

Summary

This summary of the San Mateo County Mosquito and Vector Control District's Programmatic Environmental Impact Report (PEIR) on the enhancement of their ongoing Integrated Mosquito and Vector Management Program (IMVMP or Program) presents an overview of the PEIR contents. It introduces key components of the Proposed Program (hereinafter defined) and provides a summary of the potential environmental impacts of the Program components and alternatives. The text of the PEIR is supplemented by five technical reports and responses to comments on the March 2016 Draft PEIR, included as appendices. The District, as Lead Agency under the California Environmental Quality Act (CEQA), has prepared this revised PEIR to provide an up-to-date, transparent, and comprehensive evaluation of the District's Comprehensive program of surveillance and control of mosquitoes and other vectors of human disease and discomfort. This PEIR will serve as an overarching CEQA framework for efficient and proactive implementation of its Program activities. As part of this effort, the District's ongoing activities and proposed enhancements are now incorporated into their IMVMP Plan. This PEIR is intended to provide the public, responsible agencies, and trustee agencies with information about the potential environmental impacts of the Proposed Program (i.e., the IMVMP Plan).

S.1 Background

The District was established in 1913 to reduce the risk of vector-borne disease and discomfort to the residents of its Service Area. The District engages in activities and management practices to control mosquitoes and other vectors and to address specific situations within its Service Area (i.e., San Mateo County). These management practices emphasize the fundamentals of Integrated Pest Management (IPM), specifically Integrated Vector Management (IVM) wherein source reduction, habitat modification, and biological control are used when appropriate before using pesticides (i.e., herbicides, insecticides, and rodenticides). When pesticides are used, they are applied in a manner that minimizes risk to human health and ecological health. Avoiding or managing the risk to human and animal health requires effective vector-borne disease surveillance and control strategies that may fluctuate temporally and regionally. Factors that influence the strategies selected include mosquito and pathogen biology, environmental factors, land use patterns, and resource availability to support production of the vectors in quantities that threaten human and animal health.

S.1.1 Vector-Borne Diseases in Program Area

Certain vectors can transmit a number of diseases. A vector is defined by the State of California as "any animal capable of transmitting the causative agent of human disease or capable of producing human discomfort or injury, including, but not limited to, mosquitoes, flies, mites, ticks, other arthropods, and rodents and other vertebrates..." [California Health and Safety Code Section 2002(k)]. The diseases of most concern in the PEIR Program Area are as follows, by the vector they are associated with:

- > **Mosquito-transmitted illnesses:** West Nile virus (WNV), western equine encephalomyelitis (WEE), Saint Louis encephalitis (SLE), dog heartworm, malaria, and myxomatosis
- > **Tick-transmitted illnesses:** Lyme disease, babesiosis, ehrlichiosis, tularemia, spotted fever group *Rickettsia* (including Rocky Mountain Spotted Fever and *Rickettsia philippi*).
- > **Rodent/rat-transmitted illnesses:** leptospirosis, hantavirus pulmonary syndrome (HPS), tularemia, plague
- > **Other vector-transmitted illnesses:** rabies transmitted by skunks, plague and murine typhus transmitted by fleas (usually on rats), raccoon roundworm

Depending on the disease, both human and domestic animal health can be at risk of disability, illness, and/or death. Furthermore, potential exists for introduction and transmission of new diseases by current vectors and for new disease vectors to be introduced into the District's Service Area. An example of this is the recent discovery of *Aedes albopictus* (i.e., Asian tiger mosquito) and *Aedes aegypti* (i.e., yellow fever mosquito) mosquitoes in central and southern California and *Aedes aegypti* in San Mateo County. These mosquito species are known to be vectors of diseases such as Chikungunya virus, yellow fever, Dengue fever, and Zika virus.

S.1.2 Authority to Implement Vector Control

A number of legislative and regulatory actions form the basis for the District's authority to engage in vector control. The District's principal authority is derived from the California Health and Safety Code. The District is an independent special district formed pursuant to California Health and Safety Code Section 2000 *et seq.* **State law charges the District with the authority and responsibility to take all necessary or proper steps for the control of mosquitoes and other vectors in the District.** The Legislature characterized this role of protecting against vector-borne diseases as an essential public service that is vital to public health, safety, and welfare.

Any of the District's activities are carried out on public property or on private property with the permission of the owner or tenant. The District may also implement its Program on private property, even without consent, in accordance with California Health and Safety Code Section 2053:

- (a) A district may request an inspection and abatement warrant pursuant to Title 13 (commencing with Section 1822.50) of Part 3 of the Code of Civil Procedure. A warrant issued pursuant to this section shall apply only to the exterior of places, dwellings, structures, and premises. The warrant shall state the geographic area which it covers and shall state its purposes. A warrant may authorize district employees to enter property only to do the following:
 - (1) Inspect to determine the presence of vectors or public nuisances.
 - (2) Abate public nuisances, either directly or by giving notice to the property owner to abate the public nuisance.
 - (3) Determine if a notice to abate a public nuisance has been complied with.
 - (4) Control vectors and treat property with appropriate physical, chemical, or biological control measures.
- (b) Subject to the limitations of the United States Constitution and the California Constitution, employees of a district may enter any property, either within the district or property that is located outside the district from which vectors may enter the district, without hindrance or notice for any of the following purposes:
 - (1) Inspect the property to determine the presence of vectors or public nuisances.
 - (2) Abate public nuisances pursuant to this chapter, either directly or by giving notice to the property owner to abate the public nuisance.
 - (3) Determine if a notice to abate public nuisance has been complied with.
 - (4) Control vectors and treat property with appropriate physical, chemical, or biological control measures.

The California Department of Pesticide Regulation's (CDPR's) Pesticide Regulatory Program provides special procedures for vector control agencies that operate under a Cooperative Agreement with the California Department of Public Health (CDPH). The application of pesticides by vector control agencies is regulated by a special and unique arrangement among the CDPH, CDPR, and County Agricultural Commissioners. CDPR does not directly regulate vector control agencies, rather it provides for the proper,

safe, and efficient use of pesticides by registering products after confirming that, when used in conformance with its labeling, it is effective and will not harm human health or the environment. CDPH provides regulatory oversight for vector control agencies that are signatory to the Cooperative Agreement. Signatories to the agreement use only pesticides listed by CDPH, maintain pesticide use reports, and ensure that pesticide use does not result in harmful residues on agricultural products.

The District maintains a cooperative agreement with CDPH (SMCMVCD 2017). Its employees are certified by CDPH as vector control technicians, which helps to ensure that employees are adequately trained regarding safe and proper vector control techniques including the handling and use of pesticides and compliance with laws and regulations relating to vector control and environmental protection.

S.2 Overview of the Proposed Program

S.2.1 Program Objectives and Purpose

The overarching goal of the Program is to protect the public from disease, discomfort, and injury caused by mosquitoes and other vectors. The District currently undertakes mosquito and vector control activities through its Program to control and educate the public on the following vectors of disease and/or discomfort in the Program Area: mosquitoes, cockroaches, fleas, flies, rats, mice, ticks, yellow jackets, Africanized honeybees, other stinging/biting insects including mites and bed bugs, nuisance wildlife (skunks, raccoons, opossum, and ground squirrels), and noxious/invasive weeds (**Existing Program**). The District proposes to enhance its Program with additional chemical and nonchemical treatment and application methods and to address additional vectors of concern to ensure these same objectives can be met into the future (**Proposed Program**).

The Existing and Proposed Program's specific objectives are as follows:

- > Protect public health by reducing the potential for human and animal disease caused by mosquitoes and other vectors
- > Protect public health by reducing the potential for human and animal discomfort or injury from mosquitoes and other vectors
- > Accomplish effective, reasonably cost-efficient and environmentally sound mosquito and vector management and control by means of:
 - Monitoring and surveying for vector presence, abundance, disease prevalence in vectors, human and animal contact or potential for human and animal contact;
 - Monitoring and surveying for vector-borne diseases and their antecedent factors that initiate and/or amplify disease;
 - Establishing treatment criteria; and
 - Appropriately selecting from a wide range of Program tools or components to address a wide range of mosquitoes and other vectors and implementing them to protect public health and safety.

Most of the relevant vectors are quite mobile and cause the greatest hazard or discomfort at a distance from where they breed. Each potential vector has a unique life cycle and most of them occupy several types of habitats. To effectively manage and control them, an IMVMP must be employed. District policy is to identify those species that are currently vectors, to recommend techniques for their prevention and control, and to anticipate and minimize any new interactions between vectors and humans.

S.2.2 Program Area

The District implements its Program primarily within the jurisdiction of San Mateo County (Service Area). Because the Proposed Program activities have the potential to affect adjacent jurisdictions and the District could be called upon to perform services in neighboring counties, the Program Area that is analyzed in the PEIR includes the Service Area and immediately adjacent San Francisco, Santa Cruz, and Santa Clara counties.

S.2.3 Nature of the Discretionary Action Considered in the PEIR

The Existing Program is ongoing and currently is implemented pursuant to existing CEQA authorizations: *Final Mitigated Negative Declaration and Initial Study, Integrated Vector Management Program, San Mateo County Mosquito Abatement District*, November 27, 2002 (SMCMAD 2002a). This PEIR is intended to build on these existing CEQA documents, by updating and integrating them into a single, comprehensive analysis that provides CEQA compliance for all of the existing and future Proposed Program activities, described in Chapter 2, even though CEQA only legally mandates an analysis of the proposed changes to the Existing Program. The discretionary action by the Board of Trustees is whether to authorize the proposed IMVMP enhancement activities that are not part of the current Program, i.e., the new activities not previously conducted or the additional enhancements and equipment under the Physical Control, Vegetation Management, Chemical Control, and Nonchemical Control/Trapping Components and Public Education.

The District's Board of Trustees will use the PEIR in deciding whether to approve, approve with modifications, or deny the Proposed IMVMP Plan, which describes both the existing activities and the enhancements designed to make the District more effective in achieving its mission. This PEIR is intended to meet CEQA requirements for the District's reasonably foreseeable mosquito and vector control activities. The Proposed Program does not attempt to capture all potential future Program activities, only those that are reasonably foreseeable based on existing information. This PEIR builds on existing CEQA documents for ongoing Program activities. It also updates and integrates the various activities into a comprehensive IMVMP Plan and provides a consolidated set of best management practices (BMPs) and mitigation measures, using the most current technology and scientific information. If the Board approves the Proposed IMVMP Plan, these BMPs and mitigation measures will replace those identified in prior CEQA documents and will serve as a comprehensive management framework for implementation of the Proposed Program activities.

Finally, the PEIR will be used for subsequent CEQA evaluation, for both project-level mosquito and vector management activities and program-level compliance for newly developed management approaches/tools or other Program activities, such as newly identified types or species of mosquitoes. Use of the PEIR to facilitate CEQA compliance for individual activities and program components will enable the District to respond consistently with its goals of rapid response and minimizing risk to human health and environmental resources.

S.2.4 Health Assessment

The characteristics of the chemical applications that may be used for IMVMP activities under the Proposed Program were analyzed in the Ecological and Human Health Assessment Report (Appendix B). These assessments were based on a literature review of the active ingredients in the chemical formulations used for vector control including each ingredient's environmental fate, both human and ecological toxicity, and ecological toxicity associated with ultralow volume (ULV) application for mosquito abatement. The PEIR chapters relied on Appendix B and an assessment of the chemical use in the physical environment (by a toxicologist) following District procedures and concluded that, if chemicals are used as described in the Proposed Program, they would not pose a human health risk of harm to workers or others who may be exposed to these chemicals. Although impacts to ecological receptors were determined to be possible, these impacts were not expected to be significant in light of the District's BMPs

that control the application methods and procedures. For a more complete description of the assessment of potential impacts to ecological health and human health, please refer to Chapters 6 and 7, respectively.

S.3 Public Involvement Summary

Public involvement for this PEIR includes the following actions.

The San Mateo County Mosquito and Vector Control District (District) distributed a Notice of Preparation (NOP) of a Draft PEIR for the Integrated Mosquito Management Program (Program) pursuant to CEQA Guidelines (Section 15082) on May 21, 2012. The NOP was sent to 225 agencies, organizations, and individuals, including the following state responsible and trustee agencies:

- > California Highway Patrol
- > Caltrans District 4
- > Coastal Commission
- > Coastal Conservancy
- > Department of Fish and Wildlife, Region 3
- > Department of Parks and Recreation
- > Department of Pesticide Regulation
- > Department of Public Health
- > Department of Toxic Substances Control
- > Department of Transportation
- > Department of Water Resources
- > Division of Forestry
- > Native American Heritage Commission
- > Office of Historic Preservation
- > Resources Agency
- > San Francisco Regional Water Quality Control Board (SFBRWQCB)
- > State Clearinghouse
- > State Lands Commission
- > State Water Resources Control Board

The NOP provided a description of the Program, the location of Program activities, and the resources and environmental concerns planned for analysis in the PEIR. The NOP announced a public scoping meeting and requested submittal of comments on the content of the PEIR and the Program alternatives within 30 days of receipt. One public scoping meeting was held at the following location and time:

- > City of San Bruno Public Library, San Bruno, California on June 19, 2012, at 5:30 p.m.

Comments received during scoping on the content of the PEIR are addressed in the resource chapters. Comments received on the first Draft PEIR (March 2016) are addressed in Appendix F, Responses to Comments, with changes incorporated into the revised Draft PEIR text as appropriate.

A Notice of Availability of a second (revised) Draft PEIR is being made available to 241 public agencies, and to other organizations and individuals on the District's revised mailing list (see Section 1.3.5). A public hearing is being held to take comments on this revised Draft PEIR as follows: August 22, 2018, from 3:00 pm to 5:00 pm, at: the Veterans Memorial Recreation Center, Community Room, 251 City Park Way, San Bruno, CA 94066.

S.4 Areas of Known Public Concern

CEQA Guidelines Section 15123 requires that the Summary "shall identify areas of controversy known to the lead agency." The areas of greatest public controversy based on comments from public scoping and comments made during other District activities are:

- > **Use of Pesticides for Vector Control:** Members of the public can be distrustful of pesticide use for vector control. Some prefer other methods to eliminate suitable habitat to deal with mosquito problems rather than spraying pesticides. Concern exists about pesticide applications drifting into backyards where the property owner wants to ensure their area is pesticide-free. The concern is not only with impacts to humans and "sensitive populations" but also to domestic animals and wildlife including nontarget insects.

- > **Use of Herbicides for Vegetation Management:** The District receives requests for specific vegetation management information about the proposed chemical vegetation control agents (herbicides); the types, amounts and locations of chemicals stored; application methods and rates; and their effects on the environment. The concern is with the potential environmental and health impacts of herbicides.
- > **Use of Biological Control Agents:** Controversy exists over the use of some proposed biological control agents, in particular the use of mosquitofish and potential for them to impact special-status species such as the California red-legged frog.
- > **District's Authority to Enter Property for Control Activities:** Some public agencies want the District to obtain an Encroachment Permit with notification of Park Supervisors for activities such as surveillance, physical control, or vegetation management where access to parkland is needed. Water districts insist that mosquito abatement materials and practices proposed for use on watershed lands must be thoroughly vetted and approved by CDPH. New legislation in 2014 (AB 896) clarified responsibilities of the California Department of Fish and Wildlife ((CDFW) and the District to engage in mosquito abatement in CDFW owned and/or managed wildlife refuges. See Section 1.1.3 for the authority to enter private property.

S.5 No Program

CEQA Guidelines Section 15126.6(a) requires analysis of a no project alternative in the draft EIR. No Project is defined as what would reasonably be expected to occur in the foreseeable future, based on current plans and consistent with available infrastructure and community services, if the project was not approved and implemented. Under CEQA, "when the project is a continuation or revision of an existing land use or regulatory plan, policy of operation, the 'no project' alternative will be the continuation of the existing plan, policy or operation into the future" (Section 15126.6 (e)(3)(a)). For CEQA purposes, the Proposed Program would only be those activities not part of the Existing Program, i.e., the new activities not previously conducted. Therefore, the No Program Alternative would be a continuation of the Existing Program without the additional enhancements under the Physical Control, Vegetation Management, Chemical Control, and Nonchemical Control/Trapping Components. For the District, the No Program Alternative is to continue all of its current nonchemical and chemical treatment activities conducted in whole or in part since 2002 and to not add chemical and nonchemical treatment and application equipment/methods or address additional vectors of concern.

Because the Program enhancements are designed to address future problems that may or may not occur, and the previous CEQA documentation (Mitigated Negative Declaration and Initial Study, SMCMD 2002a) on the Existing Program is dated, the District decided that the text of the PEIR would better serve the purposes of CEQA by addressing the environmental impacts of both the current and future Program components in a comprehensive manner, even though the District is only required by CEQA to evaluate the new/future activities.

The No Program Alternative has all of the same impacts as the Proposed Program (existing plus future activities) with one exception. It does not have the significant and unavoidable impact to surface water quality associated with the future use of naled. Naled is effective against other mosquitoes that may become resistant to the pyrethrins and pyrethroids. Naled has been used successfully in Florida in 2016 to treat the mosquito *Aedes aegypti* that was infected with the Zika virus. Therefore, in order to meet the Program objective of reducing the potential for human and animal disease, the District needs this new chemical option in its Proposed Program.

S.6 Proposed Program Summary

S.6.1 Proposed Program

The District has, for at least the past 100 years, taken an integrated systems approach to mosquito and vector control, utilizing a suite of tools that consist of surveillance, vegetation management, and physical, biological, and chemical controls along with public education. These Program “tools” are described herein as “Program Components” for the subsequent impact analyses for resource and environmental topics of the CEQA process. Program implementation is weighted heavily towards vegetation management and physical and biological control, in part, to reduce the potential for environmental impacts and the need for chemical control. To realize effective and environmentally sound vector management, vector control must be based on several factors:

1. Monitoring and surveying for vector presence, abundance, disease prevalence in vectors, human and animal contact or potential for human and animal contact;
2. Monitoring and surveying for vector-borne diseases and their antecedent factors that initiate and/or amplify disease;
3. Establishing treatment criteria; and
4. Appropriately selecting appropriate tools from a wide range of Program tools or components to address a wide range of mosquitoes and other vectors and implementing them to protect public health and safety.

This Program consists of a dynamic combination of surveillance, treatment criteria, and use of multiple control activities in a coordinated program with public education that is generally known as Integrated Pest Management (IPM) or specifically for the District as Integrated Vector Management (IVM).

While these Program components combined together encompass the District’s IMVMP, it is important to acknowledge that the specific tools District staff use vary from day to day and from site to site in response to the vector species that are active, their population size or density, their age structure, location, time of year, local climate and weather, potential for vector-borne disease, proximity to human populations, including: (a) proximity to sensitive receptors, (b) District staff’s access to vector habitat, (c) abundance of natural predators, (d) availability and cost of control methods, (e) effectiveness of previous control efforts at the site, (f) potential for development of resistance in vector populations, (g) landowner policies or concerns, (h) proximity to special-status species, (i) applicability of Endangered Species Recovery Plans, Habitat Conservation Plans (HCPs), Natural Community Conservation Plans (NCCPs), and (j) local community concerns, among other variables. Therefore, the specific actions taken in response to current or potential vector activity at a specific place and time depend on factors of vector and pathogen biology, physical and biotic environment, human settlement patterns, local standards, available control methods, and institutional and legal constraints. While some consistent vector sources are exposed to repeated control activity, many areas with minor vector activity are not routinely treated, and most of the land within the District’s Service Area has never been directly treated for vectors.

The District has implemented a number of procedures and BMPs under Existing Program activities that would continue into the future for the Proposed Program. These BMPs represent tested and proven environmentally protective measures to avoid and/or minimize potential adverse effects on the human, biological, and physical environments and District Staff. They are environmental protection actions that modify physical components of the Program. These BMPs are an integral feature of the Program because they are already in use, part of Program implementation, and cannot be separated from the Existing Program. The BMPs would continue to be used as part of the Proposed Program. They have evolved over many years based on product label requirements, US Army Corps of Engineers and National Pollutant Discharge Elimination System permit requirements, consultations with resource agency biologists and engineers and other vector control agencies, the District’s worker safety and spill/hazard

prevention plans, and publications by CDPH and Mosquito Vector Control Association of California. In short, the District's BMPs are preexisting measures adopted and implemented as part of normal vector management operations. For the Proposed Program, the environmental impact assessments in this PEIR identify potential environmental concerns or impacts, and then the analyses of those impacts reflect the continued use of these measures. Measures not currently employed that were identified during the preparation of this PEIR to mitigate significant impacts are identified as specific mitigation measures, not as BMPs.

The BMPs are organized under the following categories and are listed under Table 2-8 (Section 2.7):

- > General
- > Tidal Marsh-Specific
- > Salt Marsh Harvest Mouse (SMHM)
- > Ridgway's Rail (RIRA)
- > California Red-Legged Frog (CRLF), Western Snowy Plover (WSP), California Tiger Salamander (CTS), San Francisco Garter Snake (SFGS), and Steelhead - Central California Coast
- > Vegetation Management
- > Maintenance / Construction and Repair of Channels, Tide Gates, and Water Structures in Waters of the US and State
- > Applications of Pesticides, Surfactants, and/or Herbicides
- > Hazardous Materials and Spill Management
- > Worker Illness and Injury Prevention Program and Emergency Response.

The District anticipates combining the following ongoing activities into its Proposed Program, a continuation of its Existing Program with adaptations to meet future needs. The six technical Program components evaluated in this PEIR are summarized below and supplemented with a public education component in the environmental impact analysis. Alternative Programs considered in the PEIR (besides the No Program Alternative) include a Reduced Chemical Control Component Program, a Reduced Vegetation Management Component Program, and a No Chemical Control Component Program (see Section 15.5).

S.6.1.1 Surveillance

Vector surveillance, which is an integral part of the District's responsibility to protect public health and welfare, involves monitoring vector populations and habitat, their disease pathogens, and human/vector interactions. Vector surveillance provides the District with valuable information on what vector species are present or likely to occur, when they occur, where they occur, how many they are, and if they are carrying disease or otherwise affecting humans. Vector surveillance is critical to the District's IMVMP because the information it provides is evaluated against treatment criteria to decide when and where to institute vector control measures. Information gained is used to help form action plans that can also assist in reducing the risk of contracting disease. Equally important is the use of vector surveillance in evaluating the efficacy, cost effectiveness, and environmental impacts of specific vector control actions. Examples include field counting/sampling and trapping, arbovirus surveillance, field inspection of known or suspected habitats, maintenance of paths and clearings, and analysis of public service inquiries and requests.

New surveillance activities proposed for the District's IMVMP Plan involve testing the following animals for murine typhus: squirrels, opossums, and skunks and their fleas.

S.6.1.2 Physical Control

Physical control is managing vector habitat to reduce vector production through “source control” measures that are nonchemical or nonbiological techniques. In many cases, physical control activities involve restoration and enhancement of natural ecological functioning. For mosquitoes, these activities include, but are not limited to, water management and maintenance of channels, tide gates, levees, and other water control facilities to improve water circulation. Physical control is usually the most effective mosquito control technique because it provides a long-term solution by reducing or eliminating mosquito development sites and ultimately reduces and potentially eliminates the need for chemical applications. Physical control for other vertebrate vectors is based on sanitation, exclusion, and blocking access but may include removal by trapping.

New physical control activities involve the use of heavy equipment (such as an excavator or tractor) to enhance circulation in wetland channels within saline and brackish habitats.

S.6.1.3 Vegetation Management

The species composition and density of vegetation are basic elements of the habitat value of any area for mosquitoes and other vectors, for predators of these vectors, and for protected flora and fauna. District staff periodically undertake vegetation management activities as a tool to reduce the habitat value of sites for mosquitoes and other vectors or to aid production or dispersal of vector predators, as well as to allow District staff’s access to vector habitat for surveillance and other control activities. District staff’s direct vegetation management generally consists of activities to reduce the mosquito habitat value of sites by improving water circulation or access by fish and other predators, or to allow District staff’s access to standing water for inspections and treatment. For vegetation management, the District regularly uses hand tools for trimming in creeks or may use other mechanical means in the future (i.e., heavy equipment) for vegetation removal or thinning and sometimes applies herbicides (chemical pesticides with specific toxicity to plants) under the cooperating agencies’ permitting to improve surveillance or reduce vector habitats. Vegetation removal or thinning primarily occurs in aquatic habitats to assist with the control of mosquitoes and in terrestrial habitats to help with the control of other vectors.

New vegetation management activities involve the use of heavy equipment for vegetation removal or thinning and the use of additional herbicides. The additional herbicides under study for future use include 15 products designed for terrestrial or aquatic applications (see Table 2-1).

S.6.1.4 Biological Control

Biological control of mosquitoes and other vectors involves the intentional use of vector pathogens (diseases), parasites, and/or predators to reduce the population size of target vectors.

Pathogens

Mosquito pathogens are highly host-specific and usually infect mosquito larvae when they are ingested. Upon entering the host, these pathogens multiply rapidly, destroying internal organs and consuming nutrients. Examples of bacteria pathogenic to mosquitoes are *Bacillus sphaericus* (Bs), the several strains of *Bacillus thuringiensis israelensis* (Bti), and *Saccharopolyspora spinosa*. Two bacteria, Bs and Bti, produce proteins that are toxic to most mosquito larvae, while *Saccharopolyspora spinosa* produces compounds known as spinosyns, which effectively control all larval mosquitoes. Bs can reproduce in natural settings for some time following release; it can be spread to other mosquito larvae when larval tissue disintegrates and the spores are released into the water to be ingested by uninfected larvae. Bti materials the District applies do not contain live organisms, but only spores made up of specific protein molecules. Pathogens are evaluated in the PEIR under the Chemical Control Component.

Predators

Mosquito predators are represented by highly complex organisms, such as insects, fish, birds, and bats that consume larval or adult mosquitoes as prey. Predators are opportunistic in their feeding habits and typically forage on a variety of prey types, which allows them to build and maintain populations at levels sufficient to control mosquitoes, even when mosquitoes are scarce. Examples of mosquito predators include representatives from a wide variety of taxa: coelenterates, *Hydra* spp.; platyhelminthes, *Dugesia dorotocephala*, *Mesostoma lingua*, and *Planaria* spp.; insects, *Anisoptera*, *Zygoptera*, *Belostomatidae*, *Gerridae*, *Notonectidae*, *Veliidae*, *Dytiscidae*, and *Hydrophilidae*; arachnids, *Pardosa* spp.; mosquitofish, *Gambusia affinis*, *Gasterosteus aculeatus*; bats; and birds, *anseriformes*, *apodiformes*, *charadriiformes*, and *passeriformes*. Only mosquitofish are commercially available to use at present.

The District's application of mosquitofish in mosquito habitat is the most commonly used biological control agent for mosquitoes in the world. Due to concerns that mosquitofish may potentially impact California red-legged frog and tiger salamander populations, District limits the use of mosquitofish to ornamental fish ponds, water troughs, water gardens, fountains, unused swimming pools, and other types of isolated man-made ponds that do not provide habitat that could support native species and that are not connected to natural waterways. Limiting the introduction of the mosquitofish to these sources should prevent their migration or introduction into habitats used by threatened, endangered, or rare species.

S.6.1.5 Chemical Control

Chemical control is a Program tool that consists of the application of nonpersistent insecticides (and herbicides noted under Section S.5.1.3 above) to directly reduce populations of larval or adult mosquitoes and other invertebrate threats to public health (e.g., yellow jacket wasps, ticks). If and when inspections reveal that mosquitoes or other vector populations are present at levels that trigger the District's criteria for chemical control – based on the vector's abundance, density, species composition, proximity to human settlements, water temperature, presence of predators, and other factors – District staff will apply pesticides to the site in strict accordance with the pesticide label instructions and District BMPs. All of the chemical tools the District uses are evaluated in Appendix B, *Ecological and Human Health Assessment Report*.

The vast majority of chemical control tools are used for mosquito abatement. The primary pesticides used can be divided between "larvicides," which are specifically toxic to mosquito and other insect larvae, and "adulticides," which are used to control adult mosquito populations. Larvicides are applied when the chemical control criteria for mosquito larvae are present and application rates vary according to time of year, water temperature, the level of organic content in the water, the type of mosquito species present, larval density, and other variables. Larvicide applications may be repeated at any site at recurrence intervals ranging from annually to weekly as determined by the treatment criteria. In addition to chemical control of mosquito larvae, the District may use pesticides for control of adult mosquitoes when no other tools are available and if specific criteria are met, including species composition, population density (as measured by landing count or other quantitative method), proximity to human populations, and/or human disease risk. As with larvicides, adulticides are applied in strict conformance with label requirements. Adulticiding is the only known effective measure of reducing an adult mosquito population in a timely manner. All mosquito adulticiding activities follow reasonable guidelines to avoid affecting nontarget species including bees. Timing of applications (when mosquitoes are most active), avoiding sensitive areas, working and coordinating efforts with CDFW or US Fish and Wildlife Service, and following label instructions all result in effective mosquito control practices.

Besides using insecticides for mosquito populations, the District selectively applies them to control ground-nesting yellow jackets, as well as to control tick populations that pose an imminent threat to people or to pets. This activity is generally triggered by public requests for District assistance or action, rather than as a result of regular surveillance of their populations. The District excludes from its yellow jacket control program populations of this vector that are located in or on a structure. Yellow jacket nests

that are off the ground would be treated under special circumstances where the public health and safety of the District's residents is at risk.

The District has more recently developed a rat population control program to serve residents in the Service Area. The limited use of rodenticides by the District is performed as a result of individual cities identifying areas with excessive rodent issues. In these cases, the District may apply rodenticides as part of an IPM approach in those areas. Two different groups of anticoagulant rodenticides, known as first generation and second generation rodenticides, may be utilized by the District. First generation rodenticides require consecutive multiple doses or feedings over a number of days to be effective. Second generation rodenticides are lethal after one dose and are effective against rodents that have become resistant to first generation rodenticides. A neurotoxin type of rodenticide may also be used where rapid breakdown of the active ingredient is desired to minimize the potential for secondary poisoning of nontarget animals.

The District may conduct rodent baiting at underground sites such as sewers. Secure bait stations or other accepted methods of rodent baiting are conducted in areas with severe rodent infestations. The District takes part in a control program that consists of baiting along aboveground public storm control waterways, primarily in residential and commercial areas including urban creeks, and not in open-space or recreational areas except along the untraveled edge along a fence that separates the public area from residences. Dead rodents are picked up and disposed of if seen during inspection periods. The baits are applied largely by a third-party pest control operator (PCO), and the District acts as a quality control component. In certain circumstances, District staff will place the bait stations themselves.

New chemical control activities proposed for inclusion in the IMVMP Plan and evaluated in this PEIR include the following: 28 products for control of adult mosquitoes (see Table 2-3), 5 products for yellow jacket wasp abatement (see Table 2-4), 2 products for control of ticks (see Table 2-5), and 21 products for rat control (see Table 2-6) above ground or below ground. For large scale control of adult mosquitoes, the use of fixed wing aircraft is an additional method for ultra low volume (ULV) aerial applications.

S.6.1.6 Nonchemical Control/Trapping

This tool includes the trapping of rodents that pose a threat to public health and welfare using tamper-resistant or baited traps. When requests for yellow jacket pest removal in structures occur, citizens are told to hire a licensed, private PCO, because the District is not licensed for this type of activity.

Trapping is also used for the removal of nuisance wildlife such as skunks, raccoons, and opossums when these animals pose a threat to public health and safety. Upon a service request, the District's Vector Control Technicians will survey the property and provide guidance and recommendations on exclusion methods to minimize their impact on the property and on ways to minimize factors that may draw these animals to the property. Current protocol is to have the property owner contact a private pest control company to remove the animal. If all efforts have been made and the problem remains or there is a threat of physical injury or economic damage is imminent, the District may trap the animal and remove it from the property.

A new activity concerning raccoons and skunks, in the future, would be for the District to trap these animals. If all efforts are tried and the problem remains or threat of physical injury or economic damage is imminent, then a live trap may be set on the property,

S.6.1.7 Public Education

Public education is a key Program component that is used to encourage and assist in reduction and prevention of vector habitats on private and public property. This component includes educational or training programs that involve minor or no physical alteration in the affected area. The District's education program teaches the public how to recognize, prevent, and suppress mosquito/vector breeding on their property, as well as how to protect themselves from being bitten, stung, or infected. This part of the Existing Program is accomplished through the distribution of brochures, fact sheets, newsletters,

participation in local events and fairs, a District-sponsored open house, presentations to public agencies and community organizations, advertising and public service announcements (transit, television, and internet), and contact with District staff in response to service requests. Public education also includes a school program that teaches students to be responsible by preventing and/or eliminating vector breeding sources and educates their parents or guardians about District services and how they can reduce vector-human interaction.

S.6.2 Components Eliminated From Further Consideration

The District determined that of the potential tools considered in Appendix E, Alternatives Analysis Report by the Napa County Mosquito Abatement District (NCMAD), the following eight methods were not immediately available for use in its IMVMP Plan: biological control pathogens (viruses), biological control (parasites), mass trapping, attract and kill, inundative releases (both parasites and predators/other organisms), regulatory control, and repellents.

- > *Biological Control pathogens (viruses)* is deemed infeasible, as this method is not commercially available in California, and there are currently many efficacy related issues.
- > *Biological Control (parasites)* is deemed infeasible, as this method is not commercially available in California. Research on the use of parasites for mosquito control has also shown several limitations related to efficacy.
- > *Mass Trapping* is not considered by the District to be a practical, effective, reliable method of controlling vector populations. It can be very expensive and time consuming (i.e., labor intensive) and is not effective.
- > *Attract and Kill* is not considered by the District to be a practical, effective, reliable, method of controlling vector populations. The technology for both mosquitoes and yellow jackets is limited, and effectiveness is either not obtained or is inconsistent. Nontarget insects can be impacted. The District is aware of one commercially available Attractive Toxic Sugar Bait (ATSB) product, Terminix® AllClear. The District still needs to operationally test this material, as well as other potential ATSBs, to determine those circumstances where their use may be effective while also having little or no nontarget species impacts.
- > *Inundative Releases of parasites* is not considered by the District to be a practical or currently feasible method of controlling vector populations. They are not commercially available and remain experimental at this time.
- > *Inundative Releases of predators*, either sterilized or genetically altered organisms, is not considered by the District to be a practical or a currently feasible method of controlling vector populations. Genetically modified vectors are still experimental. They are also not commercially available at this time.
- > *Regulatory Control* is not considered feasible because adoption of regulations is lengthy, time intensive, expensive, and uncertain as to the regulatory outcome. This approach is not focused sufficiently on control of existing populations. Moreover, regulatory controls are dependent upon state and federal agencies to initiate and implement, and thus this approach cannot assure that any project objectives would be achieved.
- > *Repellants*, although effective for small-scale use by humans and animals, are not part of the overall Program control strategy because they merely displace the problem and do not reduce the mosquito population in an area.

S.6.3 Environmentally Superior Alternative

The CEQA Guidelines (Section 15126.6 (e)(2)) require the following: If the environmentally superior alternative is the “no project” alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. The No Program Alternative (Existing Program activities only) is not the environmentally superior program because it has the potential air quality impacts of the Proposed Program even though it does not have the water quality impact associated with naled. The Do Nothing Alternative is not the environmentally superior alternative due to its potentially significant impacts to the following resources and concerns identified in Section 15.4, land use and planning, aquatic and terrestrial biological resources, ecological health, human health, and public services and hazard response.

The analysis below begins with a discussion of which Program Components have the potential to be environmentally superior (have fewer adverse effects or impacts) to the overall Proposed Program and form the basis for an environmentally superior alternative Program that follows. Table S-1 presents a summary of all the impacts associated with each Program Component and, therefore, the overall Proposed Program of all of the technical components combined for existing and future activities. It is based on Table 15-1 which presents a summary of all the statements of impact with significance determinations. For Surveillance, Physical Control, Vegetation Management, Chemical Control, and Nonchemical Control/Trapping Components, the impacts are either “less than significant” (LS) or “no impact” (N) with one “potentially significant but mitigable impact” (SM) and one significant and unavoidable impact (SU).

CEQA Guidelines Section 15126.6(b) also requires that a draft EIR identify alternatives that are capable of avoiding or substantially lessening the significant environmental effects of the proposed project, even if the alternative would impede to some degree the attainment of all of the project objectives or would be more costly. Two significant impacts to air quality and water resources, under the Chemical Control Component, are discussed below.

- > The Chemical Control Component could subject people to objectionable odors. Impacts even with BMPs implemented could be **potentially significant but mitigable**. Certain volatile organic compounds, sulfur compounds, and chlorine compounds found in some pesticides emit characteristic odors when they evaporate (volatilize) into air, even at very low concentrations well within safety limits. Pesticides currently used or proposed for future use emit phenols (e.g., deltamethrin, etofenprox, permethrin, resmethrin, and lambda-cyhalothrin). Some nonphenol materials such as Bti in liquid form and the adulticides pyrethrin and permethrin also have an odor. As part of the District’s IMVMP, small quantities of these types of substances are typically used. Bti liquid is odorous and used in greater quantities by the District as a mosquito larvicide than the use of the other chemicals for adult insect control. Lambda-cyhalothrin is only used in small quantities from a can to treat ground-nesting yellow jackets. The human sense of smell (olfactory system) is sensitive to these types of compounds as a warning mechanism, and some individuals are more sensitive than others. The Chemical Control Component would apply certain types of odorous treatments using hydraulic spraying and atomizing (fogging), excluding lambda-cyhalothrin, which could result in drift of small droplets and gaseous vapors. Depending on atmospheric conditions (i.e., wind direction, wind speed, stability class), this drift could subject people to objectionable odors near a treatment area. The materials have been used in the current Program, and people have not complained about odors. However, it is possible that complaints could occur in the future despite public notification procedures about large-scale treatments. Mitigation measures allow for greater precision in application technology and in adjusting the application to atmospheric conditions to minimize the potential for drift into populated areas.
- > Naled is an organophosphate insecticide under consideration for future use that could be used in rotation with pyrethrins or pyrethroids for control of adult mosquitoes to prevent the development of resistance in adult mosquito populations. Naled tends to degrade quickly in surface waters especially following ULV applications. However, dichlorvos (a registered pesticide) is a breakdown product of naled that may be present in toxic concentrations after naled is no longer detectable. It does not

persist in surface water and, because of breakdown by soil microorganisms, is unlikely to leach to groundwater. To the extent that dichlorvos could impact a pesticide-impaired waterbody (lower San Mateo Creek) and its importance to the District's IMVMP, its use would pose a **significant and unavoidable** impact to surface water resources.

Section 15.5 describes three "Reduced Alternative Programs:" Reduced Chemical Control, Reduced Vegetation Management, and No Chemical Control, two of which would avoid some or most of the potentially significant impacts associated with the Proposed Program. These alternative Programs are summarized below.

- > **Reduced Chemical Control:** To the extent the District can modify elements of the Chemical Control Component to mitigate identified impacts by avoiding completely or in part the potentially significant impacts associated with some pesticide products for control of mosquitoes and yellow jacket wasps (by using fewer of these products or by eliminating them in favor of using other, less odorous products and by excluding the future use of naled), then the **environmentally superior alternative would be a Program incorporating these modifications as components of the overall IMVMP**. This alternative could result in greater use of other, less odorous chemicals and in greater amounts, which could have impacts on public health if these other chemical methods are not as effective for the specific treatment area due to vector resistance problems. All of the odorous pesticides can be used without significant impacts to public health or to other air quality parameters; but where people are located close to or within a chemical treatment area, the odor could be a short-term problem for some persons even when the application is within product label specifications for wind speed and consistent with District BMPs. However, limiting the choice of materials that can be used to a few chemicals significantly increases the risks of a vector developing resistance to the few products that are available for use and, therefore, resulting in ineffective vector control (i.e., reducing Program effectiveness). Excluding air quality and the odor issue and the water quality issue associated with naled, the impacts to all of the other resources would be the same as for the Proposed Program.
- > **Reduced Vegetation Management.** A Reduced Vegetation Management Alternative presented here would be based on inclusion of all of the physical and chemical management options of the Vegetation Management Component of the Proposed Program except for the use of glyphosate. The Proposed Program includes both terrestrial and aquatic vegetation control with the herbicide glyphosate, and the PEIR concludes that substantial evidence shows that products comprised of glyphosate do not pose significant impacts to either human or ecological health. However, much public controversy exists over the use of the herbicide glyphosate. The studies reporting potential human health effects are associated with extreme exposures to applicators during misuse scenarios and spills and/or working in the preparation of the commercial products. These conditions and potential exposure conditions are neither typical nor likely in the use and applications by trained District staff. By removing the herbicide glyphosate from the chemical options for vegetation control given this controversy, the District could incur additional costs from using other more expensive materials. Also, eliminating glyphosate would not lower the risk of chemical exposure to people and nontarget animals and insects because of its low toxicity. Greater reliance on physical methods of vegetation removal could be more disruptive to species in close proximity to the area relying on hand tools and equipment.
- > **No Chemical Control:** This alternative would completely remove the chemical treatment options under the Vegetation Management and Chemical Control Components. It would rely solely on Surveillance, Physical Control, the nonchemical physical component of the Vegetation Management Component, Biological Control (mosquitofish), and the Other Nonchemical Control/Trapping Component, along with ongoing public education. It would not have any of the less-than-significant impacts associated with pesticide use or the two significant impacts related to odorous products and naled. It would require greater reliance on physical control methods which may not be appropriate at some treatment sites. However, this alternative was determined to be inconsistent with Program objectives and IVM principles, and it could lead to significant and unavoidable impacts to human health due to

the reduced effectiveness of the Program in controlling mosquito and other vector populations. Such human health impacts were demonstrated in 2012 in Dallas-Fort Worth, Texas with an outbreak of West Nile virus that resulted in 1,868 confirmed cases of West Nile disease and 89 WNV-related deaths reported.

S.7 Summary of Environmental Impacts and Mitigation Measures

Table S-1 provides a summary of all of the environmental impacts and mitigation for the Program technical components based on both the Existing Program and proposed future activities (to be combined into the overall Proposed Program). The existing condition (2012 when the NOP was released and extending through 2017) sets the baseline against which the alternatives are evaluated for CEQA. Impact statements are presented in their entirety in the resource sections. For Table S-1, impact areas or environmental concerns are merely listed using brief terms for ease of comparison. Symbols used in the table for CEQA determinations of impact are:

- SM = Potentially Significant but Mitigable Impact
- SU = Significant and Unavoidable Impact
- LS = Less-than-Significant Impact
- N = No Impact

Table S-2 presents only the potentially significant but mitigable impact for the Proposed Program, the specific mitigation required, and the significance following mitigation implementation. The Program Component with this potentially significant but mitigable impact is Chemical Control. Under the Chemical Control Component, a potentially significant impact to humans could occur from the use of odorous chemicals proposed for use to control mosquitoes and yellow jacket wasps in the Proposed Program. Without site-specific information, it cannot be determined whether an objectionable odor may persist downwind of a particular treatment area; therefore, an application containing an odorous compound may impact an undefined number people for an undefined period of time including recreationists and residents.

The materials have been used in the current Program, and people have not complained about odors. However, it is possible that complaints could occur in the future. Mitigation measures represent actions the District will take to reduce the air quality impact to a level of insignificance. However, **the potentially significant impact associated with objectionable odors under the Chemical Control Component can be mitigated to a less-than-significant level** with precision application measures to minimize possible drift.

Table S-3 presents a comparison of the Reduced Chemical Control Program and the No Chemical Control Program with the Proposed Program. The Reduced Vegetation Management Program would have the same impacts as the Proposed Program.

Table S-1 Summary Comparison of Impacts of All Technical Components (Proposed Program)

Environmental Concern	Surveillance	Physical Control	Vegetation Management	Biological Control	Chemical Control	Other Nonchemical/ Trapping
3. Land Uses and Planning						
Quantity and/or quality of recreational opportunities	LS	LS	LS	N	LS	LS
Conflict with applicable land use regulations	N	N	N	N	N	N
4. Biological Resources – Aquatic						
Candidate, sensitive, or special-status species	LS	LS	LS	N	LS	N
Riparian habitat/sensitive natural community	LS	LS	LS	N	LS	N
Federally protected wetlands	LS	LS	LS	N	N	N
Movement of species or impacts to wildlife corridors or nursery sites	N	LS	LS	N	LS	N
Conflict with local policies and ordinances	N	N	N	N	N	N
Conflict with appropriate HCP/NCCPs	LS	LS	LS	N	LS	LS
5. Biological Resources – Terrestrial						
Candidate, sensitive, or special-status species	LS	LS	LS	N	LS	LS
Riparian habitat/sensitive natural community	LS	LS	LS	N	N	N
Federally protected wetlands	LS	LS	LS	N	N	N
Movement of species or impacts to wildlife corridors or nursery sites	N	LS	LS	N	LS	N
Conflict with local policies and ordinances	N	N	N	N	N	N
Conflict with appropriate HCP/NCCPs	LS	LS	LS	N	LS	N
6. Ecological Health						
Impacts on nontarget ecological receptors	LS	LS	LS	LS	LS	LS

Table S-1 Summary Comparison of Impacts of All Technical Components (Proposed Program)

Environmental Concern	Surveillance	Physical Control	Vegetation Management	Biological Control	Chemical Control	Other Nonchemical/ Trapping
7. Human Health						
Impacts on human health	N	LS	N, LS	N	N, LS	N
8. Public Services and Hazard Response						
Increase demand for police, fire, or health-care services	N	N	N	N	N	N
Create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment	LS	LS	LS	LS	LS	LS
Expose people or structures to a significant risk of loss, injury, or death involving wildland fires	LS	LS	LS	LS	LS	LS
9. Water Resources						
Impacts on surface water resources	N	LS	LS	LS	LS, SU	N
Impacts on groundwater resources	N	LS	N, LS	LS	LS	N
10. Air Quality						
SIP emission inventory and the compliance with applicable air regulations	LS	LS	LS	LS	LS	LS
Ambient air quality standard	LS	LS	LS	LS	LS	LS
Cumulatively considerable increase of nonattainment pollutants	LS	LS	LS	LS	LS	LS
Expose sensitive receptors to substantial pollutant concentrations	LS	LS	LS	LS	LS	LS
Subject people to objectionable odors	N	N	N	N	SM	N

Table S-1 Summary Comparison of Impacts of All Technical Components (Proposed Program)

Environmental Concern	Surveillance	Physical Control	Vegetation Management	Biological Control	Chemical Control	Other Nonchemical/ Trapping
11. Greenhouse Gases and Climate Change						
Cumulatively considerable amount of GHGs	LS	LS	LS	LS	LS	LS
Conflict with applicable plans, policies, or regulations for reducing GHG emissions	LS	LS	LS	LS	LS	LS
12. Noise						
Exceedance of noise standards	LS	LS	LS	LS	LS	LS
Substantial temporary increase in noise	LS	LS	LS	LS	LS	LS

Notes:

GHG = greenhouse gas

Table S-2 Significant Impacts and Mitigation for Chemical Control Component

Affected Resource and Area of Potential Impact	Identified Impact	Mitigation Measures	Significance After Mitigation
10. Air Quality			
Objectionable Odors	<p>Impact AQ-25: The Chemical Control Component could subject people to objectionable odors. Impacts could be potentially significant but mitigable, even with BMPs implemented.</p>	<p>To mitigate Impact AQ-25, the District and its contractors shall implement one or more of the following measures as applicable to the specific application situation to reduce drift towards human populations/residences from the ground and aerial applications of any of the odorous treatment compounds: deltamethrin, etofenprox, permethrin, resmethrin, Bti liquid, pyrethrin, and lambda-cyhalothrin.</p> <p>Mitigation Measure AQ-25a: When feasible, defer application of treatment compounds until such time that favorable wind conditions would reduce or avoid the risk of drift into populated areas.</p> <ul style="list-style-type: none"> > Location: Areas to receive treatment with pesticides that are near residential and commercial land uses > Monitoring/Reporting Action: District staff to check current land use maps or aerial photos prior to treatments > Effectiveness Criteria: Document odor complaints from the public > Responsible Agency: District > Timing: Prior to chemical treatments <p>Mitigation Measure AQ-25b: Use weather forecasts, real time observations, wind meters, and global positioning system (GPS) tracking when applicable that assist in documenting site-specific compliance with all label requirements for drift mitigation.</p> <ul style="list-style-type: none"> > Location: Areas to receive treatment with pesticides that are near residential and commercial land uses > Monitoring/Reporting Action: District staff to check current land use maps or aerial photos prior to treatments > Effectiveness Criteria: Document odor complaints from the public > Responsible Agency: District > Timing: Prior to chemical treatments 	Less than significant

Table S-2 Significant Impacts and Mitigation for Chemical Control Component

Affected Resource and Area of Potential Impact	Identified Impact	Mitigation Measures	Significance After Mitigation
		<p>Mitigation Measure AQ-25c: Use precision application technology to reduce drift and the total amount of material applied. This measure can include (1) precision guidance systems that minimize ground or aerial spray overlap (e.g., GPS and Real Time Kinetics – GPS/RTK), and (2) computer-guided application systems that integrate real-time meteorological data and computer model guidance to reduce drift from aerial application (e.g., trade names “AIMMS,” “Wingman™ GX,” and “NextStar™ Flow Control”). This technology is possible with equipment such as helicopter/aircraft and application of adulticides with larger truck-mounted ULV foggers but not for small site-specific applications by hand equipment or ATVs.</p> <ul style="list-style-type: none"> > Location: Areas to receive treatment with pesticides that are near residential and commercial land uses > Monitoring/Reporting Action: District staff to check current land use maps or aerial photos prior to treatments > Effectiveness Criteria: Document odor complaints from the public > Responsible Agency: District > Timing: Prior to chemical treatments 	<p>Less than significant</p>

Table S-3 Comparison of Reduced Program Components to Proposed Program

	Proposed Program	Reduced Chemical Control Program	No Chemical Control Program
Component			
Surveillance	Included	Included	Included
Physical Control	Included	Included	Included
Vegetation Management > Physical Methods > Herbicides/Adjuvants	All physical methods and chemical options included	All physical methods and chemical options included	Includes physical methods only. > Excludes all herbicides and adjuvants. > Less effective with greater reliance on physical and mosquitofish options
Biological Control	Mosquitofish	Mosquitofish	Mosquitofish
Chemical Control	Use any or all pesticides and adjuvants, surfactants, and synergists listed in Chapter 2	Use less of or eliminate one or more of the following: > Deltamethrin > Etofenprox > Permethrin > Resmethrin > Pyrethrin > Bti liquid > Lambda-cyhalothrin	Use none of the pesticides and adjuvants, surfactants, and synergists listed in Chapter 2
Other Nonchemical Control/Trapping	Included	Included	Included

Table S-3 Comparison of Reduced Program Components to Proposed Program

	Proposed Program	Reduced Chemical Control Program	No Chemical Control Program
Impacts			
Biological Resource Impacts (excluding ecological health)	No Impact or Less-than-Significant Impact	No Impact or Less-than-Significant Impact	No Impact or Less-than-Significant Impact
Physical Resource Impacts (excluding air quality odors and naled)	No Impact or Less-than-Significant Impact	No Impact or Less-than-Significant Impact	No Impact or Less-than-Significant Impact
Air Quality – Odors	Potentially Significant but Mitigable Impact Less-than-Significant after Mitigation	Less-than-Significant Impact	No Impact
Surface Water – Naled	Significant and Unavoidable	Significant and Unavoidable	No Impact
Ecological Health Impacts	Less-than-Significant Impact	Less-than-Significant Impact	Potentially Significant Impacts
Human Health Impacts	No Impact or Less-than-Significant Impact	No Impact or Less-than-Significant Impact	Significant and Unavoidable Impacts

S.8 Summary of Revisions to Draft PEIR

Section 15088.5(g) of the CEQA Guidelines require that when recirculating a revised EIR, either in whole or in part, that the revised EIR is to contain a summary of the changes made to the previously circulated EIR. The first Draft PEIR (March 2016) has been revised to include the following changes:

S.8.1 Chapter 2. Program Description

Preparation of a new Draft IMVMP Plan is based on the previous Chapter 2 of the PEIR but expanded to include additional material and key documents as appendices. The PEIR Chapter 2 was revised as follows:

- > Included additional information on the IMVMP Plan
- > Changed the word “alternative” to “component” when describing the elements of the IMVMP
- > Described the Existing Program as the No Program Alternative. Existing and future activities were clarified in the text and tables in Chapter 2, and these clarifications were also added throughout the text of the PEIR
- > Clarified that the Proposed Program includes enhancements to current activities as potential future activities

S.8.2 Chapter 6. Ecological Health

The Regulatory Setting was supplemented with additional/updated information on the following :

- > Section 6.1.3.1.4: Stipulated Injunction and Order, Protection of California Red-Legged Frog and Other Listed Species from Pesticides
- > Section 6.1.3.2.2: The Safe Drinking Water and Toxic Enforcement Act (Proposition 65)

The applicable impact determinations were updated on the issue of endocrine disruption Weight of Evidence (WoE) conclusions for PBO, pyrethrins, and other products when available.

S.8.3 Chapter 7. Human Health

The Regulatory Setting was supplemented with additional/updated information on:

- > Section 7.1.4.2.3: The Safe Drinking Water and Toxic Enforcement Act (Proposition 65)

In the environmental impact analyses, additional information was added to:

- > Section 7.2.5.1.1 Glyphosate: The analysis was revised to include additional discussion of the potential for endocrine disruption.
- > Section 7.2.7.2.2 Pyrethroids, Pyrethroid-Like Compounds, and Synergists: The analysis was revised to address the issue of potential for increased risk of autism spectrum disorder/developmental delay (ASD/DD).

The applicable impact determinations were updated on the issue of endocrine disruption Weight of Evidence (WoE) conclusions for PBO, pyrethrins, and other products when available.

S.8.4 Chapter 10. Air Quality

The BAACMD is in the process of updating its CEQA Air Quality Guidelines, and the most current version is dated May 2017 which is used in the revised impact analysis.

S.8.5 **Chapter 13. Cumulative Impacts**

The summary sections at the end of each resource chapter were removed, and the entire cumulative impact analysis is contained in the revised Chapter 13. Substantial additional information was included, primarily in Section 13.7 Water Resources. The analysis of the District's incremental impacts on water quality was revised to include a new cumulatively considerable impact not previously explained in the March 2016 PEIR.

- > However, the future use of naled could result in a cumulatively considerable incremental impact to the pesticide-impaired waterbody of lower San Mateo Creek due to the significant detection of the breakdown product dichlorvos reported above (Phillips et al. 2013).
- > Concerning mitigation for the baseline cumulatively considerable impact to receiving waters and the cumulatively considerable addition from the District, the following mitigation is underway in San Mateo County (SMCWPPP 2017):

“In compliance with MRP Provision C.9, Permittees are implementing pesticide toxicity control programs that focus on source control and pollution prevention measures. The control measures include the implementation of integrated pest management (IPM) policies/ordinances, public education and outreach programs, pesticide disposal programs, the adoption of formal State pesticide registration procedures, and sustainable landscaping requirements for new and redevelopment projects. Through these efforts, it is estimated that the amount of pyrethroids observed in urban stormwater runoff will decrease by 80-90% over time, and in turn significantly reduce the magnitude and extent of toxicity in local creeks.” (p. 20)

S.8.6 **Chapter 15. Alternatives**

The use of the term “alternative” was revised to “component” when the elements of the Existing Program are described. Most importantly, the Existing Program was changed to be the No Program Alternative. The previous No Program Alternative was changed to be the Do Nothing Alternative.

S.8.7 **Appendix F. Responses to Comments**

A new Appendix F was created that includes all of the comments received on the initial Draft PEIR (March 2016) and responses to those comments. While responses to these comments were not required for the recirculated revised PEIR, the District prepared responses in part to direct the commenters to the appropriate sections of the revised Draft PEIR for their review. Because comment letters on the previously circulated Draft PEIR were addressed in Appendix F, they do not need to be resubmitted.