SBA staff. The “Controlled Movement Area” is defined as the runways, taxiways, and other areas of the Airfield which are used for taxiing, takeoff, and landing of aircraft.

5. **Security.** All MVMDSBC personnel performing services on the Property shall operate in strict compliance with the SBA’s security program by fulfilling all security related requirements and regulations related to entering and operating within the Air Operations Area.

6. **Updates to MMP.** MVMDSBC shall, in consultation with the City, prepare an updated MMP every two (2) years, or more frequently if circumstances so require. Each updated MMP shall (i)

include updated projected costs for labor, materials, equipment, and other expenses, (ii) identify any additional breeding sites or habitat areas on the Property, and (iii) contain an assessment regarding the overall effectiveness of MVMDSBC's mosquito control services. Each updated MMP shall be approved in writing by the City. Upon such written approval, each updated MMP shall (a) supersede and replace the MMP then in effect, and (b) be incorporated herein by reference and made a part hereof. MVMDSBC shall perform mosquito control services for the City in accordance with the MMP then in effect until such time as an updated MMP has been approved in writing by the City, or until this MOU is terminated as provided herein.

7. **Access.** During the City's normal business hours, as specified on Exhibit "A", the SBA shall provide MVMDSBC with reasonable access to the Property to enable MVMDSBC to carry out its responsibilities under this MOU. If MVMDSBC requires access to the Property at times or on days that are not within the SBA's normal business hours, MVMDSBC shall make arrangements with the SBA for such access at least 24 hours in advance. MVMDSBC staff shall check in and check out with the SBA each time they access the Property. In entering upon the Property and providing services pursuant to this MOU, MVMDSBC shall reasonably endeavor to avoid interference with the SBA's normal operations. MVMDSBC shall promptly repair and/or replace, at its expense, any property or improvements that are damaged or destroyed as a result of its entry on the Property. Repair and/or replacement responsibilities are only for damage or destruction solely attributed to MVMDSBC.

MVMDSBC shall exercise extreme caution when entering environmentally-sensitive habitat areas (ESHAs) on the Property in order to minimize impacts to these environments. SBA shall facilitate less impactful access to ESHAs by maintaining access roads and trails clear of vegetation and other obstacles on berms and other locations along the perimeters of the basins on the property. MVMDSBC shall contact SBA if any access roads or trails require clearing or maintenance.

8. **Fees.** The City agrees to pay MVMDSBC on a time and materials basis in accordance with the labor rates and cost projections set forth in the MMP for all labor time spent, materials furnished, equipment utilized, and expenses incurred in connection with the services provided under this MOU. The amount payable by the City shall not exceed the grand total of all charges set forth in the MMP for the fiscal year in question, unless otherwise agreed by the City in writing. Notwithstanding the foregoing, if during the two-year term of this MOU the labor rates and/or prices for materials as set forth in MMP increase, the MMP and the grand total of all charges set forth therein shall be revised to reflect such increase(s). MVMDSBC shall provide to the City such documentation as the City may reasonably request relating to any such increases. In addition, if approval of this MOU or the issuance of any permits by any governmental or regulatory agency or authority is required in connection with the services to be provided hereunder, including, but not limited to, approval by the Local Agency Formation Commission, the City shall pay all application fees and other costs associated with obtaining such approvals and permits.

9. **Billing and Payment.** MVMDSBC shall invoice the City approximately every three months for the fees and costs payable pursuant to Section 8, above; provided, however, that application fees and other costs associated with obtaining required approvals and permits in connection with the services to be provided hereunder shall be invoiced at the time the fees and costs are incurred. Invoices shall be due upon receipt by the City. Any invoice not paid within thirty (30) days of receipt shall be considered delinquent and shall be subject to a 2% late payment charge, not as a penalty, but to reasonably compensate MVMDSBC for the administrative costs, accounting expenses, and other adverse consequences it would incur as a result of such late payment. The City and MVMDSBC agree that MVMDSBC's actual damages in the event of a late payment by the City would be impracticable or extremely difficult to determine and that the 2% late payment charge represents a reasonable estimate of such damages.

10. Indemnification.

(a) MVMSDBC shall indemnify, defend and hold harmless the City and the City's officers, directors, employees and agents from and against any and all claims, demands, causes of action, fines, penalties, liabilities, damages, costs and expenses (including but not limited to fees of attorneys and other professionals) that are attributable to (i) the breach of any of MVMSDBC's obligations under this MOU, or (ii) the negligence or willful misconduct of MVMSDBC or its officers, employees, agents, contractors, or any person under MVMSDBC's direction or control, in connection with the services provided by MVMSDBC hereunder, except to the extent that such claims, demands, causes of action, fines, penalties, liabilities, damages, costs and/or expenses are attributable to the negligence or willful misconduct of the City or its officers, employees, agents, contractors, or any person under the City's direction or control.

(b) The City shall indemnify, defend and hold harmless MVMSDBC and MVMSDBC's officers, directors, employees and agents from and against any and all claims, demands, causes of action, fines, penalties, liabilities, damages, costs and expenses (including but not limited to fees of attorneys and other professionals) that are attributable to (i) the breach of any of the City's obligations under this MOU, or (ii) the negligence or willful misconduct of the City or its officers, employees, agents, contractors, or any person under the City's direction or control, in connection with the services provided by hereunder, except to the extent that such claims, demands, causes of action, fines, penalties, liabilities, damages, costs and/or expenses are attributable to the negligence or willful misconduct of MVMSDBC or its officers, employees, agents, contractors, or any person under MVMSDBC's direction or control.

11. Term and Termination. The services to be provided pursuant to this MOU shall commence on the date set forth on Exhibit "A" and shall expire after MVMSDBC's Board of Trustees has approved MVMSDBC's Integrated Mosquito & Vector Management Plan and its related environmental review or until this MOU is terminated as provided herein. This MOU may be terminated with or without cause by either MVMSDBC or the City upon thirty (30) days written notice to the other Party. Upon the termination of this MOU and the presentation of a final invoice, the City shall pay MVMSDBC for all labor time spent, materials furnished, equipment utilized, and expenses incurred in connection with the services provided hereunder prior to the effective date of termination.

12. Insurance. MVMSDBC shall maintain during the term of this MOU general liability coverage relating to the services to be provided hereunder with a minimum of \$1,000,000 combined single limit coverage for personal injury, bodily injury and property damage. Said policy coverage shall name the City and its directors, officers, agents and employees as an additional insured or as an Additional Covered Party. MVMSDBC shall also maintain during the term of this MOU workers compensation insurance in the amounts required by law. Prior to commencing services, MVMSDBC shall furnish the City with certificates of insurance evidencing the coverage required above. Such certificates shall provide that the carrier will give the City at least thirty (30) days prior notice of cancellation of coverage (ten (10) days for nonpayment of premium). MVMSDBC shall provide the City with new certificates of insurance evidencing the renewal of coverage prior to the expiration of any policy required hereunder. MVMSDBC shall be permitted to satisfy the insurance requirements set forth herein through participation in the Vector Control Joint Powers Agency pooled liability program.

13. No Third Party Beneficiaries. This MOU is intended for the benefit of the parties hereto and their respective successors and assigns, and is not for the benefit of any other Person.

14. Entire Agreement/Amendment. This MOU (including all exhibits attached hereto) is the final expression of and contains the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior understandings and communications with respect thereto. This

MOU may not be modified, except by a written instrument signed by the Parties. All exhibits, schedules and appendices attached to this MOU are incorporated herein by reference and are made a part hereof. In the event of a conflict between this MOU and an attachment or exhibit to this MOU, the terms of this MOU control.

15. Professional Fees. In the event of any action or suit arising in connection with the enforcement or interpretation of any of the covenants or provisions of this MOU, the prevailing party shall be entitled to recover all costs and expenses of the action or suit, including reasonable attorneys' fees, accounting fees and any other professional fees incurred in connection therewith.

16. Severability. Should any provision of this Agreement be determined to be void, invalid, unenforceable or illegal for whatever reason, such provision(s) shall be null and void; however, the remaining provisions of this Agreement shall be unaffected thereby and continue to be valid and enforceable.

17. Waiver. No waiver of any breach of any provision herein and no delay in enforcing performance of any obligation hereunder shall be deemed a waiver of any preceding or succeeding breach, or of any other provision herein, and no such waiver or delay shall impair any right, power or remedy relating to the breach. No extension of time for the performance of any obligation or act shall be deemed an extension of the time for the performance of any other obligation or act.

18. Construction. Headings at the beginning of each section, subsection, paragraph and subparagraph are solely for the convenience of the Parties and shall not affect the interpretation of this MOU. Whenever required by the context of this MOU, the singular shall include the plural and the masculine shall include the feminine and vice versa. This MOU shall not be construed as if it had been prepared by one of the Parties, but rather as if both Parties had prepared the same.

19. Signatures. This MOU may be executed in any number of counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument. If executed copies of this MOU, or if any notices or other written communications permitted or required hereunder, are provided by one party to the other by facsimile or email transmission, the facsimile or email copies and the signatures thereon shall for all purposes be treated as originals.

20. Authority. The person executing this MOU on the City's behalf represents and warrants that (i) he or she has been duly authorized by the City's legislative body to execute this MOU on behalf of the City, (ii) the City's legislative body has duly approved this MOU on or about the date set forth on Exhibit "A", and (iii) the body or individual identified on Exhibit "A" shall have the authority on the City's behalf to approve in writing (a) changes to the scope of services pursuant to Section 3 hereof, and (b) future updates to the MMP pursuant to Section 6 hereof.

21. Notices. Any notices permitted or required hereunder shall be in writing and shall be (a) given by personal delivery, (b) mailed by certified or registered mail, postage prepaid, return receipt requested, (c) sent by reputable overnight delivery service (e. g. , UPS, FedEx, or DHL), or (d) sent by facsimile or email transmission. The contact information for MVMDSBC is as follows:

Mosquito and Vector Management District of Santa Barbara County
Attn: General Manager
P.O. Box 1389
2450 Lillie Avenue
Summerland, CA 93067
Fax: (805) 969-5643
Email: gm@mvmddistrict.org

The contact information for the City is set forth in Exhibit A. Either party may change its contact information for notice purposes by giving notice of such change in the manner set forth above.

22. **Assignment.** Neither Party may assign any of its rights or delegate any of its obligations under this MOU, in whole or in part, without the prior written consent of the other Party.

23. **Further Assurances.** The Parties each agree to take such actions and execute such documents as may be reasonably required to carry out the intent of this MOU.

24. **Time of Essence.** Time is strictly of the essence with respect to each and every term, condition, obligation and provision hereof. Failure to timely perform any of the terms, conditions, obligations or provisions hereof by any party shall constitute a material breach of and a non-curable (but waivable) default under this MOU by the Party so failing to perform.

25. **Force Majeure.** Neither Party hereto shall be liable to the other Party for any losses or damages attributable to a default in or breach of this MOU which is the result of any cause beyond the reasonable control of such Party and without its fault (including, without limitation, effects of fire, strike, war, insurrection, terrorism, acts of God, civil or military authority, civil disturbance and government restriction or prohibition), and the performance of obligations hereunder shall be suspended during, but no longer than, the existence of such cause. The Party affected by any event of force majeure shall inform the other Party in writing without delay and shall endeavor to take up its performance under this MOU again as soon as reasonably possible.

26. **Governing Law.** The Parties agree that (i) this MOU shall be governed by the laws of the United States of America and the State of California, (ii) in the event of any dispute, the Parties shall be subject to the jurisdiction of the courts of the State of California, and (iii) in any action arising in connection with this MOU, venue shall be in the County of Santa Barbara, State of California.

IN WITNESS WHEREOF, MVMDSBC and the City have executed this MOU on the date(s) set forth below.

“MVMDSBC”

MOSQUITO AND VECTOR MANAGEMENT
DISTRICT OF SANTA BARBARA COUNTY

“City”

CITY OF SANTA BARBARA

By: _____
Signature

Name and Title

By: _____
Brian Cabrera, General Manager

Dated: _____

Dated: _____



EXHIBIT B

MOSQUITO MANAGEMENT PLAN SANTA BARBARA AIRPORT FISCAL YEAR 2026-2027

Date prepared: July 24, 2026

Prepared by: Brian Cabrera

For the Santa Barbara Municipal Airport:

Agreed: _____
Signature Date

Print name Title

INTRODUCTION

The Mosquito and Vector Management District of Santa Barbara County (the “MVMDSBC”) provides the following scope of work, schedule of costs, and estimate for the annual cost of services by the MVMDSBC to provide mosquito and mosquito-borne disease surveillance and control for the Santa Barbara Municipal Airport (the “SBA”).

The Mosquito and Vector Management District of Santa Barbara County (MVMDSBC) is an independent special district responsible for controlling and monitoring vector-borne diseases and mosquito populations. It has provided mosquito control services in the Carpinteria Valley since 1936 and in the Goleta Valley since 1959. MVMDSBC operates under the authority of California Health and Safety Code §2000 et seq., which not only grants broad powers but also establishes a framework that expects and enables districts to conduct surveillance, prevention, abatement, and control programs in response to public health and safety threats from vectors.

MVMDSBC is contracted to provide mosquito management services at the SBA. Upon high numbers of adult mosquitoes captured in traps, complaints of nuisance biting by mosquitoes, recent rainfall events with moderate to high precipitation, or specific requests by the SBA, the MVMDSBC will inspect mosquito sources for larval mosquitoes and treat accordingly. Sites with standing water may also be periodically inspected to monitor for the presence of mosquito larvae and treated, if necessary.

SCOPE OF WORK

A. Methods and Materials.

a. Materials

All products are used in strict accordance with the product's label directions. Product labels and safety data sheets are available on request. Any deviation from this mosquito management plan will be discussed with the SBA before treatments are applied.

All of the products listed in Table 1 may be used for treatments, upon approval by SBA. The treatment methods and larvicides used are based on factors such as the mosquito species, the development stages of the larvae that are present, habitat conditions, presence or absence of water, and costs. If necessary, SBA will be consulted on treatment options.

Table 1. Products options for pre- and post- mosquito larvae treatments.¹

Product	Active Ingredient	EPA Regs No.	Signal Word
Pre-Mosquito Larvae Treatments			
Altosid Briquets	methoprene	2724-375	caution
Altosid Pellets	methoprene	2724-448	caution
Altosid P35	methoprene	89459-95	caution
Altosid XR	methoprene	2724-421	caution
Fourstar Briquets	Bacillus thuringiensis israelensis (Bti) and Bacillus sphaericus (Bs)	83362-3	caution
Fourstar CRG Granules	Bti and Bs	85685-4	caution
Natular DT	spinosad	8329-602	caution
Natular XRT	spinosad	8329-84	caution
Post-Mosquito Larvae Treatments			
VectoBac G	Bti	73049	caution
VectoBac GS	Bti	73049-10	caution
VectoLex FG	(Bs)	73049-20	caution
VectoMax WSP	Bti and Bs	73049-429	caution

¹ During emergency outbreaks that include the active spread of vector-borne diseases, including those defined under California Government Code Section 8558, MVMDSBC may have to use products not listed above. These products will be determined at the time of emergency and will be used in accordance with all applicable state and federal laws.

b. Methods

Pre-treatment larvicides are applied before the habitat is flooded. Pre-treatment is used on large habitats that experience seasonal wet/dry cycles, especially where subsequent aquatic vegetation growth hinders effective placement of post-treatment larvicides. Flooding activates the larvicide and controls mosquito larvae that are expected to appear in the habitat. Larvicides used for pre-treatments often are extended-release products. Pre-treat larvicides can also be used after a site floods to extend the effectiveness of treatment. Altosid and/or Natular are very effective for pre-treatment applications. Fourstar products are an alternative to larvicides containing Methoprene, and provide similar effectiveness for pre-treatment.

Post-treatment is an application of larvicide after flooding to extend the effectiveness of a pre-treatment. Post-treatment applications of products containing *Bacillus thuringiensis* or *B. sphaericus* are useful for quick suppression of mosquito larvae populations in the water.

All pre- and post- treatment materials are applied by trained MVMDSBC staff, and larvicides are applied only according to what is on the product label directions. MVMDSBC staff are fully certified by the California Department of Public Health (“CDPH”) as Public Health Vector Control Technicians and have been certified in the category of Pesticide Application and Safety Training. Mosquito species, larval growth stages, water conditions and cost are factors that affect the method and materials used. The SBA may assist in determining the products desired for use.

MVMDSBC shall exercise extreme caution when entering environmentally-sensitive habitat areas (“ESHAs”) on the Property in order to minimize impacts to these environments. MVMDSBC staff are required to remain mindful of wildlife during walking treatments, and stay on designated pathways when appropriate to do so. When MVMDSBC staff must leave designated pathways, they must be mindful of avoiding nests, eggs, or other wildlife features. MVMDSBC will notify the City prior to treatment, and a qualified biologist will either be supplied by the City or MVMDSBC during inspections and treatments in the Goleta Slough.

Prior to engaging in any treatment activities, MVMDSBC staff shall be required to review and acknowledge the provisions of this MOU, including Exhibit B, and sign the attached acknowledgment form included as Attachment 1.

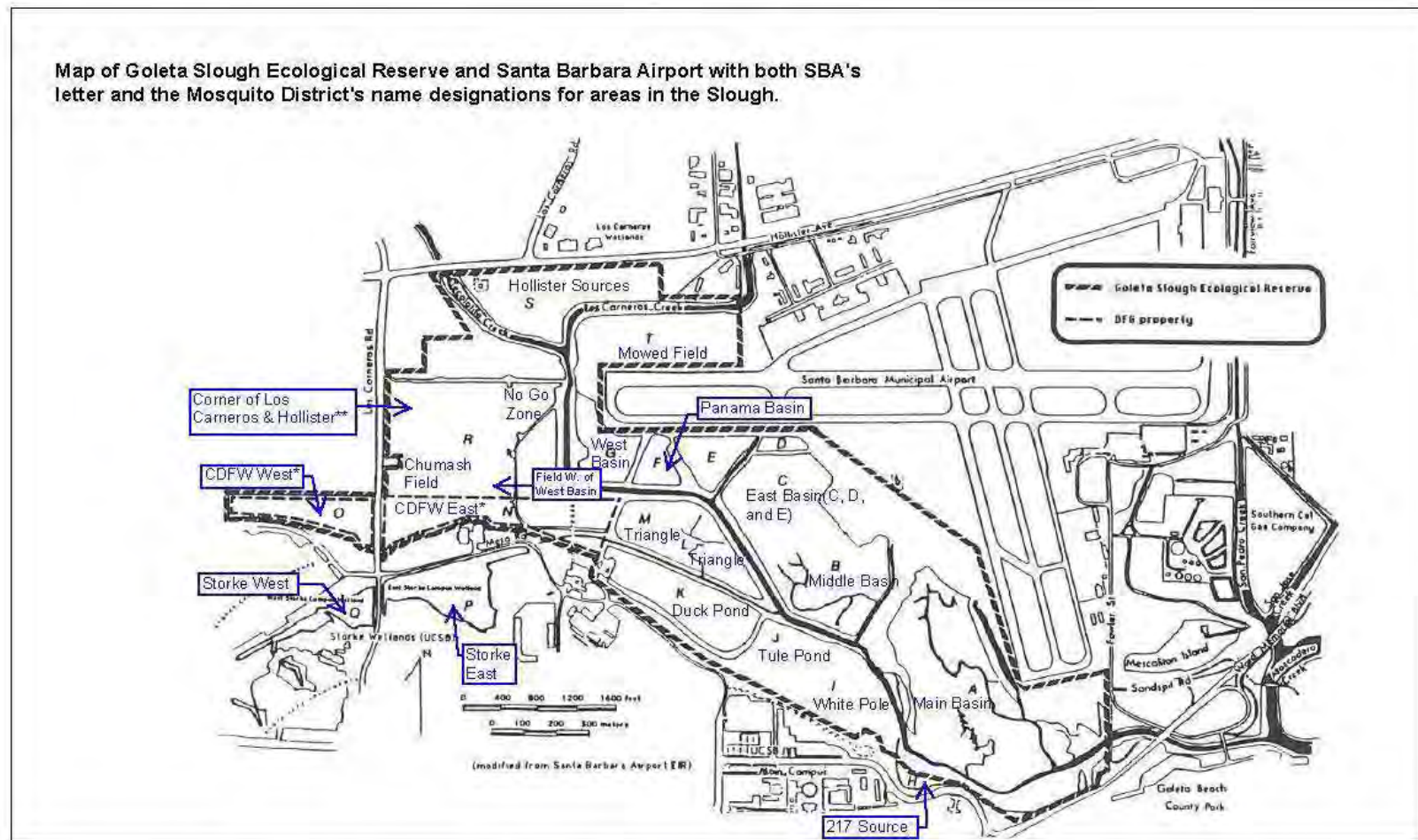
B. TREATMENT SITES

The MVMDSBC surveys sites to determine the degree of infestation and treats accordingly. The frequency of surveys and treatments of a site depends on the presence of water, ambient temperature, weather conditions, the presence of mosquito larvae and staff workloads.

The following sites (also identified in Figure 2) are proposed for treatment by the MVMDSBC. These sites on the SBA property are recognized as larval habitats that are sources of nuisance and disease vector mosquitoes.

1. “Duck Pond” in Area K
2. “Tule Pond” in Area J
3. Channel on south side of “Duck Pond” in Area K
4. Area L/M (“Triangle” Basin)
5. Area F (“Panama” basin)
6. Area G (the basin west of “Panama” basin)
7. Area E (the basin east of “Panama” basin)
8. Field Near Radar Installation
9. Area I (“White Pole Area”)
10. Area I (field north of UCSB’s Laundry Road)
11. Area R (marsh area southwest of the main runway)
12. Area A (the main basin near radar installation)
13. Area A (area of the main basin adjacent to Highway 217)
14. Ditch on the south side of Hollister Ave.
15. Miscellaneous habitats
16. Wetland south of Hollister Ave. near Los Carneros Rd.
17. Due southwest from the west end of the main runway, on both sides of Tecolote Creek
18. Middle Basin (located to the northeast of and adjacent to Area L/M)

Figure 2. SBA Treatment Are



- | | | | |
|-------------------------|--------------------------|-------------------|---|
| A - "Main Basin" | H - "217 Source" | N - "CDFW East" | R - "Chumash Field"; "Field West of West Basin"; |
| B - "Middle Basin" | I - "White Pole" | O - "CDFW West" | "No Go Zone"; "Corner of Los Cameros & Hollister" |
| C, D & E - "East Basin" | J - "Tule Pond" | P - "Storke East" | S - "Hollister Sources" |
| F - "Panama Basin" | K - "Duck Pond" | Q - "Storke West" | T - "Mowed Field" |
| G - "West Basin" | L & M - "Triangle Basin" | | |

* CDFW = CA Dept. of Fish & Wildlife

** M/MMD divides Area R into four sections: "Chumash Field", "Field West of West Basin", "No Go Zone" and "Corner of Los Cameros & Hollister"

C. Compliance

All MVMDSBC staff working on SBA property will be in compliance with SBA's security program by fulfilling all requirements for operating within the Airport Operations Area. This includes passing the required training, wearing their SBA-issued AOA badges at all times and adhering to all airport security rules and procedures.

All pesticides used on SBA property and their application are in compliance with the City of Santa Barbara IPM program. The MVMDSBC only uses materials designated in the Green or Yellow category as defined in the City's IPM Strategy/PHAER Zone report.

Unless otherwise approved or authorized in compliance with all applicable laws, the use of off-road vehicles—including amphibious all-terrain vehicles such as "Argo" vehicles—is prohibited within the Goleta Slough, and MVMDSBC agrees not to use them, except for on established roads used for vehicles and maintained by SBA.

SCHEDULE OF COSTS

The MVMDSBC will charge on a time and materials basis. MVMDSBC will charge for mileage based on the Federal rate of \$0.725 per mile. Mileage will be based as the one-way distance from the MVMDSBC office in Summerland to SBA, according to Google maps, which is 17.2 miles.

Following are the costs:

Labor rates:

Operations Manager Biologist	\$124.18
Vector Control Technician	\$88.25 per hour
Vector Control Technician	\$66.58 per hour
Lead Vector Control Technician	\$109.44 per hour
Vector Biologist Technician	\$115.64 per hour
Assistant Vector Control Technician	\$43.01 per hour

Materials*:

2026 Pesticide Prices		
Product	Active Ingredient	Cost per lb.
Altosid pellets	Methoprene	\$ 32.59
Altosid P35	Methoprene	\$ 22.47
Altosid 30-day briquets	Methoprene	\$ 129.75
Altosid XR	Methoprene	\$ 54.37
Fourstar Briquets	Bacillus thuringiensis israelensis and Bacillus sphaericus	\$ 70.39
Fourstar CRG Granules	Bacillus thuringiensis israelensis and Bacillus sphaericus	\$ 17.79
Natular XRT	Spinosad	\$ 75.78
VectoBac G	Bacillus thuringiensis israelensis	\$ 3.53
VectoLex	Bacillus sphaericus	\$ 8.35
VectoMax	Bti and Bs	\$ 101.87

*If the cost of materials increases, City staff shall be notified and City will be charged the updated costs.

Estimated annual cost of the MVMD's mosquito control program at the Santa Barbara Airport, per fiscal year.					
Material	Cost	Unit	Estimated Amount Applied	Unit	Material Costs
VectoBac G	\$ 3.53	lb.	1,452	lbs.	\$5,125.56
VectoMax FG	\$ 101.87	lb.	10	lbs.	\$1,018.70
Natular XRT	\$ 75.58	lb.	120	lbs.	\$9,069.60
Fourstar Briquets	\$70.39	lb.	550	lbs.	\$38,714.50
Fourstar CRG Granules	\$17.78	lb.	200	lbs.	\$1,778.00
				Sub-total =	\$63,861.86
Labor	Rate	Unit	Estimated hours worked	Unit	Labor Costs
Operations Manager Biologist	\$124.18	hour	56	hours	\$6,954.08
Vector Control Technician	\$88.25	hour	122	hours	\$10,766.50
Vector Control Technician	\$66.58	hour	122	hours	\$8,122.76
Lead Vector Control Technician	\$109.44	hour	106	hours	\$11,600.64
Vector Biologist Technician	\$115.64	hour	106	hours	\$12,257.84
Assistant Vector Control Technician	\$43.01	hour	64	Hours	\$2,752.64
				Sub-total =	\$ 52,454.46
Mileage	One-way Distance	Estimated miles	Rate	Unit	Mileage cost
	17.2	2,322	\$0.725	Mile	\$1,683.45
				Sub-total =	\$1,683.45
				Grand total =	\$ 117,999.77

Estimated cost for biological consultants to monitor District activities at the Goleta Slough during nesting bird season.

	Rate	Hours	Cost
Biologist II	\$193	56	\$10,808
Biologist IV	\$234	7	\$1,638
Project Accountant	\$139	7	\$973
Principal	\$341	3	\$1,023
Standard Field Package	\$150	7	\$1,050
		Total	\$15,492

ESTIMATE OF COSTS:

Materials: \$63,861.86

Labor: \$52,454.46

Mileage: \$1,683.45

Biologist monitoring: \$15,492

Total: \$133,491.77

This estimate is based on historical average uses over the past four years. An itemized breakdown of material and labor costs is available upon request.

Vector control technicians perform the majority of the field work, which includes monitoring sites and applying larvicides. Charges will be made at the rate of the technician performing the work.

The grand total of all costs is not to exceed \$133,491.77 per fiscal year.

The Mosquito and Vector Management District of Santa Barbara County welcomes the opportunity to provide its services to the Santa Barbara Municipal Airport. We appreciate the Santa Barbara Municipal Airport's commitment to protecting the public's health, safety, and quality of life.

ATTACHMENT 1

MOU ACKNOWLEDGEMENT FORM

I, _____, acknowledge that I have reviewed and understand the provisions outlined in the Memorandum of Understanding (“MOU”), including all Exhibits. I understand that this acknowledgment is required prior to engaging in any treatment activities. As part of this acknowledgement, I acknowledge that I will exercise extreme caution when entering environmentally-sensitive habitat areas (“ESHAs”) on the Property in order to minimize impacts to these environments. I acknowledge that I am required to remain mindful of wildlife during walking treatments, and stay on designated pathways when appropriate to do so. When I must leave designated pathways, I acknowledge that I must be mindful of avoiding nests, eggs, or other wildlife features.

Agreed: _____
Signature

Date

Print name

Title

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (MOU) is entered into on August 20, 2026 by and between the Mosquito and Vector Management District of Santa Barbara County, a special district (hereinafter referred to as the "Mosquito District"), and the Goleta Sanitary District (hereinafter referred to as the "Sanitary District"), as described below with respect to the following facts:

WHEREAS, the Sanitary District requires mosquito control services in order to regulate mosquito-breeding sources within the Mosquito Breeding Habitats of its properties; and

WHEREAS, in accordance with its principal act and California Health & Safety Code Section 2045, the Mosquito District is authorized to provide mosquito control services and enter into an agreement with the Sanitary District for the surveillance and control of vectors; and

WHEREAS, the Sanitary District desires to avail itself of such services available from the Mosquito District; and

WHEREAS, each party desires to recognize its role and responsibilities with regard to the California Health and Safety Code and hereby affirm their relationship and obligations; and

WHEREAS, the term of this MOU is for the 2026-2027 and 2027-2028 Fiscal Years, and shall expire after Mosquito District's Board of Trustees has approved its Integrated Mosquito & Vector Management Plan and its related environmental review; and

WHEREAS, the Mosquito District's Board of Trustees authorized the execution of this MOU at their regular Board meeting on: August 20, 2026; and

WHEREAS, the Sanitary District's Board of Directors authorized the execution of this MOU at their regular Board meeting on: _____.

NOW, THEREFORE, in consideration of the mutual covenants and conditions herein, the parties hereby agree as follows:

The Mosquito District shall:

- 1) Provide mosquito control services on those Sanitary District properties in accordance with and as more particularly described in the August 13, 2026 Mosquito Management Plan ("Plan") attached as Exhibit A hereto and incorporated herein by reference. The Plan depicts the Mosquito Breeding Habitats (including but not limited to wetland habitats, water drainage impoundment sites, permanent and vernal pools or ponds, and any existing wet spots) located on Sanitary District properties for which the Mosquito District shall provide mosquito control services in accordance with this MOU. At the request of the Sanitary District, the Mosquito District shall also treat (at an extra cost in accordance with Section 7 hereto) additional breeding habitats not included within the scope of the Plan which may arise on Sanitary District properties.
- 2) Assign adequate personnel, equipment, and materials not to exceed the maximum estimated amounts as delineated in the Plan for each Fiscal Year of this MOU, to carry out mosquito control services.

- 3) Apply appropriate chemical, biological, or microbiological agents to suppress larval infestations of mosquitoes and to take reasonable steps to prevent and control mosquito breeding at all Sanitary District properties as delineated in the Plan for each Fiscal Year of this MOU.
- 4) Provide biannual (twice per year) reports of the Mosquito District's performance of mosquito control activities to the Sanitary District. The Mosquito District's report shall include the following items:
 - a) Detailed monitoring activities including, but not limited to, the number of surveillances per site and their results.
 - b) The dip test/results that triggered the treatments.
 - c) Treatment agent used and amount used per area.
 - d) Locations, dates, and times of treatments.
- 5) Prior to the end of this MOU, provide to the Sanitary District an updated, proposed Mosquito Management Plan for the 2028-2029 and 2029-2030 Fiscal Years, including but not limited to: updated costs for labor and materials, additional breeding sites or habitat areas, overall assessment and effectiveness of treatment, long-term mosquito management strategies, as well as in-depth summaries of all mosquito control activity documented over the term of this MOU.
- 6) Keep records of all Mosquito District employee and equipment time and all materials spent in providing services under this MOU and make those records available to the Sanitary District upon reasonable notice.
- 7) A. Invoice the Sanitary District approximately every six (6) months for labor and materials expended by the Mosquito District as described in the Plan. Subject to the provisions of the following paragraph, the total of the respective invoices of the Mosquito District for each fiscal year shall not exceed the labor and materials amounts set forth in the "Estimated Cost of Control" in Section D within the Plan.

B. The costs in the table in Section D within the Plan represent the best estimate of the Mosquito District of the cost of providing mosquito control services to the Sanitary District, as contemplated by the Plan, for the respective fiscal years covered by this MOU. However, the parties acknowledge that: (1) cyclical climate and seasonal conditions (including but not limited to "wet" years) may vary; or (2) additional breeding habitats not contemplated in the Plan may arise on Sanitary District properties. These circumstances may, in the judgment of the Mosquito District, require an increase in the level of services to be provided, and costs to be incurred, by the Mosquito District from that contemplated in the Plan so as to provide an adequate level of service to the Sanitary District. In such instance, the Mosquito District upon such discovery shall promptly inform the Sanitary District, and the parties shall meet to attempt in good faith to agree on an increase in the amount of Charges for work to be performed hereunder, through an addendum to this MOU. Nothing in this MOU, however, requires the parties to reach such agreement.
- 8) To the extent permitted by law, investigate, defend, protect, indemnify, and hold harmless the Sanitary District and its officers, directors, employees, and agents from and against any and all loss, damage, liability, claims, demands, costs, charges, and expense (including reasonable attorney fees in the event of litigation) which the Sanitary District may incur, sustain, or be subjected to on account of loss or damage to property or loss of use thereof, or for bodily injury to or death of any

persons (including but not limited to property, employees, subcontractors, agents, and invitees of each party hereto) arising out of the negligent act or omissions of the Mosquito District or its agents, employees, or subcontractors in the performance of work pursuant to this MOU, specifically excepting, however, any property damage, loss of use, bodily injury or death caused by or attributable to the active negligence, sole negligence or willful misconduct of the Sanitary District or its officers, directors, employees, agents or contractors.

The Sanitary District shall:

- 9) Promptly pay to Mosquito District invoices which comply with Section 7 above.,
- 10) Invoices shall be due upon presentation. All payments to Mosquito District thirty (30) days past due shall be considered delinquent and shall be subject to: (a) a 2% late payment charge on the principal amount owed; and (b) interest at the legal rate.
- 11) Make reasonable accommodations to assist Mosquito District to gain access to the Sanitary District's properties to fulfill the purposes of this MOU.

General Terms and Conditions:

- 12) This MOU shall be effective on the date first set forth above and shall expire after the Mosquito District's Board of Trustees has approved the Mosquito District's Integrated Mosquito & Vector Management Plan and its related environmental review. Consistent with Section 5, the Mosquito District will provide the Sanitary District with an updated, proposed Plan for the following two fiscal years, and the parties will attempt in good faith to reach agreement on the terms of a new MOU at that time. Nothing in this MOU, however, requires the parties to reach such agreement.
- 13) Either party in its sole discretion and without penalty may terminate this MOU after thirty (30) days written notice of termination to the other. In the event of termination, Sanitary District shall pay Mosquito District for the reasonable cost of all services performed by the Mosquito District to the date of termination in accordance with the Mosquito Abatement and Vector Control District Law (Health and Safety Code Section 2000 et seq.)
- 14) All notices, correspondence and communication regarding performance of services which are the subject of this MOU shall be made as follows:

To Mosquito District:

General Manager
Mosquito and Vector Management District of Santa Barbara County
PO Box 1389
Summerland CA 93067

To Sanitary District:

General Manager
Goleta Sanitary District
One William Moffett Place
Goleta CA 93117

- 15) The Mosquito District shall replace or repair any Sanitary District improvements (to the extent and condition existing prior to entry) which are destroyed or damaged as a result of the Mosquito District's entry and passage upon the Sanitary District's properties.

- 16) The Mosquito District shall access the Sanitary District properties during normal business hours, hereby defined as from 7:30 am to 4:00 pm Monday through Friday. Should Mosquito District require access to any Sanitary District properties during other than the normal business hours, then such arrangements shall be made in advance with the Sanitary District at least 24 hours prior to the Mosquito District's access.
- 17) The Mosquito District's entry and passage onto any of the Sanitary District's properties shall not interfere with the Sanitary District's normal operations.
- 18) The Mosquito District's staff shall notify Sanitary District staff (check-in and check-out) upon each access of the Sanitary District's properties.
- 19) The Mosquito District shall furnish the Sanitary District certificates of insurance, from insurers satisfactory to Sanitary District, evidencing the following insurance coverages and compliance with the following requirements:

A. General Liability

Comprehensive, or Commercial Form, or its equivalent, with Aggregate Limit (Minimum Limit):

1. Combined Single Limit Per Occurrences \$3,000,000.
2. Products and Completed Operations \$1,000,000.
3. Personal and Advertising \$1,000,000.
4. General Aggregate, Bodily Injury, Property Damage *\$5,000,000.

*Not applicable to Comprehensive Forms

If the above insurance is written on claims made form, it shall continue for three years following termination of this MOU. The insurance shall provide for a retroactive date of placement prior to or coinciding with the effective date of this MOU.

- B. Business Automobile Liability Insurance for owned, schedule, non-owned or hired automobiles with a combined single limit of not less than \$1,000,000 per occurrence.
- C. Worker's Compensation: as required under California State Law.
- D. Such other insurance in such amounts which from time to time may be reasonably required by the mutual consent of the Sanitary District and the Mosquito District against other insurable risks relating to performance.
- E. The Sanitary District approves of the participation by Mosquito District in the Vector Control Joint Powers Agency insurance pool in place of these requirements, so long as the insurance pool meets the requirements for coverage contained in this section and provides the required certificate of insurance.

It should be expressly understood, however, that the coverages required under Subparagraphs 18.A and 18.B shall not in any way limit the liability of the Mosquito District for damages or injury arising out of the Mosquito District's operations.

The coverages referred to under Subparagraphs 19.A and 19.B shall be endorsed to include the Sanitary District as an additional insured. A copy of the endorsement evidencing that the Sanitary District has been added as a named additional insured on the policy must be attached to the certificate of insurance. Certificates shall further provide for thirty (30) days advance written notice

to the Sanitary District of any modification, change, or cancellation of any of the above insurance coverages.

- 20) Neither party may assign its rights or obligations of this MOU without the express written consent of the other party. No modification of this MOU shall be effective unless made in writing and signed by a duly authorized representative of each party.
- 21) This MOU states the entire contract between the parties and supersedes any previous or contemporaneous written or oral representations, statements, negotiations, or agreements. This MOU is the product of negotiations between the parties and shall not be construed against either party as the drafter of the document.
- 22) This MOU shall be governed by the Laws of the State of California and any dispute between the parties shall be filed and heard in the County of Santa Barbara.
- 23) Each party has full power and authority to enter into and perform this MOU and the persons signing this MOU on behalf of each warrants that he/she has been properly authorized and empowered to enter into this MOU. Each party further acknowledges that it has read this MOU, understands it and agrees to be bound by it.

IN WITNESS WHEREOF, the parties have caused this MOU to be executed by their authorized representatives, effective as of the date first set forth above.

MOSQUITO AND VECTOR MANAGEMENT DISTRICT
OF SANTA BARBARA COUNTY

GOLETA SANITARY DISTRICT

Brian Cabrera, General Manager

Steve Wagner, General Manager

Date: _____

Date: _____

Exhibit A

MOSQUITO MANAGEMENT PLAN
FOR THE
GOLETA SANITARY DISTRICT

FISCAL YEARS 2026-2027 AND 2027-2028



prepared by
Mosquito and Vector Management District
of Santa Barbara County
August 13, 2026

A. INTRODUCTION

The Goleta Sanitary District's Wastewater Treatment facility ("GSD") has two large mosquito breeding sources on its property. The Mosquito and Vector Management District of Santa Barbara County ("MVMD") controls mosquitoes in these locations using the methods described below. These methods do not include any adulticiding or "fogging" techniques which target adult mosquitoes. The MVMD only uses larvicides which specifically target the mosquitoes' aquatic larval stage.

B. MOSQUITO MANAGEMENT TECHNIQUES

1. Mosquito Larvicides

Methoprene

Altosid® products contain the active ingredient methoprene which prevents mosquito larvae from maturing into adult mosquitoes. Methoprene is extremely selective – it affects very few organisms besides mosquitoes. **Altosid pellets** provide up to 30 days of residual mosquito control. **Altosid P35®** pellets can also be applied before flooding. They provide residual control of most major mosquito species for up to 35 days. **Altosid 30-day** briquets are a 30-day time-release formulation also containing methoprene. They can be applied to large, inaccessible mosquito breeding sources through the use of slingshots. **Altosid XR-Briquets** are formulated to have a 150-day time-release.

Floodwater mosquitoes lay their eggs in low-lying and seasonal marshes that eventually become inundated with water. The MVMD consistently finds these mosquitoes every year at the GSD's breeding sources as described below. Pre-flood treatments allows the active ingredient in the Altosid products to be activated upon flooding, and it remains effective for the duration of the formulated time-release period. Pre-flood applications allow larvicides to be applied to areas that eventually become inaccessible due to dense vegetation and flooding.

Bacillus thuringiensis israelensis

VectoBac G® is a biological mosquito larvicide that contains the active ingredient *Bacillus thuringiensis israelensis* ("Bti"). Bti is derived from a soil bacterium which produces a toxin that kills mosquito larvae within 48 hours after they ingest it. It is not toxic to birds, frogs, turtles, fish, and most other insects. VectoBac has very little residual activity so it must be applied repeatedly for continual mosquito control. VectoBac G is a granular mosquito larvicide so it can be applied with hand-held broadcasting equipment.

Bacillus sphaericus

VectoLex FG® is a biological mosquito larvicide that has *Bacillus sphaericus*, as its active ingredient. VectoLex FG is highly effective against *Culex* mosquito species that breed in the settling ponds. VectoLex FG may provide some residual mosquito control under certain conditions. This material works well at controlling mosquito larvae in water with high levels of organic matter, like that in the GSD settling ponds. *Bacillus sphaericus*' mode of action is similar to Bti's, but is different enough to prevent the mosquitoes from becoming resistant to Bti when the two materials are used alternately.

VectoBac and VectoLex treatments target *Culex* species mosquitoes which breed in the springtime.

Bacillus thuringiensis israelensis plus Bacillus sphaericus

Fourstar briquets come in 180-, 90-, and 45-day residual control formulations containing Bti and Bs as their active ingredients. Like Altosid briquets, these products will control several generations of mosquitoes without requiring repeated larvicide applications. and can be applied to dry ground in low-lying areas prone to flooding. Periodic monitoring of the habitat after flooding is necessary to ensure that the material continues to be effective

Fourstar CRG comes in granular form and can be applied directly to water or in dry, pre-flood conditions. The active ingredients are Bti and Bs.

2. Monitoring

Dipping

“Dipping” is a method of inspecting water sources for mosquito larvae using a “dipper” which is a white, 4-inch diameter cup attached to a 3- to 4-foot long handle. A cupful of water is collected from the habitat and inspected for mosquito larvae. Mosquito control measures are taken when significant numbers of larvae are found. Inspection by dipping is not practical where vegetation in and around water sources is extremely dense or when the mosquito breeding habitat is inaccessible.

CO₂ Mosquito Trapping

The cost for carbon dioxide (CO₂) trapping is not part of this Mosquito Management Plan, but is described here because it is the only way to monitor for mosquitoes in habitats where dense tule vegetation makes it impossible to monitor by dipping. Female mosquitoes are attracted to CO₂ when they are searching for a blood meal. The mosquito trap consists of a small battery-powered fan hanging below a container of dry ice. The CO₂ released from the dry ice attracts hungry female mosquitoes which are then pulled by the suction created by the fan into a mesh bag attached under the fan housing. Traps are placed near mosquito habitats during the late afternoon and are retrieved the next morning. All mosquitoes caught in the traps are identified to species in the laboratory. Trap counts give an indication of mosquito activity in the area and of the species that are present. Mosquito control measures can be implemented when high activity is indicated. Captured mosquitoes can also be sent to a laboratory to be analyzed for mosquito-borne viruses.

C. MOSQUITO BREEDING SOURCES

Habitat 1 - Wetland at Corner of Moffett Place and Fowler Road.

a. Description:

This wetland is the most important mosquito breeding source. It consists of a pair of tule-filled freshwater marshes at the corner of Moffett Place and Fowler Road on GSD property. This 6.5-acre site is a seasonal wetland that floods during winter rainstorms. Floodwater mosquitoes (*Aedes washinoi*) breed in this wetland and their eggs hatch as the wetland floods. The adult females are not known to be disease vectors, but are vicious and aggressive biters that cause serious mosquito nuisance problems. Floodwater mosquitoes have only one generation per year and can be

controlled with a pre-flood treatment of time-released larvicide applied before flooding occurs. Later in the season other mosquito species may begin breeding at this site including *Culex* species which are the primary vectors of West Nile virus.

b. Mosquitoes:

Floodwater mosquitoes (*Aedes washinoi*) breed and lay their eggs at this site in winter and spring. The eggs lay dormant through the summer and fall and hatch when the water level rises after heavy winter rains. Floodwater mosquitoes are not known to be disease vectors, but they are vicious and aggressive biters and are the primary nuisance problem at the GSD. In summer and fall the tule mosquito (*Culex erythrorhax*) and the encephalitis mosquito (*Culex tarsalis*), both vectors of West Nile virus, and other mosquito species become active.

c. Mosquito Production:

Floodwater mosquito production can be heavy, due to the extensive amount of dense tule vegetation, while *Culex spp.* production in past seasons has been moderate.

d. Scope of Control Work:

Altosid 30-d briquets are the most effective and efficient way to treat this site for floodwater mosquitoes due to its 30-day time release formulation. This material can be applied using slingshots either before or after it floods. The District proposes annual pre- or post-flood treatment of wetland habitat 1 with Altosid 30-d briquets.

Later in the season vector control technicians can treat specific areas within wetland Habitat 1 with VectoBac G, as needed, to control *Culex* species mosquitoes. The number of treatments will vary according to the amount of rainfall received during the rainy season. This mosquito management plan includes the cost of four spot treatments with VectoBac.

Habitat 2 – Settling Ponds.

a. Description:

This habitat consists of the three settling ponds on the east side of the GSD facility. These can occasionally become mosquito breeding sites. This usually occurs when vegetation starts growing in the ponds and creates refuges for mosquito larvae. The total area of the ponds is approximately 5.5 acres, of which about 2.5 acres the MVMD is equipped to treat. Because of the sporadic nature of mosquito breeding in this habitat, it will be treated only upon request by the GSD and as agreed between the GSD and the MVMD.

b. Mosquitoes:

Foul-water mosquitoes (*Culex stigmatosoma*) and southern house mosquitoes (*Culex quinquefasciatus*) are the primary species that breed in this kind of aquatic habitat. Other species such as the encephalitis mosquito and cool-weather mosquitoes (*Culex spp.*) also may occasionally breed here.

c. Mosquito Production:

Mosquito production is normally light to moderate depending upon conditions such as vegetative growth and water levels within individual ponds.

d. Scope of Control Work:

The Mosquito and Vector Management District treats the periphery of the ponds (for a total of approximately 2.5 acres) with VectoBac G or VectoLex FG. Both are granular mosquito larvicides that can be applied using a gasoline-powered backpack applicator.

As this habitat only occasionally breeds mosquitoes, the MVMD will treat the settling ponds only upon the request of the GSD and after discussions between the two Districts.

Figure 1. Map of Goleta Sanitary District:



D. ESTIMATED COST OF CONTROL:

Position	Estimated Hours Worked	Rate/hour	Labor costs
Operations Manager Biologist	2	\$ 124.18	\$ 248.36
Vector Control Technican	5	\$ 66.58	\$ 332.90
Vector Control Technican II	6	\$ 88.25	\$ 529.50
Lead Vector Control Technician	3	\$ 109.44	\$ 328.32
Vector Biologist Technician	6	\$ 115.64	\$ 693.84
Seasonal Vector Control Technician	3	\$ 43.01	\$ 129.03
		Total =	\$ 2,013.59
Material	Estimated Amount Applied	Cost per lb.	Material Costs
VectoBac G	47	\$ 3.53	\$ 165.91
VectoLex FG	2	\$ 8.35	\$ 16.70
Altosid 30-day briquets	15	\$ 129.75	\$ 1,946.25
Altosid P35	2	\$ 22.47	\$ 44.94
Altosid pellets	2	\$ 32.59	\$ 65.18
Altosid XR briquets	15	\$ 54.37	\$ 815.55
Fourstar 45-day briquets	10	\$ 68.24	\$ 682.40
Fourstar CRG	5	\$ 17.78	\$ 88.90
		Total =	\$ 3,825.83
One-way distance to GSD* (miles)	Estimated number of visits	Rate/mile**	Mileage Costs
15.9	12	\$ 0.725	\$ 138.33
		Total =	\$ 138.33
* Distance from the District's office to GSD, according to Google Maps			
** Standard mileage rate set by the Internal Revenue Service beginning January 1, 2026			
		Grand Total =	\$ 5,977.75

The total cost for mosquito management services is estimated to be and not exceed \$5,977.75 per fiscal year.

The Mosquito and Vector Management District of Santa Barbara County welcomes the opportunity to provide its services to the Goleta Sanitary District. We appreciate the Goleta Sanitary District's commitment to protecting their staff and their neighbor's health and quality of life.

THIS MEMORANDUM OF UNDERSTANDING FOR MOSQUITO CONTROL SERVICES (this “MOU”), dated for reference purposes as of August 20, 2026, is made and entered into by and between the **MOSQUITO AND VECTOR MANAGEMENT DISTRICT OF SANTA BARBARA COUNTY**, a public agency (“MVMDSBC”), and **WYNMARK COMPANY**, (“WYNMARK”), as follows:

Recitals

A. WYNMARK owns the real property described on Exhibit “A” attached hereto (the “Property”).

B. WYNMARK requires the services of MVMDSBC to control the breeding of mosquitoes within the mosquito breeding habitats located on the Property.

C. Pursuant to Health and Safety Code Section 2045, MVMDSBC may contract with WYNMARK to provide mosquito control services.

D. The parties desire to set forth herein the terms of their agreement regarding the provision of mosquito control services by MVMDSBC to WYNMARK.

NOW, THEREFORE, for valuable consideration, the receipt and sufficiency of which are hereby acknowledged, MVMDSBC and WYNMARK agree as follows:

1. Services by MVMDSBC. MVMDSBC agrees to perform mosquito control services for WYNMARK in accordance with the Mosquito Management Plan identified by date on Exhibit “B” attached hereto (the “MMP”), a copy of which has been presented to and approved by WYNMARK. The MMP is incorporated herein by reference and made a part hereof. The MOU depicts the mosquito breeding habitats located on the Property, including but not limited to wetland habitats, water drainage impoundment sites, permanent and vernal pools and/or ponds, and existing wet areas. The services to be provided by MVMDSBC pursuant to this MOU include the following:

(a) Apply appropriate chemical, biological, and/or microbiological agents to suppress larval infestations of mosquitoes, and take reasonable steps to control mosquito breeding on the Property, as delineated in the MMP.

(b) Assign adequate personnel, materials, and equipment as projected in the MMP to carry out the mosquito control services to be provided by MVMDSBC hereunder.

(c) Maintain records of all labor time spent, materials furnished, equipment utilized, and expenses incurred in connection with the services provided under this MOU, and make such records available to WYNMARK upon reasonable notice.

2. **Additional Services.** The parties acknowledge that, due to cyclical climate changes and seasonal conditions (including but not limited to wet years with above-normal rainfall), additional mosquito breeding habitats not identified in the MMP may occur on the Property. If MVMDSBC discovers any such additional mosquito breeding habitats, it shall promptly inform WYNMARK. The parties shall then meet and attempt in good faith to agree upon (i) the additional services to be provided by MVMDSBC to control mosquito breeding in such additional habitats, and (ii) the amount to be charged by MVMDSBC for the increase in the scope of its services. If the parties are unable to reach such an agreement, there shall be no increase in the scope of services or in the amount to be charged by MVMDSBC.

3. **Updates to MMP.** MVMDSBC shall, in consultation with WYNMARK, prepare an updated MMP every two (2) years, or more frequently if circumstances so require. Each updated MMP shall (i) include updated projected costs for labor, materials, equipment, and other expenses, (ii) identify any additional breeding sites or habitat areas on the Property, (iii) contain an assessment regarding the overall effectiveness of MVMDSBC's mosquito control services, (iv) set forth recommended long-term mosquito control strategies, and (v) provide in-depth summaries of all mosquito control activities undertaken since the date of the last updated MMP. Each updated MMP shall be approved in writing by WYNMARK. Upon such written approval, each updated MMP shall (a) supersede and replace the MMP then in effect, and (b) be incorporated herein by reference and made a part hereof. MVMDSBC shall perform mosquito control services for WYNMARK in accordance with the MMP then in effect until such time as an updated MMP has been approved in writing by WYNMARK, or until this MOU is terminated as provided herein.

4. **Access.** During WYNMARK's normal business hours, as specified on Exhibit "A", WYNMARK shall provide MVMDSBC with reasonable access to the Property to enable MVMDSBC to carry out its responsibilities under this MOU. If MVMDSBC requires access to the Property at times or on days that are not within WYNMARK's normal business hours, MVMDSBC shall make arrangements with WYNMARK for such access at least 24 hours in advance. MVMDSBC staff shall check in and check out with WYNMARK each time they access the Property. In entering upon the Property and providing services pursuant to this MOU, MVMDSBC shall reasonably endeavor to avoid interference with WYNMARK's normal operations. MVMDSBC shall promptly repair and/or replace, at its expense, any property or improvements that are damaged or destroyed as a result of its entry on the Property.

5. **Fees.** WYNMARK agrees to pay MVMDSBC on a time and materials basis in accordance with the labor rates and cost projections set forth in the MMP for all labor time spent, materials furnished, equipment utilized, and expenses incurred in connection with the services provided under this MOU. The amount payable by WYNMARK shall not exceed the Grand Total of All Charges set forth in the MMP for the fiscal year in question, unless otherwise agreed by WYNMARK in writing. In addition, WYNMARK shall pay all application fees and other costs associated with obtaining (i) the approval by the Local Agency Formation Commission of the services to be provided hereunder, and (ii) all other approvals and permits that are required by governmental or regulatory agencies .

6. **Billing and Payment.** MVMDSBC shall invoice WYNMARK approximately every six (6) months for the fees and costs payable pursuant to Section 5 above; provided,

however, that application fees and other costs associated with obtaining required approvals and permits in connection with the services to be provided hereunder shall be invoiced at the time the fees and costs are incurred. Invoices shall be due upon receipt by WYNMARK. Any invoice not paid within thirty (30) days of receipt shall be considered delinquent and shall be subject to a 2% late payment charge, not as a penalty, but to reasonably compensate MVMSDBC for the administrative costs, accounting expenses, and other adverse consequences it would incur as a result of such late payment. WYNMARK and MVMSDBC agree that MVMSDBC's actual damages in the event of a late payment by WYNMARK would be impracticable or extremely difficult to determine and that the 2% late payment charge represents a reasonable estimate of such damages.

7. Indemnification.

(a) MVMSDBC shall indemnify, defend and hold harmless WYNMARK and WYNMARK's officers, directors, shareholders, partners, members, employees and agents from and against any and all claims, demands, causes of action, fines, penalties, liabilities, damages, costs and expenses (including but not limited to fees of attorneys and other professionals) that are attributable to (i) the breach of any of MVMSDBC's obligations under this MOU, or (ii) the negligence or willful misconduct of MVMSDBC or its officers, employees, agents, contractors, or any person under MVMSDBC's direction or control, in connection with the services provided by MVMSDBC hereunder, except to the extent that such claims, demands, causes of action, fines, penalties, liabilities, damages, costs and/or expenses are attributable to the negligence or willful misconduct of WYNMARK or its officers, directors, shareholders, partners, members, employees, agents, contractors, or any person under WYNMARK's direction or control.

(b) WYNMARK shall indemnify, defend and hold harmless MVMSDBC and MVMSDBC's officers, directors, employees and agents from and against any and all claims, demands, causes of action, fines, penalties, liabilities, damages, costs and expenses (including but not limited to fees of attorneys and other professionals) that are attributable to (i) the breach of any of WYNMARK's obligations under this MOU, or (ii) the negligence or willful misconduct of WYNMARK or its officers, directors, shareholders, partners, members, employees, agents, contractors, or any person under WYNMARK's direction or control, in connection with the services provided by hereunder, except to the extent that such claims, demands, causes of action, fines, penalties, liabilities, damages, costs and/or expenses are attributable to the negligence or willful misconduct of MVMSDBC or its officers, employees, agents, contractors, or any person under MVMSDBC's direction or control.

8. Term and Termination. The services to be provided pursuant to this MOU shall commence on the date set forth on Exhibit "A" and shall continue until this MOU expires after MVMSDBC's Board of Trustees has approved MVMSDBC's Integrated Mosquito & Vector Management Plan and its related environmental review or is terminated as provided herein. This MOU may be terminated with or without cause by either MVMSDBC or WYNMARK upon thirty (30) days written notice to the other party. Upon the termination of this MOU and the presentation of a final invoice, WYNMARK shall pay MVMSDBC for all labor time spent, materials furnished, equipment utilized, and expenses incurred in connection with the services provided hereunder prior to the effective date of termination.

9. **Insurance.** MVMDSBC shall maintain during the term of this MOU a general liability insurance policy relating to the services to be provided hereunder with a minimum of \$3,000,000 combined single limit coverage for personal injury, bodily injury and property damage. Upon request of the WYNMARK, said policy shall name WYNMARK and its directors, officers, shareholders, partners, members, agents and employees as additional insureds. MVMDSBC shall also maintain during the term of this MOU workers' compensation insurance in the amounts required by law. Prior to commencing services, MVMDSBC shall furnish WYNMARK with certificates of insurance evidencing the coverage required above. Such certificates shall provide that the carrier will give WYNMARK at least thirty (30) days' prior notice of cancellation of coverage (ten (10) days for nonpayment of premium). MVMDSBC shall provide WYNMARK with new certificates of insurance evidencing the renewal of coverage prior to the expiration of any policy required hereunder. MVMDSBC shall be permitted to satisfy the insurance requirements set forth herein through participation in the Vector Control Joint Powers Agency Insurance Pool.

10. **Prior Agreements.** This MOU supersedes and replaces all prior agreements, memoranda of understanding, purchase orders, and other contract documents and all amendments thereto relating to the provision of mosquito control services by MVMDSBC to WYNMARK

11. **Successors and Assigns.** This MOU shall be binding upon and shall inure to the benefit of the permitted successors and assigns of the parties hereto.

12. **Entire Agreement/Amendments.** This MOU (including all exhibits attached hereto) is the final expression of and contains the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior understandings and communications with respect thereto. This MOU may not be modified, changed, supplemented or terminated, nor may any obligations hereunder be waived, except by a written instrument signed by the party to be charged. The parties do not intend to confer any benefit hereunder on any person, organization or entity other than the parties hereto. All exhibits, schedules and appendices attached to this MOU are incorporated herein by reference and are made a part hereof.

13. **Professional Fees.** In the event of any action or suit arising in connection with the enforcement or interpretation of any of the covenants or provisions of this MOU, the prevailing party shall be entitled to recover all costs and expenses of the action or suit, including actual attorneys' fees, accounting fees and any other professional fees incurred in connection therewith.

14. **Partial Invalidity.** If any term or provision of this MOU or the application thereof to any person or circumstance shall, to any extent, be invalid or unenforceable, the remainder of this MOU, or the application of such term or provision to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby, and each such term and provision of this MOU shall be valid and enforceable to the fullest extent permitted by law.

15. **Waiver.** No waiver of any breach of any provision herein and no delay in enforcing performance of any obligation hereunder shall be deemed a waiver of any preceding or succeeding breach, or of any other provision herein, and no such waiver or delay shall impair any

right, power or remedy relating to the breach. No extension of time for performance of any obligation or act shall be deemed an extension of the time for performance of any other obligation or act.

16. Construction. Headings at the beginning of each section, subsection, paragraph and subparagraph are solely for the convenience of the parties and are not a part of this MOU. Whenever required by the context of this MOU, the singular shall include the plural and the masculine shall include the feminine and vice versa. This MOU shall not be construed as if it had been prepared by one of the parties, but rather as if both parties had prepared the same. Unless otherwise indicated, all references to sections, subsections, paragraphs and subparagraphs are to this MOU.

17. Signatures. This MOU may be executed in any number of counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument. If executed copies of this MOU, or if any notices or other written communications permitted or required hereunder, are provided by one party to the other by facsimile or email transmission, the facsimile or email copies and the signatures thereon shall for all purposes be treated as originals.

18. Authority/Approval. The person executing this MOU on WYNMARK's behalf represents and warrants that (i) he or she has been duly authorized by WYNMARK's legislative body to execute this MOU on behalf of WYNMARK (ii) WYNMARK's legislative body has duly approved this MOU on the date set forth on Exhibit "A", and (iii) the body or individual identified on Exhibit "A" shall have the authority on WYNMARK's behalf to approve in writing (a) changes to the scope of services pursuant to Section 2 hereof, and (b) future updates to the MMP pursuant to Section 3 hereof.

19. Notices. Any notices permitted or required hereunder shall be in writing and shall be (a) given by personal delivery, (b) mailed by certified or registered mail, postage prepaid, return receipt requested, (c) sent by reputable overnight delivery service (e.g., UPS, Federal Express, DHL or Airborne), or (d) sent by facsimile or email transmission. The contact information for MVMDSBC is as follows:

Mosquito and Vector Management District
of Santa Barbara County
Attn: General Manager
2450 Lillie Avenue
P.O. Box 1389
Summerland, CA 93067
Fax: (805) 969-5643
Email: gm@mvmddistrict.org

The contact information for WYNMARK is set forth on Exhibit "A". Either party may change its contact information for notice purposes by giving notice of such change in the manner set forth above.

20. **Assignment.** Neither party may assign any of its rights or delegate any of its obligations under this MOU, in whole or in part, without the prior written consent of the other party.

21. **Further Assurances.** The parties each agree to take such actions and execute such documents as may be reasonably required to carry out the intent of this MOU.

22. **Time of Essence.** Time is strictly of the essence with respect to each and every term, condition, obligation and provision hereof. Failure to timely perform any of the terms, conditions, obligations or provisions hereof by any party shall constitute a material breach of and a noncurable (but waivable) default under this MOU by the party so failing to perform.

23. **Governing Law.** The parties agree that (i) this MOU shall be governed by, interpreted under and enforced in accordance with the laws of the United States of America and the State of California, (ii) in the event of any dispute, the parties shall be subject to the jurisdiction of the courts of the State of California, regardless of their place of residence, and (iii) in any action arising in connection with this MOU, venue shall be in the County of Santa Barbara, State of California, United States of America.

24. **Force Majeure.** Neither party hereto shall be liable to the other party for any losses or damages attributable to a default in or breach of this MOU which is the result of any cause beyond the reasonable control of such party and without its fault (including, without limitation, effects of fire, strike, war, insurrection, terrorism, acts of God, civil or military authority, civil disturbance and government restriction or prohibition), and the performance of obligations hereunder shall be suspended during, but no longer than, the existence of such cause. The party affected by any event of force majeure shall inform the other party thereof in writing without delay and shall endeavor to take up its performance under this MOU again as soon as reasonably possible.

IN WITNESS WHEREOF, MVMDSBC and WYNMARK have executed this MOU on the date(s) set forth below.

“MVMDSBC”

**MOSQUITO AND VECTOR MANAGEMENT
DISTRICT OF SANTA BARBARA COUNTY**

By: _____
Brian Cabrera, General Manager

Dated: _____

“WYNMARK”

WYNMARK COMPANY

By: _____
Signature

Name and title

Dated: _____

EXHIBIT “A”

Description of Property: Girsh Park (as mitigation for the development of the Camino Real Marketplace.)

Date of Initial Mosquito Management Plan: July 11, 2018

WYNMARK’s Normal Business Hours: Monday – Friday; 8:00 AM – 4:00 PM

Commencement Date for Services: August 20, 2026

Approval Date of MOU by WYNMARK: _____

Approval Date of MOU by MVMDSBC: August 20, 2026

Contact Information for WYNMARK

Contact Person: _____

Mail Address: _____

Phone: _____

Email: _____

INTRODUCTION

As part of a mitigation requirement for the construction of the Camino Real Marketplace, a 1-acre wetland was created on the east end of Girsh Park south of the shopping complex. The developers were also required to implement a mosquito management plan (MMP). This MMP requirement was met by contracting with the Mosquito and Vector Management District of Santa Barbara County ("MVMDSBC") for mosquito control services.

For managing mosquito populations at this site, the MVMDSBC only uses ground application of granular "larvicides"—pesticides that target aquatic mosquito larvae. Adult mosquito control or "fogging" is not included as a management option. Other methods or sites needing treatment that are not included in this plan will be not be considered without approval from Wynmark.

MVMDSBC conducts surveillance for larval and adult mosquitoes at Girsh Park. If large numbers of mosquito larvae are found during inspections, large numbers of adult mosquitoes are caught in traps, complaints of nuisance biting by mosquitoes are reported, or specific requests are made by the client, the MVMDSBC will inspect the wetland for larval mosquitoes and/or monitor the site with adult mosquito traps and apply larvicides when necessary.

SCOPE OF WORK

A. Methods and Materials.

Vector control technicians will inspect the wetland for mosquito larvae in standing water with handheld dippers which are 1-pint cups attached to a long handle.

VectoBac G, a dry, granular product, will be applied when larval mosquitoes are present. The active ingredient in VectoBac is Bti which is a natural product derived from soil-dwelling bacteria and specifically affects mosquito larvae. VectoBac G is used in strict accordance with the product's label directions.

Natular XRT is formulated as a small tablet and can be used as a pre-treatment for low-lying areas that flood after substantial rains. This product can provide residual control for up to 180 days. The active ingredient in Natular is Spinosad, a natural compound derived from a soil fungus. Spinosad degrades readily in the soil

environment and is non-persistent. Exposure to sunlight accelerates the degradation process.

Product labels and safety data sheets for these larvicides are available on request. Other pesticides may be used, depending on the situation, but not before consulting with and getting approval from Wynmark.

Product	Active Ingredient	EPA Reg. No.	Signal Word
VectoBac G	Bti	73049	caution
Natular XRT	Spinosad	8329-84	caution

Adult mosquito populations are monitored using traps baited with dry ice. Carbon dioxide released from the dry ice attracts female mosquitoes which are caught alive in net bags attached to the fan housing that pulls in the mosquitoes. The trapped mosquitoes are brought back to MVMDSBC's laboratory where they are identified to species and then sent to a University of California laboratory where they are tested for the presence of several types of viruses.

B. Inspection and Treatment Site.

The MVMDSBC surveys the wetland to determine degree of infestation and treats it accordingly. The frequency of surveys and treatments depends on factors including the amount of water present, daily temperatures, weather conditions, the presence of larval mosquitoes, amount of mosquito activity and staff workloads.

The map below shows the wetlands at Girsh Park outlined in yellow. The MVMDSBC typically surveys the wetlands once per month during the mosquito season (April through November) and will apply VectoBac G when larvae exceed threshold levels.

Position	Estimated Hours Worked	Rate/hour	Labor costs
Operations Manager Biologist	2	\$ 124.18	
Vector Control Technician	7	\$ 66.58	\$ 466.06
Vector Control Technician II	5	\$ 88.25	\$ 441.25
Lead Vector Control Technician	2.5	\$ 109.44	\$ 273.60
Vector Biologist Technician	2.5	\$ 115.64	\$ 289.10
Seasonal Vector Control Technician	2	\$ 43.01	\$ 86.02
		Total =	\$ 1,556.03
Material	Estimated Amount Applied	Cost per lb.	Material Costs
VectoBac G	8	3.53	\$ 28.24
Natular XRT	0.2	75.58	\$ 15.12
		Total =	\$ 43.36
One-way distance to Girsh Park* (miles)	Estimated number of visits	Rate/mile**	Mileage Costs
17.8	12	\$ 0.725	\$ 154.86
		Total =	\$ 154.86
		Grand Total =	\$ 1,754.25
*Distance from the District's office to the entrance to the Girsh Park parking lot located at the			
** Standard mileage rate set by the Internal Revenue Service beginning January 1, 2026			

Vector control technicians monitor sites and apply larvicides. The number of treatments may vary depending on site conditions and the amount of mosquito activity. Any deviation from this mosquito management plan will not be implemented without the approval of Wynmark.

The grand total of all costs is not to exceed \$1,754.25 per fiscal year.

The Mosquito and Vector Management District of Santa Barbara County welcomes the opportunity to provide its services to Wynmark and Girsh Park. We appreciate your commitment to protecting the health and quality of life of those enjoying the use of the park and its facilities.

Notice of Exemption

Appendix E

To: Office of Planning and Research
P.O. Box 3044, Room 113
Sacramento, CA 95812-3044

County Clerk

County of: Santa Barbara

1100 Anacapa Street, Suite 1

Santa Barbara, CA 93101

From: (Public Agency): _____
Mosquito & Vector Management District of Santa Barbara County
2450 Lillie Ave, Summerland, CA 93067

(Address)

Project Title: Extension of District's Current Mosquito and Vector Management Practices Under the Existing Memorandums of Understanding and Their Associated Mosquito Management Plans for (1) Santa Barbara Airport, (2) Wynmark, and

Project Applicant: _____

Project Location - Specific:

Santa Barbara Airport; Wynmark; Goleta Santiary District locations included in Attachment

Project Location - City: Cities of Goleta and Santa Barbara Project Location - County: Santa Barbara

Description of Nature, Purpose and Beneficiaries of Project:

Conduct surveying and treatment of mosquito populations to protect public and environmental health at the locations identified in the MOUs (see Attachment A). Surveying is conducted through trapping of adult mosquitoes and inspecting water sources for mosquito larvae. Treatments target larvae in various stages of growth through the use of larvicides.

Name of Public Agency Approving Project: Mosquito & Vector Management District of Santa Barbara County

Name of Person or Agency Carrying Out Project: Mosquito & Vector Management District of Santa Barbara County

Exempt Status: (check one):

- ☒ Ministerial (Sec. 21080(b)(1); 15268);
- ☐ Declared Emergency (Sec. 21080(b)(3); 15269(a));
- ☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- ☒ Categorical Exemption. State type and section number: 14 Cal. Code Regs. §§ 15061, 15304, 15306 - 15309
- ☐ Statutory Exemptions. State code number: _____

Reasons why project is exempt:

Please see Attachment A to this NOE

Lead Agency

Contact Person: Brian Cabrera Area Code/Telephone/Extension: (805) 969-5050

If filed by applicant:

1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? Yes No

Signature: _____ Date: _____ Title: _____

▪ Signed by Lead Agency Signed by Applicant

Authority cited: Sections 21083 and 21110, Public Resources Code.
Reference: Sections 21108, 21152, and 21152.1, Public Resources Code.

Date Received for filing at OPR: _____

Revised 2011

ATTACHMENT A

Extension of District's Current Mosquito and Vector Management Practices Under the Existing Memorandums of Understanding and Their Associated Mosquito Management Plans (the "MOUs") for (1) Santa Barbara Airport ("SBA"), (2) Wynmark, and (3) Goleta Sanitary District ("GSD") until the Board approves the Integrated Mosquito and Vector Management Plan

Not a Project Under CEQA

CEQA Guidelines section 15378 defines a project as the whole of an action with the potential to result in a direct physical change or reasonably foreseeable indirect physical change in the environment. The action here is a continuation of already-authorized practices with no change to the scope, location, volume, intensity, equipment, treatment methods, staffing, or manner of services. It does not commit the District or any other party to a new activity capable of causing a physical change. The action is therefore not a project subject to CEQA under section 15378.

Ministerial Action

CEQA does not apply to "[m]inisterial projects proposed to be carried out or approved by public agencies." (Pub. Resources Code § 21080(a)(1).) Further, "[w]here the law requires a governmental agency to act on a project in a set way without allowing the agency to use its own judgment, the project is called 'ministerial,' and CEQA does not apply." (CEQA Guidelines §15002; see CEQA Guidelines § 15369.) An activity is ministerial if the law governing the agency's decision whether to approve it does not give the agency authority to require that it be modified or rejected in response to its environmental impacts. If the agency does not have such authority, its action is ministerial. (*Central Basin Municipal Water Dist. v. Water Replenishment Dist. of Southern Cal.* (2012) 211 Cal.App.4th 943, 949.)

Under the Mosquito Abatement and Vector Control District Law (Health & Saf. Code §§ 2000–2093) (the "Law"), the Legislature declared its intent "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." (Health & Saf. Code § 2001(c).) The Legislature further found that "[t]he 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.***" (*Id.* at § 2001(b)(3) [emphasis added].)

The Law defines "abate" to mean "to put an end to a public nuisance, or to reduce the degree or the intensity of a public nuisance." (Health & Saf. Code § 2002(a).) A "public nuisance" means any of the following:

ATTACHMENT A

Extension of District's Current Mosquito and Vector Management Practices Under the Existing Memorandums of Understanding and Their Associated Mosquito Management Plans (the "MOUs") for (1) Santa Barbara Airport ("SBA"), (2) Wynmark, and (3) Goleta Sanitary District ("GSD") until the Board approves the Integrated Mosquito and Vector Management Plan

(1) Any property, excluding water, that has been artificially altered from its natural condition so that it now supports the development, attraction, or harborage of vectors. **The presence of vectors in their developmental stages on a property is prima facie evidence that the property is a public nuisance.**

(2) Any water that is a breeding place for vectors. The presence of vectors in their developmental stages in the water is prima facie evidence that the water is a public nuisance.

(3) Any activity that supports the development, attraction, or harborage of vectors, or that facilitates the introduction or spread of vectors.

(Health & Saf. Code §§ 2002(j)(1)-(3) [emphasis added].)

To address these conditions, the Law empowers districts to do all of the following:

(a) Conduct surveillance programs and other appropriate studies of vectors and vectorborne diseases.

(b) Take any and all necessary or proper actions to prevent the occurrence of vectors and vectorborne diseases.

(c) Take any and all necessary or proper actions to abate or control vectors and vectorborne diseases.

(d) Take any and all actions necessary for or incidental to the powers granted by this chapter.

(Health & Saf. Code § 2040.)

As such, once a public nuisance is confirmed, the District has a mandatory duty to abate the nuisance. (See Health & Saf. Code §§ 2040-41, 2060.)

Staff have been treating mosquitoes in the areas listed in the MOUs and the presence of larva and adult mosquitoes is confirmed. At this stage, the District retains no discretion as to whether to abate and, instead, is legally obligated to do so. Implementation of the District's suite of approved treatment methods is therefore ministerial, as it involves carrying out a legal mandate with no further discretionary decision-making by the District.

ATTACHMENT A

Extension of District's Current Mosquito and Vector Management Practices Under the Existing Memorandums of Understanding and Their Associated Mosquito Management Plans (the "MOUs") for (1) Santa Barbara Airport ("SBA"), (2) Wynmark, and (3) Goleta Sanitary District ("GSD") until the Board approves the Integrated Mosquito and Vector Management Plan

If an agency has no discretion in making any decisions regarding an activity, the activity is ministerial and therefore exempt from CEQA whether or not significant environmental impacts will result. (See *Protecting Our Water & Environmental Resources v. County of Stanislaus* (2020) 10 Cal.5th 479, 489, 494.)

Because the District has both a statutory duty and an established procedure for abating mosquito larvae and pupae, the abatement activities here are ministerial and categorically exempt from CEQA review.

Categorical Exemptions

The District's activities are exempt under Class 4 (Minor Alterations to Land), Class 6 (Information Collection categorical exemption per § 15306 of the State Guidelines for Implementation of the California Environmental Quality Act (CEQA), Class 7 (Action by Regulatory Agencies for Protection of Natural Resources), Class 8 (Action by Regulatory Agencies for Protection of the Environment), Class 9 (Inspections), and Public Recourses Code § 21080(b)(4) and CEQA Guidelines § 15269(c) as an emergency project necessary to prevent or mitigate an emergency.

Class 4 consists of minor public or private alterations in the condition of land, water, and/or vegetation which do not involve the removal of healthy, mature, scenic trees except for forestry or agricultural purposes. The District's activities are within the scope of this exemption which may include disturbance of minor vegetation or sediment in creeks and other natural channels, agricultural irrigation and drainage ditches, other ditches and flood control channels, storm water retention basins, waste water ponds, spreading grounds, and other environments to assist in preventing the breeding of mosquitoes.

Class 6 consists of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. The District's activities are within the scope of this exemption because it consists of surveying specific areas to collect data on mosquito populations and vector-borne diseases, and will not result in a serious or major disturbance to any environmental resource.

Class 7 consists of actions taken by regulatory agencies as authorized by state law or local ordinance to assure the maintenance, restoration, or enhancement of a natural resource where the regulatory process involves procedures for protection of the environment. The

ATTACHMENT A

Extension of District's Current Mosquito and Vector Management Practices Under the Existing Memorandums of Understanding and Their Associated Mosquito Management Plans (the "MOUs") for (1) Santa Barbara Airport ("SBA"), (2) Wynmark, and (3) Goleta Sanitary District ("GSD") until the Board approves the Integrated Mosquito and Vector Management Plan

District's activities fall within this exemption because it involves detailed procedures for the protection of the environment by controlling mosquito populations and vector-borne diseases that impact the wildlife in the area.

Class 8 consists of actions taken by regulatory agencies, as authorized by state or local ordinance, to assure the maintenance, restoration, enhancement, or protection of the environment where the regulatory process involves procedures for protection of the environment. The District's activities fall within this exemption because it involves detailed procedures for the protection of the environment by controlling mosquito populations and vector-borne diseases that impact the wildlife in the area.

Class 9 consists of activities limited entirely to inspections to check for performance of an operation, or quality, health, or safety of a project. The District's activities fall within this exemption because it involves inspections for the presence of vectors at the Santa Barbara Airport, and other activities to determine the efficacy of specific control operations.

Exceptions to the Exemptions Do Not Apply

Although the MOU includes activities within a marine protected area ("MPA"), the location exception under CEQA Guidelines § 15300.2(a) does not bar reliance on the categorical exemptions cited. The proposed activities are routine, limited in scope, and specifically designed to avoid impacts on sensitive habitats. Moreover, the District has incorporated protective measures to ensure environmental resources are not adversely affected.

Staff further finds that no other exceptions to categorical exemptions apply under CEQA Guidelines § 15300.2. The activities will not result in cumulative impacts, involve unusual circumstances, affect scenic highways, be conducted on a hazardous waste site, or impact historical resources. In addition, the statutory exemptions cited above independently apply, given that the activities address urgent public health and safety concerns associated with vector-borne disease.

Common Sense Exemption

The proposed amendment to the MOUs are exempt from CEQA under the common-sense exemption set forth in CEQA Guidelines section 15061(b)(3). The action does not authorize any new services, activities, operational changes, facilities, or physical improvements. Rather, it merely extends the existing MOUs and updates the compensation rates applicable to services that are already being provided. Because this will not result in any

ATTACHMENT A

Extension of District's Current Mosquito and Vector Management Practices Under the Existing Memorandums of Understanding and Their Associated Mosquito Management Plans (the "MOUs") for (1) Santa Barbara Airport ("SBA"), (2) Wynmark, and (3) Goleta Sanitary District ("GSD") until the Board approves the Integrated Mosquito and Vector Management Plan

Attachments:

Exhibit 1 – MOUs

ATTACHMENT A

Extension of District's Current Mosquito and Vector Management Practices Under the Existing Memorandums of Understanding and Their Associated Mosquito Management Plans (the "MOUs") for (1) Santa Barbara Airport ("SBA"), (2) Wynmark, and (3) Goleta Sanitary District ("GSD") until the Board approves the Integrated Mosquito and Vector Management Plan

EXHIBIT 1

General Manager's Report for July 2026

- Website visit data from the District's Google Analytics account:

Top ten locations in California where visitors to the website were viewing from:

City	Active	New
Los Angeles	155	143
Santa Barbara	118	101
Goleta	40	38
San Jose	27	24
San Francisco	14	14
Anaheim	12	6
Santa Maria	12	11
Sacramento	8	8
Eastern Goleta Valley	7	6
Summerland	7	1
Total =	400	352
Not set*	127	119

* Not set means the users browser settings do not allow the city of origin to be identified.

Other locations: Ventura (7, 7); Carpinteria (6, 6); Orcutt (3, 2); Montecito (5, 5); Camarillo (2, 2); Oxnard (2, 2)

Top Ten pages on the website visited in July:

		 Views	Active users	Views per active user	Average engagement time per active user
Total		2,606 100% of total	1,824 100% of total	1.43 Avg 0%	26s Avg 0%
1	/	448 (17.19%)	315 (17.27%)	1.42	19s
2	/mosquito-hawks-giant-mosquitoes-nope-they-re-crane-flies	371 (14.24%)	342 (18.75%)	1.08	23s
3	/invasive-aedes-aegypti-mosquitoes-have-been-found-in-carpinteria	258 (9.9%)	199 (10.91%)	1.30	36s
4	/district-services	124 (4.76%)	106 (5.81%)	1.17	17s
5	/contact-us	85 (3.26%)	68 (3.73%)	1.25	47s
6	/employment-opportunity-operations-manager-biologist	62 (2.38%)	49 (2.69%)	1.27	30s
7	/board-meetings	57 (2.19%)	40 (2.19%)	1.43	25s
8	/australian-backyard-mosquito-more-of-these-non-native-mosquitoes-have-been-found-in-santa-barbara-county	51 (1.96%)	43 (2.36%)	1.19	57s
9	/about-us	47 (1.8%)	41 (2.25%)	1.15	31s
10	/mosquitoes-of-santa-barbara-county	44 (1.69%)	33 (1.81%)	1.33	1m 37s

Item 3: The blank line with only the / means this is the Home page.

2. Instagram post @mosquitosantabarbara on July 4, 7, 12, 15, 16, 17, 22:

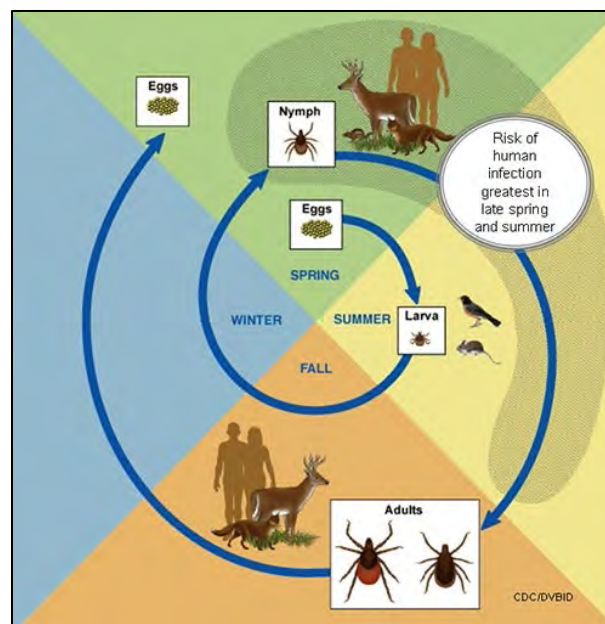
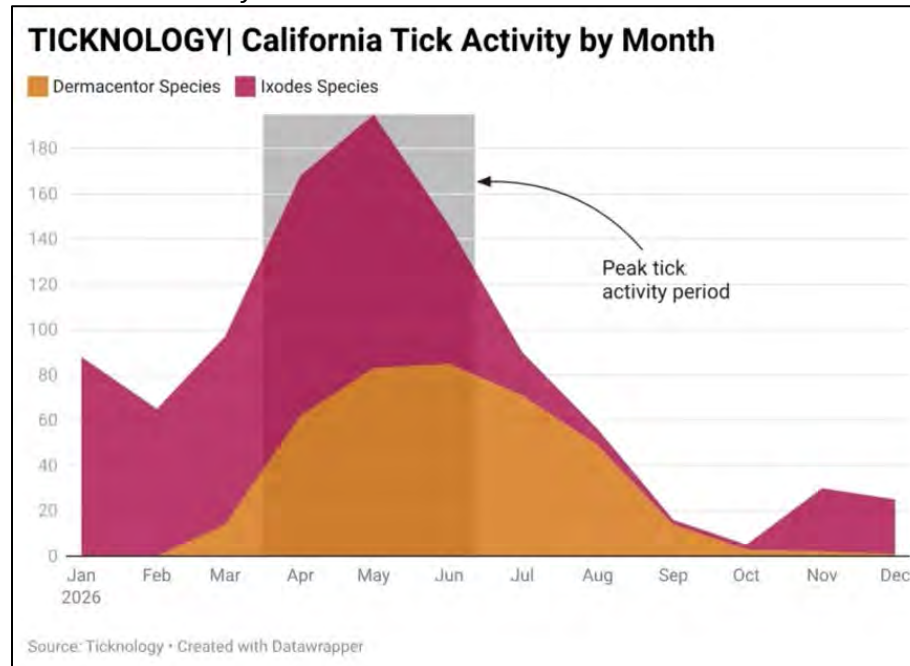


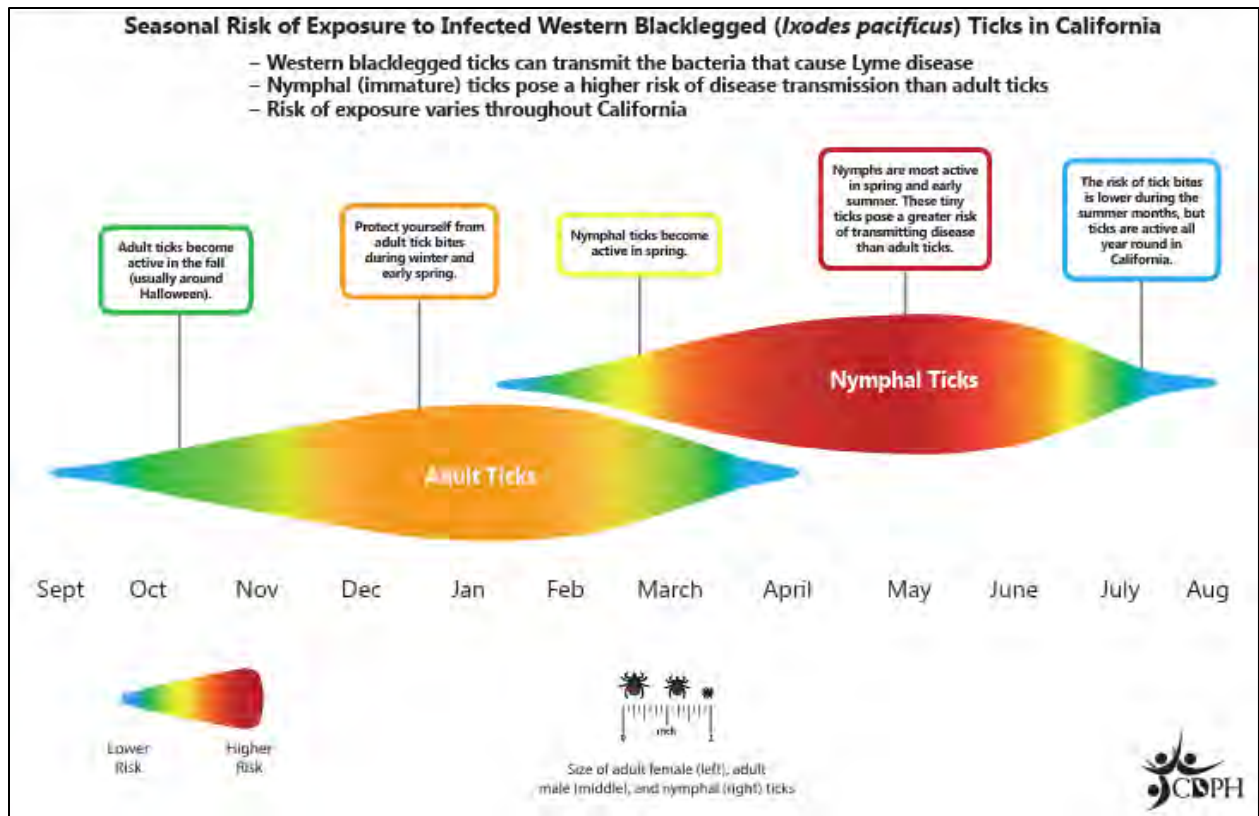
3. Two posts were made to the District's Nextdoor Neighborhoods account:

Date	Topic	Number of Impressions*
7/11	Australian backyard mosquito found on the Mesa	9,946
7/16	Aedes aegypti found in Carpinteria	4,582

*As of August 13. Impressions are the number of unique views of the post plus the number of unique opens and clicks of any email notifications that members receive, which can include links to the District's posts

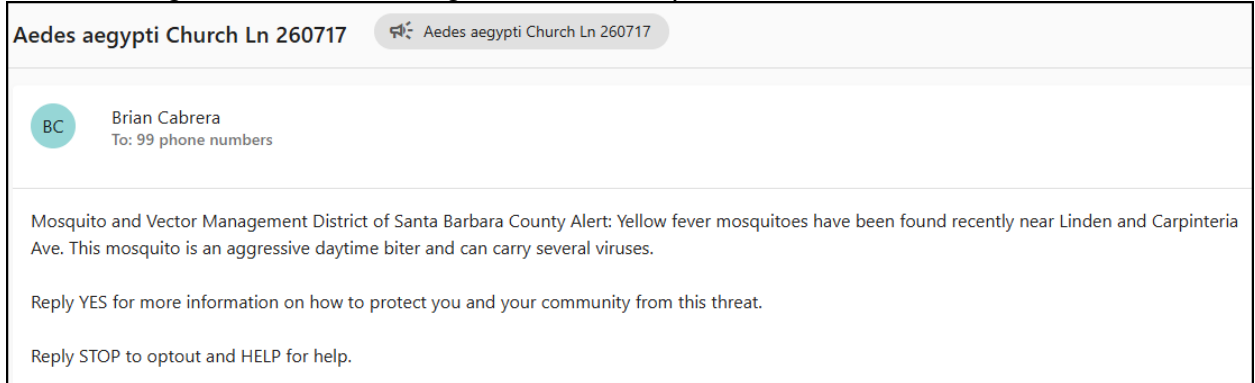
4. Information on tick activity in the summer:





Santa Barbara County Ticks				
Tick species	Adult female	Adult Male	Nymph	Possible diseases transmitted
<i>Ixodes pacificus</i> (Western black-legged tick)				-Lyme disease -Anaplasmosis -Hard tick relapsing fever
<i>Dermacentor similis</i> (Western American dog tick)				-Rocky Mountain and related spotted fevers -Tularemia
<i>Dermacentor occidentalis</i> (Pacific Coast tick)				-Pacific Coast fever - Rocky Mountain and related spotted fevers -Tularemia

5. *Aedes aegypti* found in Carpinteria on 7/14.
6. GM Cabrera and K. Schultz and attended the virtual meeting of the Goleta Slough Management Committee on 7/16.
7. K. Schultz and J. Sprigg viewed a recording of an American Mosquito Control Association (AMCA) webinar on "Planning for High-Impact Mosquito Control Communications". 7/17.
8. GM Cabrera sent a text alert on 7/17 via the Ascendant app to 99 mobile numbers in the immediate vicinity of the *Ae. aegypti* find in Carpinteria. Of those sent, 93 went through successfully, 4 recipients opted out and 13 responded for more information. The remaining received the message but did not respond.



9. K. Schultz viewed a recording of a U.S. Centers for Disease Control webinar, "Canine Leishmaniasis Risk Assessment in the U.S." (leishmaniasis is a skin parasite transmitted by sand flies; there are also human versions of this disease). 7/22.
10. K. Schultz attended the Mosquito & Vector Control Association of California Southern Region quarterly meeting on 7/27.
11. V. Ibarra, J. Sprigg and K. Schultz attended the AMCA webinar, "What you need to know about using Wolbachia to control mosquitoes." 7/30/26.

Upcoming:

1. MVCAC Southern Region Integrated Vector Management Working Group meeting at the Orange County Mosquito & Vector Control District. 7/26
2. Labor Day. Office closed on Sep. 7.