

# County of San Diego Integrated Vector Management Program

## Noise Technical Report

October 2021 | 00187.00005.024

*Prepared for:*

**County of San Diego**  
**Department of Environmental Health**  
**Vector Control Program**  
5570 Overland Avenue, Suite 102  
San Diego, CA 92123

*Prepared by:*

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La Mesa, CA 91942

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## ACRONYMS AND ABBREVIATIONS

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amsl	above mean sea level
ANSI	American National Standards Institute
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CDC	Centers for Disease Control and Prevention
County	County of San Diego
CPA	Community Planning Area
BMPs	best management practices
dB	decibel
dBA	A-weighted decibel
DEH	Department of Environmental Health
FHWA	Federal Highway Administration
GPS	global positioning system
Hz	hertz
in/sec	inches per second
IVMP	Integrated Vector Management Program
kHz	kilohertz
L <sub>EQ</sub>	time-averaged noise level
mPa	micro Pascal
NPDES	National Pollutant Discharge Elimination System
NSLU	noise-sensitive land use
PPV	peak particle velocity
RCNM	Roadway Construction Noise Model
SPL	sound pressure level
SR	State Route
ULV	Ultra Low Volume
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
VCP	Vector Control Program

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## EXECUTIVE SUMMARY

This report presents an assessment of potential noise impacts associated with the proposed County of San Diego (County) Department of Environmental Health (DEH), Vector Control Program's (VCP) Integrated Vector Management Program (IVMP; Proposed Project). The service area for the IVMP includes all 18 incorporated cities and unincorporated areas of San Diego County. This report details the environmental setting, including noise and sound level descriptors/terminology and noise and vibration sensitive land uses within the IVMP service area, and provides the regulatory framework for evaluation of compliance with relevant regulations and conditions established by each of the jurisdictions within the service area. It provides an analysis of potential noise impacts the IVMP activities may have on noise sensitive land uses and identifies best management practices that would reduce potential adverse noise impacts that may result from ongoing implementation of the IVMP.

Under the Proposed Project, the IVMP would continue the use of the following vector control techniques: surveillance and monitoring, source reduction (i.e., physical control), source treatment (i.e., biological and chemical controls), public education and outreach, and disease diagnostics. Emerging vector control strategies that may be implemented to address future public health risks and public nuisances could include, but not be limited to, increased or advanced/early source prevention and/or reduction, surveillance, or physical/biological/chemical controls. Of these, surveillance and monitoring, source reduction, and source treatment are the only the vector control techniques evaluated in this analysis, as the other techniques (i.e., public education and outreach and disease diagnostics) would not result in temporary noise impacts.

DEH has committed to implementation of BMPs to decrease noise levels from the use of standard equipment for the IVMP operations that would generate noise expected to be of concern to the public. Moreover, activities anticipated to be implemented under the IVMP will be required to comply with all applicable regulations governing temporary noise impacts.

For the purposes of analyzing IVMP equipment noise levels, this report identifies a 75 decibel (dB) time-averaged noise level ( $L_{EQ}$ ) one-hour limit threshold. IVMP equipment would not be expected to require continuous and uninterrupted operation, and operations at individual locations would be mobile and used at various distances from noise-sensitive land uses. With the implementation of BMPs, noise levels for individual IVMP activities would result in a less than significant noise impact. No mitigation measures would be required. Furthermore, the IVMP would not result in activities that would generate vibration.

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# 1.0 INTRODUCTION

## 1.1 PROJECT DESCRIPTION

### 1.1.1 Project Background

The County of San Diego (County) Department of Environmental Health (DEH), Vector Control Program (VCP) is a public health program that was established to monitor and control vectors that transmit diseases and create public nuisances within San Diego County. For the purposes of the Proposed Project, a vector is defined as any animal capable of spreading disease or 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 VCP is managed by County staff, governed by the County Board of Supervisors, and implemented within a service area that includes all 18 incorporated cities and unincorporated areas of San Diego County. The VCP serves to reduce exposure to vectors and vector-borne diseases in a manner that minimizes risks to people, property and the environment through a coordinated set of activities collectively known as the Integrated Vector Management Program (IVMP). The IVMP carries out a full range of vector control activities, practices, and procedures to protect the public from vector-borne diseases and public nuisances while allowing for the inclusion of progressive and emerging vector control techniques, tools and materials. For the purposes of this analysis, the Proposed Project consists of the ongoing implementation of the IVMP.

### 1.1.2 Project Location

The IVMP service area is defined by the boundaries of San Diego County (Figure 1, *Regional Location*; Figure 2, *Integrated Vector Management Program Service Area*). The county is bordered by Orange and Riverside counties to the north, Imperial County to the east, the Pacific Ocean to the west, and the U.S./Mexico International Border to the south. The service area encompasses approximately 4,261 square miles, and includes all unincorporated area within the county, as well as the 18 incorporated cities (Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, San Marcos, Santee, Solana Beach, and Vista). The unincorporated portion of the county is divided into 23 planning areas. Fourteen of the planning areas are referred to as Community Planning Areas (CPAs) and nine areas are called Subregional Planning Areas (Subregions). The CPAs are Alpine, Bonsall, County Islands, Fallbrook, Julian, Lakeside, Pendleton/De Luz, Rainbow, Ramona, San Dieguito, Spring Valley, Sweetwater, Valle de Oro, and Valley Center. The nine Subregions are Central Mountain, Crest/Dehesa/Harbison Canyon/Granite Hills, Desert, Jamul/Dulzura, Mountain Empire, North County Metropolitan (Metro), North Mountain, Otay, and Pala/Pauma Valley. The location and extent of specific activities implemented under the IVMP are evaluated based on the site-specific situation and dictated by the targeted vector, regulatory requirements, and applicable management approaches.

### 1.1.3 Project Description

Under the Proposed Project, the IVMP would continue to comprehensively implement vector control through various techniques, including surveillance and monitoring, source reduction (i.e., physical control), source treatment (i.e., biological and chemical controls), public education and outreach, and

disease diagnostics. Each of these techniques would be applied to the applicable vectors under the IVMP, including disease-transmitting mosquitoes (i.e., *Culex* spp., *Aedes* spp., and *Anopheles* spp.); nuisance mosquitoes (i.e., not disease-transmitting); vectors associated with mammalian disease reservoirs (i.e., ticks and rodents); and other nuisance species (e.g., eye gnats not on commercial organic farms) deemed necessary for control as approved by the VCP. The five core services of the IVMP include: (1) early detection of public health risks through comprehensive vector surveillance and testing; (2) control and reduction of vectors that transmit diseases to humans or create public nuisance; (3) dissemination of information regarding tools for prevention, protection, and reporting of vectors that transmit diseases; (4) appropriate and timely response to vector-related customer complaints; and (5) detection of vector-borne pathogens. The objectives of the IVMP are to:

1. Protect public health, well-being, and economic effects from vectors throughout San Diego County by applying integrated vector management practices.
2. Implement effective and efficient integrated vector management practices in a manner that balances environmental impacts with the need to protect the public from vector-borne diseases and nuisances.
3. Coordinate with other regional vector control districts throughout California as well as State and federal public health and environmental protection agencies to allow for the inclusion of progressive and emerging vector control activities and technologies.

Vector control and surveillance activities are conducted by VCP staff under standard operating procedures and use a risk-based approach to determine appropriate levels of response to each vector of concern. The IVMP incorporates various vector management principles and techniques from guidance documents that are regularly updated, such as the VCP's annual *Mosquito, Vector and Disease Control Assessment Engineer's Report* (hereafter referred to as *Engineer's Report*); *West Nile Virus Strategic Response Plan*; and *Aedes Transmitted Disease Strategic Response Plan* (County 2020, 2018a, and 2018b, respectively), as well as procedural documents such as the *Mosquito Breeding Site Access Standard Operating Procedure* (County 2014). A general discussion of the key IVMP activities is discussed below.

## Surveillance and Monitoring

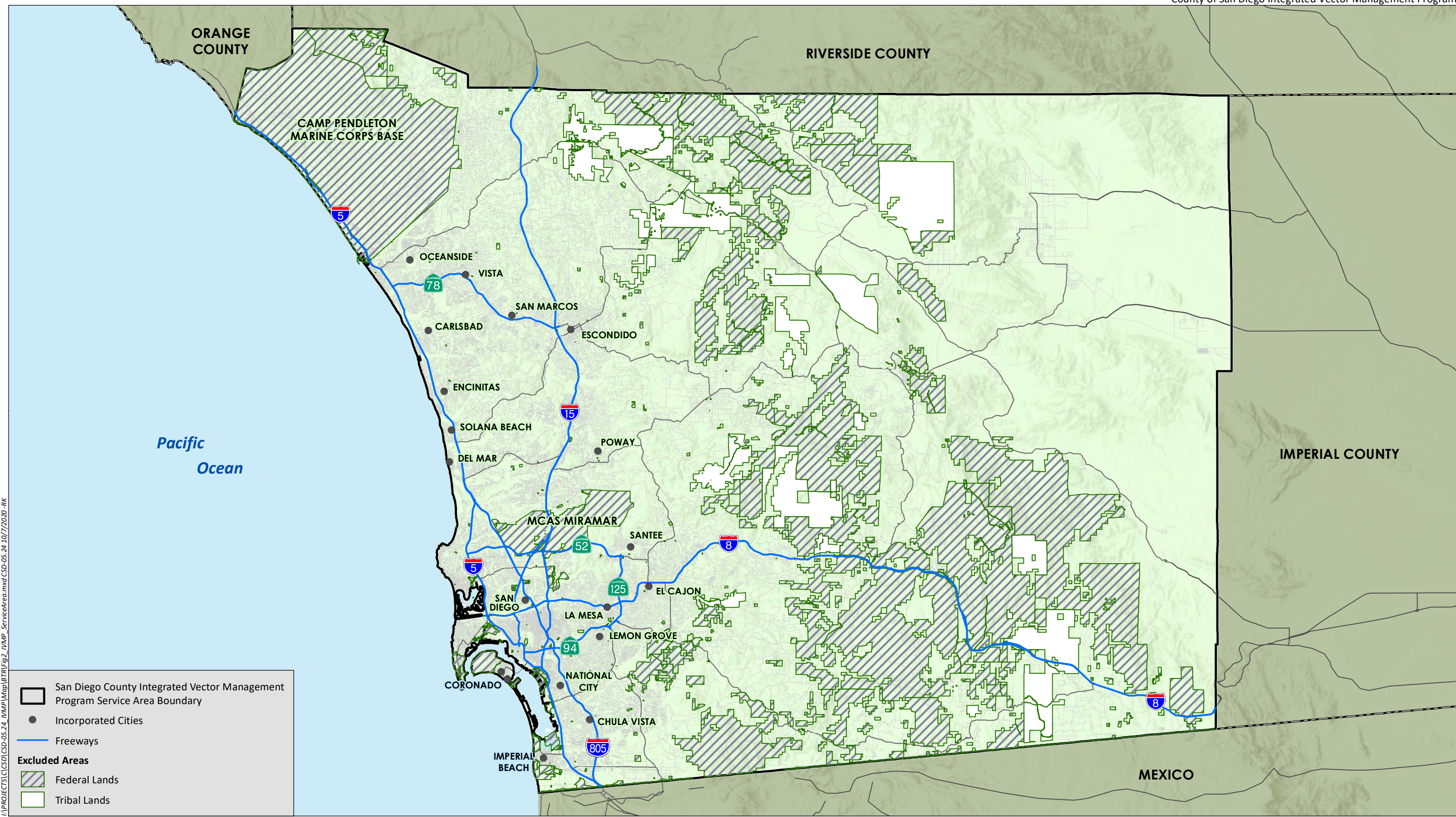
Vector surveillance, monitoring, and diagnostics are needed to assess location and abundance of vector populations and species so that data-informed decisions can be made. Vector surveillance involves monitoring vector populations and habitat, their disease pathogens, and human/vector interactions. Vector surveillance provides the VCP with valuable information about which vector species are present or likely to occur, locations in which they may occur, abundance, and if they are carrying disease(s). The information obtained from surveillance is evaluated against treatment and risk-based response criteria to decide when and where to implement vector control measures, and to help form action plans that can also assist in reducing the risk of contracting disease or causing nuisance. Vector surveillance can help minimize the area to which control techniques may be applied by directing activities to the areas where they are needed.

The VCP monitors disease-carrying animals such as mosquitoes, ticks, and rodents, as well as other pests including flies on commercial poultry ranches, within the IVMP service area. Monitoring includes such techniques as setting traps to determine abundance and species of mosquitoes; testing mosquitoes for





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Source: Base Map Layers (SanGIS and Esri)



presence of disease; collecting and testing dead birds for West Nile virus; and conducting surveys via ground vehicles, aircraft (including piloted and unmanned ), watercraft, and remote sensing equipment to evaluate mosquito-breeding sources. Surveillance is also conducted for ticks and rodents.

The VCP operates the Vector Disease and Diagnostic Laboratory that provides diagnostic testing to support the VCP, which helps in the evaluation of public health risk and appropriate responses and treatments. The VCP tests vector specimens from the field for numerous diseases that could be a risk to public health.

### **Source Reduction**

Source reduction (i.e., environmental modification) techniques are used to reduce vector-breeding sources such as habitat and other areas of harborage. Source reduction primarily involves physical control techniques that eliminate or reduce standing water including, but not limited to, ground disturbance (e.g., grading), vegetation management (including physical and/or herbicide application), water control, and other maintenance activities. Trapping and removal of vectors is also a form of source reduction.

### **Source Treatment**

Source treatment includes biological and chemical controls of vectors. Specifically, this includes the use of mosquito fish (*Gambusia affinis*) and application of pesticides, such as larvicides and adulticides to reduce larval and adult mosquito populations, respectively. The type and location of biological and chemical control vary based on different factors, including, but not limited to, the vector species and growth stage, environment, disease presence, and risk level to public health. Any pesticides applied within waterbodies defined by federal and state regulations as Waters of the U.S. and/or State are conducted in accordance with the Statewide National Pollutant Discharge Elimination System (NPDES) Permit for Biological and Residual Pesticide Discharges to Waters of the U.S. from Vector Control Applications (Order No. 2016-0039-DWQ, General Permit No. CA990004). Methods of application include, but are not limited to, backpack applicators, vehicle-mounted equipment, or other motorized vehicles (e.g., piloted and unmanned aircraft, watercraft). Source treatments of non-mosquito vectors can include, but are not limited to, chemical controls applied to mammalian vectors such as rodents and mammal-related disease carriers such as ticks, fleas, and other arthropods. When pesticides are applied, label requirements are followed by VCP staff.

### **Public Education and Outreach**

VCP staff conduct public education and outreach activities to increase public awareness of steps to prevent and protect against disease-carrying vectors. VCP staff distribute educational materials, provide informational displays and presentations, use social media and informational emails, and conduct media campaigns to provide the public with this knowledge.

### **Emerging Vector Control Strategies**

Vector management strategies are updated as new information becomes available and are adapted and applied to new or emerging vectors as they arise. All vector control methods are based on empirical data, scientific evidence, published research, current state and federal guidelines, expert guidance, and the VCP's experience conducting vector control activities. The IVMP integrates progressive and emerging vector control activities and materials established in coordination with other regional vector control

districts and research institutions throughout California, as well as state and federal agencies, such as the California Department of Public Health, California Environmental Protection Agency (CalEPA), the U.S. Environmental Protection Agency (USEPA), and the Centers for Disease Control and Prevention (CDC). Emerging vector control strategies that may be implemented to address future public health risks and public nuisances could include, but not be limited to, increased or early source prevention and/or reduction, surveillance, or physical/biological/chemical controls, depending on the assessment.

## 1.2 BEST MANAGEMENT PRACTICES

The IVMP follows the best management practices (BMPs) described in State guidance documents, such as the *Best Management Practices for Mosquito Control in California* (California Department of Public Health [CDPH]; 2012), *Best Management Practices for Mosquito Control on California State Properties* (CDPH 2008), and *California Mosquito-borne Virus Surveillance and Response Plan* (CDPH 2020), which detail vector control and pesticide application procedures. In addition, the County integrates BMPs into the IVMP serving as a comprehensive management framework for implementation of individual activities. BMPs implemented as part of the IVMP demonstrate the County's commitment to avoid or minimize effects to the maximum extent feasible. The following BMPs will be implemented to reduce noise:

- For operations that require large-scale treatments that may occur in close proximity to homes or heavily populated, high traffic, or other sensitive areas (including bee farms), or other control activities that may generate noise expected to be of concern to the public, the VCP will notify the public and/or affected properties (approximately 24 to 48 hours in advance, when possible) via the following communication protocols, as appropriate:
  - Provide Advance Notice. Depending on the nature and magnitude of the activities, information will be provided using press releases, social media, website, mailers, hand-delivered flyers, posted signs, and/or emails. Public agencies, such as environmental health and agricultural agencies, emergency service providers, local governments, law enforcement, and airports may also be notified of the nature and duration of the activities.
  - Provide Mechanism to Address Questions. The County offers various methods for customers to communicate with VCP staff via online tools, email, telephone, and/or postal mail during all times of VCP activities to respond to service calls and address public inquiries.
- Vehicles will only be driven on existing roadways, access roads, and existing unpaved access paths. Vehicles driven on levees to travel near aquatic areas (such as tidal marshes, sloughs, or channels) for surveillance or treatment activities will travel at speeds slow enough to avoid or minimize noise and the production of dust, typically 15 miles per hour or less.
- Operation of noise-generating equipment (e.g., construction equipment, wood chipper, pesticide application equipment) will abide by the time-of-day restrictions established by the applicable local jurisdiction's municipal code or ordinance (e.g., city or county) if such noise activities would exceed acceptable noise levels for sensitive receptors (e.g., residential land uses, schools, hospitals, places of worship). All motorized equipment will be shut down when not in use.

- Engine idling times will be minimized by shutting off equipment and vehicles when not in use to the extent feasible.
- Vehicles and equipment will be maintained in accordance with manufacturer's specifications, including mufflers, engine operation, and tire inflation pressure to minimize rolling resistance.
- Vegetation trimming or removal, when necessary to provide access to vector habitat for surveillance and control activities, will be conducted by hand using handheld tools rather than gas-powered equipment or heavy machinery to minimize negative environmental effects.
- Where heavy equipment or machinery are necessary, measures will be taken, such as reducing turns by track-type vehicles, taking a minimum number of passes with equipment, identifying multiple points of entry, driving vehicles at low speed, and avoiding or minimizing operating on open mud and other soft areas.

## 2.0 ENVIRONMENTAL SETTING AND EXISTING CONDITIONS

### 2.1 NOISE AND SOUND LEVEL DESCRIPTORS AND TERMINOLOGY

All noise level or sound level values presented herein are expressed in terms of decibels (dB), with A weighting (dBA) to approximate the hearing sensitivity of humans. Time-averaged noise levels are expressed by the symbol  $L_{EQ}$ , with a specified duration.

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver contribute to the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

The amplitude of pressure waves generated by a sound source determines the loudness of that source. A logarithmic scale is used to describe sound pressure level (SPL) in terms of dBA units. The threshold of hearing for the human ear is about 0 dBA, which corresponds to 20 micro Pascals (mPa).

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dBA increase. In other words,

when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dBA higher than one source under the same conditions.

To place noise levels measured in dBA in context, typical noise levels for common outdoor and indoor noise sources are shown in Table 1, *Typical Noise Levels*.

**Table 1**  
**TYPICAL NOISE LEVELS**

Common Outdoor Noise	Noise Level (dBA)	Common Indoor Noise
	<b>110</b>	Rock band
Jet flyover at 1000 feet		
	<b>100</b>	
Gas lawn mower at 3 feet		
Diesel truck at 50 feet at 50 mph	<b>90</b>	
		Food blender at 3 feet
Noisy urban area, daytime	<b>80</b>	Garbage disposal at 3 feet
Gas lawn mower at 100 feet	<b>70</b>	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	<b>60</b>	
		Large business office
Quiet urban area, daytime	<b>50</b>	Dishwasher in next room
Quiet urban area, nighttime	<b>40</b>	Theater, large conference room (background)
Quiet suburban area, nighttime		
	<b>30</b>	Library
Quiet rural area, nighttime		Bedroom at night, concert hall (background)
	<b>20</b>	
		Broadcast/recording studio
	<b>10</b>	
	<b>0</b>	

Source: Caltrans 2013a

## 2.2 NOISE AND VIBRATION SENSITIVE LAND USES

Noise-sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise, such as residential dwellings, schools, transient lodging (hotels), hospitals, and educational facilities. Industrial and commercial land uses are generally not considered sensitive to noise. Noise receptors are individual locations that may be affected by noise.

Land uses in which ground-borne vibration could potentially interfere with operations or equipment, such as research, manufacturing, hospitals, and university research operations are considered “vibration-sensitive” (California Department of Transportation [Caltrans] 2013b). The degree of sensitivity depends on the specific equipment that would be affected by the ground-borne vibration. In addition, excessive levels of ground-borne vibration of either a regular or an intermittent nature can result in annoyance to residential uses or schools.



## 2.3 REGULATORY FRAMEWORK

### 2.3.1 Local Ordinances

The IVMP service area includes all 18 incorporated cities and unincorporated areas of San Diego County. Cities and counties in California are required to include a noise element in their general plans, including policies intended to achieve noise compatibility between existing and proposed land uses. These policies typically establish average noise levels that are acceptable at different land uses and are intended to guide land-use compatibility when new development is proposed. However, the IVMP would continue to comprehensively implement vector control through various techniques with the goal to protect the public from vector-borne disease and public nuisances. Therefore, the IVMP does not propose changes in land use, and noise compatibility land uses will not be further discussed.

Some jurisdictions within the IVMP service area specify allowable hours for construction and noise levels resulting from construction during certain times of day. Although the IVMP does not include “construction” as part of the Proposed Project, certain activities may cause temporary effects similar to construction activities. Therefore, construction noise standards will be used as a method to describe allowable temporary noise. A summary of relevant regulations and conditions to the IVMP are shown in Table 2, *Summary of Noise Regulations*.

**Table 2**  
**SUMMARY OF NOISE REGULATIONS**

Jurisdiction	Applicable Hours <sup>1</sup>	Temporary Noise Level Limit <sup>2</sup>
County of San Diego	7:00 a.m. to 7:00 p.m.	75 dBA L <sub>EQ</sub> (8 hour)
City of Carlsbad	7:00 a.m. to 6:00 p.m.	N/A
City of Chula Vista	7:00 a.m. to 10:00 p.m.	N/A
City of Coronado	7:00 a.m. to 7:00 p.m.	75 dBA L <sub>EQ</sub> (1 hour)
City of Del Mar	7:00 a.m. to 7:00 p.m.	75 dBA L <sub>EQ</sub> (1 hour)
City of El Cajon	7:00 a.m. to 7:00 p.m.	N/A
City of Encinitas	7:00 a.m. to 7:00 p.m.	75 dBA L <sub>EQ</sub> (8 hour)
City of Escondido	7:00 a.m. to 6:00 p.m.	75 dBA L <sub>EQ</sub> (1 hour)
City of Imperial Beach	7:00 a.m. to 10:00 p.m.	75 dBA L <sub>EQ</sub> (1 hour)
City of La Mesa	7:00 a.m. to 10:00 p.m.	N/A
City of Lemon Grove	7:00 a.m. to 7:00 p.m.	75 dBA L <sub>EQ</sub> (8 hour)
City of National City	7:00 a.m. to 7:00 p.m.	75 dBA L <sub>EQ</sub> (1 hour) <sup>3</sup>
City of Oceanside	7:00 a.m. to 8:00 p.m.	85 dBA L <sub>EQ</sub> (1 hour) <sup>4</sup>
City of Poway	7:00 a.m. to 5:00 p.m.	75 dBA L <sub>EQ</sub> (8 hour)
City of San Diego	7:00 a.m. to 7:00 p.m.	75 dBA L <sub>EQ</sub> (12 hour)
City of San Marcos <sup>5</sup>	7:00 a.m. to 7:00 p.m.	75 dBA L <sub>EQ</sub> (8 hour)
City of Santee	7:00 a.m. to 7:00 p.m.	75 dBA L <sub>EQ</sub> (1 hour)

**Table 2 (cont.)  
SUMMARY OF NOISE REGULATIONS**

<b>Jurisdiction</b>	<b>Applicable Hours<sup>1</sup></b>	<b>Temporary Noise Level Limit<sup>2</sup></b>
City of Solana Beach	7:00 a.m. to 7:00 p.m.	75 dBA L <sub>EQ</sub> (1 hour)
City of Vista <sup>5</sup>	7:00 a.m. to 7:00 p.m.	75 dBA L <sub>EQ</sub> (8 hour)

<sup>1</sup> Applicable hours indicate the hours when construction noise is not prohibited, per each jurisdiction's Municipal Code. Hours may vary by day of week and by holidays, depending on jurisdiction. Hours listed in this table apply to typical weekdays.

<sup>2</sup> N/A = not applicable; indicates that the jurisdiction has not set a numerical construction noise standard.

<sup>3</sup> The City of National City sets different noise levels for semi-residential and for stationary equipment. This report anticipates the individual IVMP activities would fall under the limits for short-term mobile equipment at residential locations.

<sup>4</sup> The City of Oceanside does not set construction noise limits in its Municipal Code. The General Plan Noise Element sets the 85 dBA limit when measured at 100 feet.

<sup>5</sup> The City of San Marcos and City of Vista adopted the County Noise Ordinance in their Municipal Codes.

### **2.3.1.1 County of San Diego – Noise Ordinance**

Sections 36.401 through 36.423 of the County of San Diego Code of Regulatory Ordinances (i.e., Noise Ordinance) discuss further County noise requirements. The purpose of the Noise Ordinance is to regulate noise in the unincorporated area of the County to promote the public health, comfort, and convenience of the County's inhabitants and its visitors.

#### **Section 36.408, Hours of Operation of Construction Equipment**

Except for emergency work, it shall be unlawful for any person to operate or cause to be operated, construction equipment:

- a. Between the hours of 7:00 p.m. and 7:00 a.m.
- b. On a Sunday or a holiday. For the purposes of this section a holiday means January 1, the last Monday in May, July 4, the first Monday in September, December 25, and any day appointed by the President as a special national holiday or the Governor of the State as a special State holiday. A person may, however, operate construction equipment on a Sunday or holiday between the hours of 10:00 a.m. and 5:00 p.m. at the person's residence or for the purpose of constructing a residence for himself or herself, provided that the operation of construction equipment is not carried out for financial consideration or other consideration of any kind and does not violate the limitations in Sections 36.409 and 36.410.

#### **Section 36.409, Construction Noise**

Except for emergency work, it shall be unlawful for any person to operate construction equipment or cause construction equipment to be operated that exceeds an average sound level of 75 dBA for an 8-hour period, between 7:00 a.m. and 7:00 p.m., when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

The minimum measurement period for any measurements is one hour. During the measurement period, a measurement must be conducted every minute from a fixed location on an occupied property. The

measurements must measure the maximum sound level during each minute of the measurement period. If the sound level caused by construction equipment or the producer of the impulsive noise exceeds the maximum sound level for any portion of any minute, it will be deemed that the maximum sound level was exceeded during that minute.

#### **2.3.1.2 City of Carlsbad**

Section 8.48.010 of the City of Carlsbad's Municipal Code states that it shall be unlawful to operate equipment or perform any construction in the erection, demolition, alteration, or repair of any building or structure or the grading or excavation of land during the following hours, except as hereinafter provided:

- a. After 6:00 p.m. on any day, and before 7:00 a.m., Monday through Friday, and before 8:00 a.m. on Saturday;
- b. All day on Sunday; and
- c. On any federal holiday.

#### **2.3.1.3 City of Chula Vista**

Section 17.24.040 of the City of Chula Vista's Municipal Code prohibits the use of any tools, power machinery, or equipment or the conduct of construction and building work in residential zones so as to cause noises disturbing to the peace, comfort, and quiet enjoyment of property of any person residing or working in the vicinity between the hours of 10:00 p.m. and 7:00 a.m., Monday through Friday, and between the hours of 10:00 p.m. and 8:00 a.m., Saturday and Sunday, except when the work is necessary for emergency repairs required for the health and safety of any member of the community.

#### **2.3.1.4 City of Coronado**

Section 41.10.040 of the City of Coronado Municipal Code states that it shall be unlawful for any person, between the hours of 7:00 p.m. and 7:00 a.m. of any day or on legal holidays and Sundays to erect, construct, demolish, excavate for, alter or repair any building or structure in such a manner as to create a disturbing, excessive or offensive noise unless a noise control permit has been applied for and granted beforehand by the Noise Control Officer.

Section 41.10.050 states that it shall be unlawful for any person, including the City of Coronado, to conduct any construction activity so as to cause, at or within the property lines of any property zoned residential, an average sound level greater than 75 decibels during a one-hour period any time between the hours of 7:00 a.m. to 7:00 p.m. unless a variance has been applied for and granted by the Noise Control Officer.

#### **2.3.1.5 City of Del Mar**

Section 9.20.050 of the City of Del Mar Municipal Code states that any person who operates powered construction or landscape equipment and/or who erects, constructs, demolishes, excavates for, alters or repairs any building or structure within the City of Del Mar in such a manner as to cause noise to be received beyond the boundaries of the property on which the construction work is occurring shall comply with the following:

- a. No construction work shall be performed on Sundays or City holidays.
- b. No construction work shall be performed before 9:00 a.m. or after 7:00 p.m. on Saturday.
- c. No construction work shall be performed before 7:00 a.m. or after 7:00 p.m. on Monday through Friday.
- d. Construction activity shall not cause an hourly average sound level greater than 75 decibels on property zoned or used for residential purposes.

#### **2.3.1.6 City of El Cajon**

Section 17.115.130 of the City of El Cajon Municipal Code states that it is unlawful for any person within any residential zone, or within a radius of 500 feet from any residential zone, to operate equipment or perform any outside construction, maintenance or repair work on buildings, structures, landscapes or related facilities, or to operate any pile driver, power shovel, pneumatic hammer, power hoist, leaf blower, mower, or any other mechanical device, between the hours of 7:00 p.m. of one day and 7:00 a.m. of the next day in such a manner that a reasonable person of normal sensitivities residing in the area is caused discomfort or annoyance. This shall also apply to any property in the Mixed-Use zone having one or more residential units. This restriction does not apply to emergency work made necessary to restore property to a safe condition, restore utility service, or to protect persons or property from an imminent exposure to danger.

#### **2.3.1.7 City of Encinitas**

Section 9.32.410 of the City of Encinitas Municipal Code states that except for emergency work, it shall be unlawful for any person, including the City of Encinitas, to operate construction equipment at any construction site on Mondays through Saturdays except between the hours of 7:00 a.m. and 7:00 p.m.

No such equipment or combination of equipment regardless of age or date of acquisition, shall be operated so as to cause noise at a level in excess of 75 decibels for more than eight hours during any 24-hour period when measured at or within the property lines of any property which is developed and used either in part or in whole for residential purposes. In the event that lower noise limit standards are established for construction equipment pursuant to state or federal law, said lower limits shall be used as a basis for revising and amending the noise level limits specified in this subsection.

#### **2.3.1.8 City of Escondido**

Section 17-234 of the City of Escondido Municipal Code states that except for emergency work, it shall be unlawful for any person, including the City of Escondido, to operate construction equipment as follows:

- a. It shall be unlawful for any person, including the City of Escondido, to operate construction equipment at any construction site, except on Monday through Friday during a week between the hours of 7:00 a.m. and 6:00 p.m. and on Saturdays between the hours of 9:00 a.m. and 5:00 p.m., and provided that the operation of such construction equipment complies with the requirements of subsection (c) of this section.

- b. It shall be unlawful for any person, including the City of Escondido, to operate construction equipment at any construction site on Sundays and on days designated by the President, Governor, or City Council as public holidays.
- c. No construction equipment or combination of equipment, regardless of age or date of acquisition, shall be operated so as to cause noise in excess of a one-hour average sound level limit of 75 dBA at any time, unless a variance has been obtained in advance from the City Manager.

#### **2.3.1.9 City of Imperial Beach**

Section 9.32.20 of the City of Imperial Beach Municipal Code states that it is prohibited to use any tools or power machinery so as to cause noise disturbances to anyone working or residing in the vicinity, or in excess of 75 dBA, between the hours of 10:00 p.m. and 7:00 a.m.

#### **2.3.1.10 City of La Mesa**

Section 10.80.100 of the City of La Mesa Municipal Code states that it is unlawful for any person within a residential zone or CN (neighborhood commercial) zone, or within 500 feet of these zones, to operate equipment or perform any outside construction or repair work on buildings, structures, or projects or to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or any other construction-type device between the hours of 10:00 p.m. of one day and 7:00 a.m. of the next day, or on Sundays unless a special permit authorizing the activity has been duly obtained from the chief building official.

#### **2.3.1.11 City of Lemon Grove**

Section 9.24.120 of the City of Lemon Grove Municipal Code states that it is unlawful for any person, including the City of Lemon Grove, to operate any single or combination of powered construction equipment at any construction site on Sundays on any day celebrating official state holidays. It is unlawful for any person to operate any single or combination of powered construction equipment at any construction site on Mondays through Saturdays except between the hours of 7:00 a.m. and 7:00 p.m.

No such equipment, or combination of equipment, regardless of age or date of acquisition, shall be operated so as to cause noise at a level in excess of 75 dBA for more than eight hours during any 24-hour period when measured at or within the property lines of any property which is developed and used either in part or in whole for residential purposes.

#### **2.3.1.12 City of National City**

Section 2.10.160 of the City of National City Municipal Code states that it is unlawful to operate or to allow or cause the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between weekday hours of 7:00 p.m. and 7:00 a.m., or at any time on weekends or holidays.

Noise from construction demolition activities shall not exceed the maximum noise levels at or within the boundaries of affected properties listed in the following schedule at all other times:

Maximum noise levels for nonscheduled, intermittent, short-term operation (less than ten days) of mobile equipment shall not exceed 75 dBA for residential areas and 85 dBA for semi-residential and commercial areas. Maximum noise levels for repetitively scheduled and relatively long-term operation (periods of ten days or more) of stationary equipment shall not exceed 60 dBA for residential areas and 70 dBA for semi-residential/commercial areas.

#### **2.3.1.13 City of Oceanside**

The City of Oceanside does not set construction noise limits in its Municipal Code. The General Plan Noise Element for the City of Oceanside, however, states that noise generated by construction activity shall not exceed 85 dBA when measured 100 feet from the source. Construction activity shall not occur between 8:00 p.m. and 7:00 a.m. that generates noise levels exceeding 50 dBA at any property line.

#### **2.3.1.14 City of Poway**

Section 8.08.100 of the City of Poway Municipal Code states that it is unlawful for any person, including the City of Poway, to operate any single or combination of powered construction equipment at any construction site before 7:00 a.m. or after 5:00 p.m. on Mondays through Saturdays or at any time on a Sunday or holiday.

No such equipment, or combination of equipment regardless of age or date of acquisition, shall be operated so as to cause noise at a level in excess of 75 decibels for more than eight hours during any 24-hour period when measured at or within the property lines of any property which is developed and used either in part or in whole for residential purposes.

#### **2.3.1.15 City of San Diego**

Section 59.5.0404 of the San Diego Municipal Code states that it shall be unlawful for any person, including the City of San Diego, to conduct any construction activity so as to cause, at or beyond the property lines of any property zoned residential, an average sound level greater than 75 dBA during the 12-hour period from 7:00 a.m. to 7:00 p.m.

#### **2.3.1.16 City of San Marcos**

The City of San Marcos has adopted the County of San Diego Noise Ordinance for the purpose of controlling excessive noise levels, including noise from construction activities.

#### **2.3.1.17 City of Santee**

Section 8.12.290 of the City of Santee Municipal Code states that it shall be unlawful for construction equipment to be operated on Sundays, holidays, or between the hours of 7:00 p.m. to 7:00 a.m. Monday through Saturday. If construction is to occur between the hours of 7:00 a.m. to 7:00 p.m. Monday through Saturday, construction equipment shall not exceed 75 dBA for more than 8 hours during any 24-hour period when measured at the property line of a residential use.

#### **2.3.1.18 City of Solana Beach**

Section 7.34.100 of the City of Solana Beach Municipal Code states that construction noise levels are not to exceed 75 dBA for more than eight hours during any 24-hour period when measured at or within

property lines of any property which is developed and used either in part or in whole for residential purposes.

Except for emergency work or other exceptions granted by the City Manager, construction noise would be limited to the following hours:

- a. Before 7:00 a.m. or after 7:00 p.m., Monday through Friday, and before 8:00 a.m. or after 7:00 p.m. on Saturday;
- b. All day on Sunday, New Year's Day, Martin Luther King Day, President's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day.

#### **2.3.1.19 City of Vista**

The City of Vista has adopted the County of San Diego Noise Ordinance for the purpose of controlling excessive noise levels, including noise from construction activities.

### **2.3.2 Federal Aviation Administration**

Standards related to aircraft are contained in CFR Title 14: Aeronautics and Space, Chapter I: Federal Aviation Administration, Department of Transportation, Subchapter C for fixed-wing aircraft noise and Subchapter H for helicopter noise.

#### **2.3.2.1 Part 36: Noise Standards: Aircraft Type and Airworthiness Certification**

Noise data from aircraft engines, propellers, and combinations of each by aircraft type are well documented as each aircraft type must be certified by the FAA under Part 36 prior to use by general and commercial aviation. The helicopters identified under IVMP for aerial surveillance and source treatment have FAA noise certifications, including Robinson R44 and Bell 206, respectively.<sup>1</sup>

Noise standards for the issue of certificates for propeller-driven small airplanes, and propeller-driven commuter category airplanes do not include those airplanes designed for agricultural aircraft operations. Agricultural aircraft operations include those defined as dispersing economic poison and dispensing substances intended for pest control.

#### **2.3.2.2 Part 91: Flight Operations**

Aircraft not operating under an Instrument Flight Rules, emergencies, during takeoff or landing, or Part 137 are required to maintain the altitudes listed in Section 91.119 - Minimum Safe Altitudes: General (a)-(d). Section 91.119 (a), (b), and (c) are provided below.

Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:

- (a) Anywhere. An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.

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<sup>1</sup> 14 CFR Part 36, Appendix J -  
[https://www.faa.gov/about/office\\_org/headquarters\\_offices/apl/noise\\_emissions/aircraft\\_noise\\_levels/](https://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/aircraft_noise_levels/)

- (b) Over congested areas. Over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.
- (c) Over other than congested areas. An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

### **2.3.2.3 Section 137.49: Operations Over Other than Congested Areas**

Notwithstanding Part 91 of this chapter, during the actual dispensing operation, including approaches, departures, and turnarounds reasonably necessary for the operation, an aircraft may be operated over other than congested areas below 500 feet above the surface and closer than 500 feet to persons, vessels, vehicles, and structures, if the operations are conducted without creating a hazard to persons or property on the surface.

### **2.3.2.4 Section 137.51: Operation over Congested Areas: General**

- (a) Notwithstanding Part 91 of this chapter, an aircraft may be operated over a congested area at altitudes required for the proper accomplishment of the agricultural aircraft operation if the operation is conducted:
  - (1) With the maximum safety to persons and property on the surface, consistent with the operation, and
  - (2) In accordance with the requirements of paragraph (i) of this section
    - (i) No person may operate an aircraft over a congested area except in accordance with the requirements of this paragraph.
  - (3) Prior written approval must be obtained from the appropriate official or governing body of the political subdivision over which the operations are conducted.
  - (4) Notice of the intended operation must be given to the public by some effective means, such as daily newspapers, radio, television, or door-to-door notice.
  - (5) A plan for each complete operation must be submitted to, and approved by appropriate personnel of the FAA Flight Standards District Office having jurisdiction over the area where the operation is to be conducted. The plan must include consideration of obstructions to flight, the emergency landing capabilities of the aircraft to be used, and any necessary coordination with air traffic control.
  - (6) Single engine aircraft must be operated as follows:
    - (i) Except for helicopters, no person may take off a loaded aircraft, or make a turnaround over a congested area.



- (ii) No person may operate an aircraft over a congested area below the altitudes prescribed in Part 91 of this chapter except during the actual dispensing operation, including the approaches and departures necessary for that operation.
  - (iii) No person may operate an aircraft over a congested area during the actual dispensing operation, including the approaches and departures for that operation, unless it is operated in a pattern and at such an altitude that the aircraft can land, in an emergency, without endangering persons or property on the surface.
- (7) Multiengine aircraft must be operated as follows:
- (i) No person may take off a multiengine airplane over a congested area except under conditions that will allow the airplane to be brought to a safe stop within the effective length of the runway from any point on takeoff up to the time of attaining, with all engines operating at normal takeoff power, 105 percent of the minimum control speed with the critical engine inoperative in the takeoff configuration or 115 percent of the power-off stall speed in the takeoff configuration, whichever is greater, as shown by the accelerate stop distance data. In applying this requirement, takeoff data is based upon still-air conditions, and no correction is made for any uphill gradient of 1 percent or less when the percentage is measured as the difference between elevations at the end points of the runway divided by the total length. For uphill gradients greater than 1 percent, the effective takeoff length of the runway is reduced 20 percent for each 1 percent grade.
  - (ii) No person may operate a multiengine airplane at a weight greater than the weight that, with the critical engine inoperative, would permit a rate of climb of at least 50 feet per minute at an altitude of at least 1,000 feet above the elevation of the highest ground or obstruction within the area to be worked or at an altitude of 5,000 feet, whichever is higher. For the purposes of this subdivision, it is assumed that the propeller of the inoperative engine is in the minimum drag position, that the wing flaps and landing gear are in the most favorable positions, and that the remaining engine or engines are operating at the maximum continuous power available.
  - (iii) No person may operate any multiengine aircraft over a congested area below the altitudes prescribed in Part 91 of this chapter except during the actual dispensing operation, including the approaches, departures, and turnarounds necessary for that operation.

#### **2.3.2.5 Section 137.53: Operation over Congested Areas: Pilots and Aircraft**

- (a) General. No person may operate an aircraft over a congested area except in accordance with the pilot and aircraft rules of this section.
- (b) Pilots. Each pilot in command must have at least:
  - (1) 25 hours of pilot-in-command flight time in the make and basic model of the aircraft, at least 10 hours of which must have been acquired within the preceding 12 calendar months.

- (2) 100 hours of flight experience as pilot in command in dispensing agricultural materials or chemicals.
- (c) Aircraft.
- (1) Each aircraft must –
    - (i) If it is an aircraft not specified in paragraph (c)(1)(ii) of this section, have had within the preceding 100 hours of time in service a 100-hour or annual inspection by a person authorized by Part 65 or 145 of this chapter, or have been inspected under a progressive inspection system.
    - (ii) If it is a large or turbine-powered multiengine civil airplane of U.S. registry, have been inspected in accordance with the applicable inspection program requirements of Section 91.409 of this chapter.
  - (2) If other than a helicopter, it must be equipped with a device capable of jettisoning at least one-half of the aircraft's maximum authorized load of agricultural material within 45 seconds. If the aircraft is equipped with a device for releasing the tank or hopper as a unit, there must be a means to prevent inadvertent release by the pilot or other crewmember.

## 2.4 EXISTING CONDITIONS

San Diego County is a diverse region with a variety of land uses, habitats, and climatic and topographic conditions. Because of the diversity of vector habitat within the IVMP service area, vector control activities are conducted in a wide variety of ecosystems, habitats types, and land uses throughout the county. Mosquito control activities are associated with wet areas of all types and sizes, including marshes, ponds, creeks, seasonal wetlands, wastewater ponds, stormwater detention basins, ditches, ornamental fishponds, impound areas, etc., as well as individual homes or commercial buildings. Other vectors such as fleas, ticks, and rodents are more commonly found in rural or undeveloped areas, including campgrounds and agricultural areas.

The county is a generally semi-arid environment and supports a wide range of habitats and biological communities that vary greatly depending on the eco-region, soils and substrate, elevation, and topography. Habitats and vegetation communities include vegetated wetlands, oak woodlands, riparian scrub, meadows, freshwater marsh, tidal marshes, sloughs, lakes, ponds, sage scrub, chaparral, grassland habitats, and a variety of other upland and wetland habitats. Sensitive habitats and unique resources within the service area require special consideration due to the potential presence of endangered plants and animals. These include, but are not limited to, active coastal dunes; vernal pools; southern maritime scrub; maritime succulent scrub; southern coastal bluff scrub; riparian scrub, forest, and woodland; and salt marsh. Additionally, man-made facilities that may be served by the IVMP include stormwater detention basins, flood control channels, roadside ditches, and liquid waste detention ponds.

The existing transportation network consists of freeways, highways, regional arterials, local streets and roads, alternative transportation facilities, commercial and general aviation facilities, seaport facilities,

and ports of entry at the U.S./Mexico border. These facilities serve the 18 cities and unincorporated areas of the county.

Land uses within the county vary between the urban areas along the coast and the more rural areas in the eastern regions. The majority of the land in the unincorporated county is open space or undeveloped, while the majority of land in the incorporated cities is developed. More than 50 percent of the total land area in the region is not available for urban development, including public lands, dedicated parks and open space, lands constrained for environmental reasons, and military use (SANDAG 2015). The highest population densities are found in the western (coastal) third of the county, where topography and mild coastal climatic conditions have attracted intensive development. Urban uses tend to consist of residential and commercial uses, as well as small-scale agricultural and industrial uses. Land uses that occur throughout the county include low-density residential and commercial uses, agricultural operations, mineral resources and extraction, and undeveloped habitats, as well as national forest and state park lands. Public and semi-public facilities, recreational areas, and open space conservation areas are located throughout the county.

## **3.0 METHODOLOGY AND EQUIPMENT**

### **3.1 NOISE MODELING SOFTWARE**

Modeling of the exterior noise environment for this report was analyzed using the Roadway Construction Noise Model (RCNM; USDOT 2008), which incorporates estimates of sound levels from standard construction equipment based on manufacturers' specifications and measured reference noise levels. Although the IVMP does not include construction of permanent noise sources as part of the Proposed Project, the RCNM is appropriate because it is used for individual equipment and is a state-approved model for analyzing temporary noise levels.

### **3.2 NOISE-GENERATING ACTIVITIES**

Under the Proposed Project, the IVMP would continue the use of the following vector control techniques: surveillance and monitoring, source reduction (i.e., physical control), source treatment (i.e., biological and chemical controls), public education and outreach, and disease diagnostics. Emerging vector control strategies that may be implemented to address future public health risks and public nuisances could include, but not be limited to, increased or advanced/early source prevention and/or reduction, surveillance, or physical/biological/chemical controls. Of these, surveillance and monitoring, source reduction, and source treatment are the only the vector control techniques evaluated in this analysis, as the other techniques (i.e., public education and outreach and disease diagnostics) would not result in temporary noise impacts.

Surveillance and monitoring activities include evaluation of mosquito-breeding areas by conducting surveys via ground vehicles, aircraft (including piloted and unmanned), watercraft, and remote sensing equipment; trapping of mosquitoes and rodents; and testing of collected samples for vector-borne diseases. The reduction of vector-breeding sources primarily involves physical control techniques that eliminate or reduce standing water that functions as mosquito breeding habitat. These techniques include but are not limited to vegetation management including trimming and removal of vegetation and application of herbicides; removal of sediment; water control; and other maintenance activities.

Source treatment, which includes biological and chemical controls used to manage and reduce vectors, can include the use of natural predators, parasites, or pathogens to reduce immature mosquito numbers (biological controls) and application of pesticides that target both larvae (larvicides) and adult mosquitos (adulticides) (chemical controls). One of the techniques employed by the VCP for biological controls is the application of mosquito fish in artificial mosquito breeding sources such as ornamental ponds, rain barrels, horse troughs, neglected swimming pools, and spas to reduce the abundance of mosquitoes. Pesticides are applied through on-ground techniques such as by foot with backpack applicators, vehicle-mounted equipment, or watercraft by qualified certified technicians, or by aircraft (including piloted and unmanned) when land-based methods are not practicable due to the size of the area to be treated or impediments to access. As described in Section 1.2, the IVMP and VCP follow the best management practices (BMPs) described in the *Best Management Practices for Mosquito Control in California* (CDPH 2012) and in the *California Mosquito-borne Virus Surveillance and Response Plan* (CDPH 2005) which detail vector control and pesticide application procedures.

Noise-generating activities associated with the IVMP would include mobile equipment that is not meant to be stationary or permanent. Noise from the IVMP would be temporary and would last only for the duration of each activity. No potential exists to produce permanent increases in noise as a result of the IVMP, and therefore are not discussed further. Examples of typical temporary noise levels for common noise sources and equipment applicable to the IVMP are presented in Table 1. Noise levels are addressed at a programmatic level based on the types of equipment that may be used during surveillance and monitoring, source reduction, and source treatment activities. Due the programmatic nature of this document, the exact locations and extent of all activities to be conducted under the IVMP are not known at this time. As such, site-specific evaluation of noise sources and potential effects is beyond the scope of this programmatic evaluation.

### **3.2.1 Equipment Noise Levels**

The full list of equipment to be used in the IVMP is provided in Appendix A. Some equipment would not generate elevated noise levels and were therefore excluded from this analysis. Excluded equipment includes hand operated tools, attachments, and other equipment such as battery-powered traps. A list of noise-generating equipment is provided in Table 3, *IVMP Equipment Noise Levels*. Noise levels are based on manufacturer data sheets, referenced studies, and noise databases. Noise levels are based on a standard modeled distance of 50 feet as a reference, and do not assume the incorporation of BMPs or noise attenuation measures that the IVMP may implement.

**Table 3**  
**IVMP EQUIPMENT NOISE LEVELS**

Equipment Name	Equipment Type	Distance from Receiver	dBA L <sub>EQ</sub> (one hour)
Pond Pump – WB15	Pond Pump	50 feet	70
Pond Pump – Electric Pump	Pond Pump	50 feet	70
Pioneer ULV (battery-powered)	Hand Sprayer/Fogger	50 feet	<45
Arrow ULV (gas)	Hand Sprayer/Fogger	50 feet	87
Colt ULV (gas)	Hand Sprayer/Fogger	50 feet	87
Skid Sprayer	Hand Sprayer/Fogger	50 feet	<45
Skid Sprayer (small plastic)	Hand Sprayer/Fogger	50 feet	<45
Maruyama	Granular applicator	50 feet	<45
Mozzie Vehicle-mounted sprayer	Vehicle-mounted sprayer	50 feet	87
DynaJet	Vehicle-mounted sprayer	50 feet	87
Buffalo turbine	Vehicle-mounted sprayer	50 feet	87
Boat motor – four stroke engine	Motor	50 feet	85
Boat motor – battery-powered electric motor	Motor	50 feet	70
Helicopter	Aircraft	400 feet	87
Piper Chieftain	Aircraft (fixed-wing)	N/A <sup>1</sup>	N/A <sup>1</sup>
Pickup Truck at 35 mph <sup>1</sup>	Vehicle	50 feet	53
Excavator <sup>2</sup>	Construction Equipment	100 feet	71
John Deere 6420 with Flail Mulch Mower S900*	Construction Equipment	50 feet	80
Caterpillar D3*	Construction Equipment	50 feet	62
Salsco 6" 6235BXT*	Wood Chipper	50 feet	55
Marshmaster MM-1LX*	Aquatic Weed Harvester	50 feet	61

Source: Appendix A

<sup>1</sup> Not Applicable – agricultural aircraft are exempt under CFR 36 1(a)(2) and 36.1583. Noise from fixed-wing aircraft used for agricultural operations, including pest control applications, is not regulated by the FAA and noise information is not available.

<sup>2</sup> Noise level conservatively based on 100 passes of a singular receiver at 35 mph within a given hour.

<sup>3</sup> Noise level based on Roadway Construction Noise Model

\* Equipment/vehicle is not listed in County's existing inventory (2020b), but could potentially be used, if needed.  
dBA = A-weighted decibel; L<sub>EQ</sub> = time averaged level; ULV = Ultra Low Volume

### 3.2.2 Traffic

Traffic trips generated by the IVMP would primarily result from Certified Vector Control Technicians travelling between County offices and individual vector sites that require surveillance or source treatment. As a result, these traffic trips would be short-term and temporary. As described in Section 2.1, a doubling of noise-generating activity (i.e., traffic) would cause a doubling in noise (a 3 dBA increase), which would be considered a significant increase. Additionally, the types of vehicles that would be used (e.g., pickup trucks and other light vehicles) do not generate noise levels that are louder than other common vehicles. Individual IVMP activities, and therefore the vehicles associated with them, would be dispersed over a large area. As such, noise level increases associated with IVMP-related traffic are anticipated to be less than double any trafficked roadway, and noise levels from IVMP traffic are not further analyzed.

## 4.0 GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE

The following significance threshold categories for noise are based specifically on the County's Guidelines for Determining Significance and Report Format and Content Requirements (County 2009). The County's Guidelines for Determining Significance were adapted from Appendix G of the CEQA Guidelines and developed using the best available information.

- Noise Sensitive Land Uses Affected by Airborne Noise
  - Exterior Locations
  - Interior Locations
- Project – Generated Airborne Noise
  - Non-Construction Noise
  - Construction Noise
  - Impulsive Noise
- Ground-borne Vibration and Noise Impacts

### 4.1 NOISE SENSITIVE LAND USES AFFECTED BY AIRBORNE NOISE

Cities and counties in California are required to include a noise element in their general plans, which include policies intended to achieve noise compatibility between land uses. These policies typically establish average noise levels that are acceptable at different land uses. The standards established in the noise elements for the IVMP service area are intended to establish land-use compatibility for planning purposes and are not intended to address temporary and sporadic sources of noise such as the IVMP activities. Therefore, noise compatibility discussions in general plan noise elements are not discussed further in this technical report.

Furthermore, the IVMP includes implementation of surveillance and monitoring, source reduction (i.e., physical control), source treatment (i.e., biological and chemical controls), public education and outreach, and disease diagnostics for the purpose of protecting public health, well-being, and economic effects from vectors throughout San Diego County. The IVMP does not propose changes in land use or improvements that would expose people to excessive noise levels associated with proximity to a public airport or private airstrip. Therefore, airport land use noise compatibility is not discussed further.

### 4.2 PROJECT-GENERATED AIRBORNE NOISE

A significant impact would result if project implementation would generate airborne noise which, together with noise from all sources, will be in excess of established thresholds for (1) non-construction noise; (2) construction noise; or (3) impulsive noise as discussed below.

#### 4.2.1 Non-Construction Noise

The IVMP would be implemented within a service area that includes all 18 incorporated cities and unincorporated areas of San Diego County. IVMP activities would be short-term and temporary in nature. Therefore, although the IVMP does not include "construction" as part of the Proposed Project,

certain activities may cause temporary effects similar to construction activities. Therefore, construction noise standards will be used as a method to describe allowable temporary noise. As described in Section 2.3 and shown in Table 1, noise ordinances vary throughout the county depending on the jurisdiction. For the jurisdictions that establish a noise level limit for construction, all except one use a volume of 75 dBA. Eight jurisdictions allow this level to be calculated on the basis of one hour, five jurisdictions (including the County) use an 8-hour average, and one (the City of San Diego) uses a 12-hour average to calculate the limit. The one-hour average is the most restrictive, as it limits the amount of quieter time included in the calculation that would potentially lower the overall average noise level.

Because most of the jurisdictions use a one-hour average and because this is the most conservative, this report uses the threshold of 75 dBA  $L_{EQ}$  (one hour) to assess significance for individual IVMP activities.

#### **4.2.2 Construction Noise**

As discussed above in Section 4.2.1, the IVMP does not include “construction” as part of the Proposed Project, but certain activities may cause temporary effects similar to construction activities. Therefore, construction noise standards will be used as described in Section 4.2.1 as a method to describe allowable temporary noise.

#### **4.2.3 Impulsive Noise**

Impulsive noise is defined as any single noise event or a series of single noise events, which causes a high peak noise level of short duration (one second or less), measured at a specific location. Impulsive noise is generated by activities such as pile impact driving and blasting. Due to the nature of the IVMP, activities that would generate impulsive noise would not occur and is not analyzed or discussed further in this report.

### **4.3 GROUND-BORNE VIBRATION AND NOISE IMPACTS**

The IVMP does not propose equipment that would be a significant source of ground-borne vibration such as blasting, pile driving, or substantial compacting activities. The IVMP does not propose vibration sources that would impact existing or foreseeable future NSLUs, nor does it include new development that would create or locate NSLUs that would be impacted by ground-borne vibration and noise. Furthermore, construction and operational activities implemented under IVMP shall conform to the requirements of the applicable noise element and/or municipal code governing acceptable noise as well as ground-borne vibration levels and construction activity hours. Therefore, ground-borne vibration noise impacts are not analyzed or discussed further in this report.

## **5.0 ANALYSIS OF PROJECT EFFECTS**

For the purpose of this technical report, the noise analysis has been divided into three categories: vector control equipment, aircraft, and construction equipment.

## **5.1 POTENTIAL NOISE IMPACTS**

### **5.1.1 Vector Control Equipment**

BMPs would be implemented restricting the operation of noise-generating equipment to time-of-day limits established by the applicable local jurisdiction's municipal code or ordinance. As shown in Table 2, jurisdictions identify both noise level limits and time-of-day limits for construction and short-term construction-related equipment.

Vector control equipment that would be used for individual surveillance and monitoring, source reduction, and source treatment activities includes pumps, hand sprayers and foggers, vehicle-mounted sprayers, vehicles, and construction equipment such as excavators, dump trucks, and other earthmoving equipment. As shown in Table 3, at 50 feet, noise levels for individual equipment have the potential to exceed the 75 dBA  $L_{EQ}$  (one hour) limit if IVMP equipment were to operate continuously and uninterrupted during a given hour. However, due to the nature of individual IVMP activities, noise from vector control equipment would be periodic, not continuous, and noise-generating activities would be limited to brief periods of time spread out over multiple days in multiple locations. Operations would therefore minimize the amount of time any sensitive receptor was exposed to increased noise. In addition, operations at individual locations would be mobile, temporary, sporadic, and used at various distances from individual NSLUs. As a result, noise levels are not anticipated to exceed significance thresholds.

Furthermore, BMPs would be implemented that would reduce noise further. Applicable BMPs include the requirement to notify nearby properties prior to construction-type activities, speed reduction measures for vehicles, restricting the operation of noise-generating equipment during applicable hours, requiring equipment to be turned off when not in use, enforcing maintenance of tools and equipment, and the use of hand-held tools for vegetation removal and trimming. Therefore, noise levels generated by individual IVMP activities with the incorporation of applicable BMPs would be less than significant.

### **5.1.2 Aircraft**

Aircraft are anticipated to be used for aerial surveillance and source treatment (i.e., chemical control application) within difficult-to-access areas that are generally in undeveloped areas away from NSLUs. Most aircraft operations associated with source treatment would take place over open space areas that are not heavily populated. Although some of the aerial activity could occur over all land-use types, the impacts on any one location would be minimized because the aircraft would continuously move to new locations. Fixed-wing aircraft would not have the capability to remain stationary over any specific location. Due to operational requirements of aerial source treatment, helicopters would also not remain stationary over specific locations. As a result, impacts to NSLUs would be less than significant due to the short periods of time aircraft would be in use.

### **5.1.3 Construction Equipment**

BMPs would be implemented restricting the operation of noise-generating equipment to time-of-day limits established by the applicable local jurisdiction's municipal code or ordinance. As shown in Table 2, jurisdictions identify both noise level limits and time-of-day limits for construction and short-term construction-related equipment.



Traditional construction activities, such as demolition, blasting, pile driving, or substantial compacting activities for development, are not included in the IVMP. However, IVMP activities that involve standard construction equipment, such as ground disturbance (e.g., grading), vegetation management, water control, and other maintenance activities, may be required for specific circumstances during implementation of the IVMP. As a result, large-scale construction equipment is not anticipated, but the use of an excavator, dump truck, and other earthmoving equipment may be used for operations associated with physical activities. As such, those activities would be temporary in nature and would involve enhancing the environment to minimize vegetation overgrowth or maximizing open water areas to provide additional predator habitat and promote water circulation and/or wave action. Construction equipment would be mobile, resulting in fluctuating noise levels as the equipment travels around the site. Mobile construction equipment is not typically used at full power for the entire duration of construction activities in a given day, and construction equipment would not be in operation for the entire construction time frame (e.g., 7:00 a.m. to 7:00 p.m.). At 100 feet, a dozer and dump truck would generate a combined noise level of 72.8 dBA  $L_{EQ}$  (1-hour) which is less than established municipal thresholds of 75 dBA  $L_{EQ}$ .

BMPs would be implemented that would further reduce noise generated by construction equipment. Applicable BMPs include the requirement to notify nearby properties prior to construction-type activities, speed reduction measures for vehicles, restricting the operation of noise-generating equipment during applicable hours, requiring equipment to be turned off when not in use, and the maintenance of tools and equipment. Through the application of these BMPs, noise levels generated by construction equipment would be less than significant.

## 5.2 CUMULATIVE IMPACT ANALYSIS

The Proposed Project includes implementation of a countywide IVMP in which individual activities would occur throughout San Diego County. The IVMP consists of a range of activities involving surveillance of existing and potential vector threats as well as physical, biological, and chemical control methods to reduce the spread of mosquito-borne and other vector-borne diseases and nuisances. Due to the programmatic nature of this document, the exact locations and extent of all activities to be conducted under the IVMP are not known at this time. Activities implemented under the IVMP will be required to comply with all applicable regulations governing temporary noise impacts, and implementation of BMPs would effectively reduce potential noise impacts to less than significant.

For a project to result in a cumulative noise impact, two projects would need to be constructed simultaneously and be located in close physical proximity to a noise-sensitive land use for the noise levels to compound. As noted earlier, the Proposed Project would incorporate BMPs that would ensure that the noise level limit does not exceed a one-hour average of 75 dBA, which is consistent with the majority of the jurisdictions included in this program and is more restrictive than jurisdictions that use an 8-hour average, 12-hour average, or establish no construction noise limit at all. Therefore, while there is a potential for a cumulative construction noise impact to result if two or more projects are constructed at the same time and in close proximity to a noise-sensitive land use, the Proposed Project's contribution to that impact would not be cumulatively considerable.

## 5.3 MITIGATION MEASURES

Implementation of the IVMP BMPs identified above would ensure the reduction of noise levels for individual IVMP activities to less than significant levels. As a result, no mitigation measures would be required.

## 6.0 CONCLUSION

As described above, BMPs would be implemented to minimize noise from the use of standard equipment for the IVMP activities. Implementation of the BMPs would ensure that noise levels from IVMP activities would occur within the hours designated by each municipality, and that noise levels would not exceed 75 dBA (one hour). Additionally, individual IVMP activities' noise contributions to noise impacts would not be cumulatively considerable. No mitigation measures would be required.

## 7.0 LIST OF PREPARERS

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# Appendix A

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## IVMP Equipment List

**Appendix A**  
**IVMP EQUIPMENT LIST**

Equipment	Manufacturer Name / General Description / Model Number	Method of Application (Aerial, Water, Land)	Power Source	IVMP Activity Type
Pond Pump – WB15 <sup>1</sup>	Honda / 2.2 HP	Water	Gas	control
Pond pump-electric pump <sup>1</sup>	N/A	N/A	Battery	control
Pioneer ULV, ultra low volume fogger <sup>2</sup>	Longray/Rechargable Backpack ULV Fogger/ LR- PIONEER2	Land	Battery	control
Hand Duster, handheld pesticide dust applicator	B&G/2qt Hand Duster/1152-A	Land	Hand operated	control
Sotera Duster, handheld pesticide dust applicator	Sotera Systems/Handheld Duster/S25V	Land	Hand operated	control
Arrow ULV, ultra low volume fogger <sup>3</sup>	Arro-Gun Spray Systems/Handheld ULV Fogger/Bullet	Land	Gas powered	control
Colt ULV, ultra low volume fogger <sup>3</sup>	London Fog/Handheld ULV Fogger/Colt-T	Land	Gas powered	control
Duster attachment	Maruyama/Mist Duster/MD155DX	Land	Hand operated	control
Maruyama, backpack granular larvicide applicator <sup>4</sup>	Maruyama/Mist Duster/MD155DX	Land	Gas powered	control
Pioneer ULV, ultra low volume fogger	Longray/Rechargable Backpack ULV Fogger/LR- PIONEER2	Land	Battery	control
Maruyama, backpack granular larvicide applicator <sup>4</sup>	Maruyama/Mist Duster/MD155DX	Land	Gas powered	control
Maruyama, backpack granular larvicide applicator <sup>4</sup>	Maruyama/Mist Duster/MD155DX	Land	Gas powered	control
Skid sprayer (metal) <sup>5</sup>	Rears SS304; 50 gal. Powered by Honda 5 HP	Land	Gas powered	control
Skid sprayer (small plastic) <sup>5</sup>	Rainer tank; 20 gal. Powered by ShurFlo 12- volt spray motor	Land	Battery	control
Spray cans (new) - 3.5 gal	B&G/Compressed Air Sprayer/N300SV	Land	Hand operated	control
Spray cans (used) - 2 gal	N/A	Land	Hand operated	control
Spray cans (used) - 3.5 gal	B&G/Compressed Air Sprayer/N300SV	Land	Hand operated	control
Drum pump (metal) - new	Dayton/Rotery Drum Pump/4HA34	Land	Hand operated	control
Drum pump (metal) - used	Dayton/Rotery Drum Pump/4HA34	Land	Hand operated	control
Drum pump (plastic)	N/A	Land	Hand operated	control
Spray wands	N/A	Land	Hand operated	control
Mozzie, truck-mounted sprayer <sup>6</sup>	N/A	Land	Battery	control
Poly tank	N/A	N/A	N/A	control
DynaJet, truck-mounted sprayer <sup>6</sup>	L30	Land	Battery	control
14 Jac flat bottom boat	Klamath	Water	Hand operated	control
Boat motor - 5 horsepower (hp) four stroke engine <sup>7</sup>	Honda	Water	Gas	control

**Appendix A (cont.)**  
**IVMP EQUIPMENT LIST**

Equipment	Manufacturer Name / General Description / Model Number	Method of Application (Aerial, Water, Land)	Power Source	IVMP Activity Type
Boat motor - 9.9 hp four stroke engine <sup>7</sup>	Honda	Water	Gas	control
Boat motor - electric motor 12-volt battery <sup>**</sup>	Minn Kota	Water	battery	control
Buffalo Turbine, truck-mounter sprayer <sup>**</sup>	Buffalo Turbine	Land	Gas	control
Emergence traps (UCR)	N/A	N/A	Hand operated	surveillance
Gravid Aedes trap (GAT) - plastic trap that attracts gravid mosquitoes with standing water	Biogents/Mosquito Trap/BG-GAT	N/A	N/A	surveillance
Mouse traps	N/A	N/A	N/A	surveillance
Squirrel traps	N/A	N/A	N/A	surveillance
BG traps (used)	Biogents/Mosquito Trap/BG-Sentinel 2	N/A	Battery	surveillance
Gravid traps	BioQuip/Mosquito Trap/2800S	N/A	Battery	surveillance
Emergence traps (UCR)	N/A	N/A	N/A	surveillance
BG traps (new)	Biogents/Mosquito Trap/BG-Sentinel 2	N/A	Gas	surveillance
Dry ice canisters (BG)	N/A	N/A	N/A	surveillance
Dry ice canisters (EVS)	N/A	N/A	N/A	surveillance
Autocidal gravid ovitrap (AGO) traps female (Aedes) mosquitoes	Springstar/Mosquito Trap/Biocare Gravid Ovitrap	N/A	N/A	surveillance
Blue traps, dual attractant trap combining both the gravid and encephalitis vector survey (EVS) functionality	N/A	N/A	Battery	surveillance
Gravid traps (old)	BioQuip/Mosquito Trap/2800S	N/A	Battery	surveillance
Dry ice canisters (EVS)	N/A	N/A	N/A	surveillance
EVS traps	N/A	N/A	battery	surveillance
Rat monitors	Bell Laboratories/Rodent Trap/Protecta Evo Ambush EA2000	N/A	N/A	surveillance
Helicopter <sup>8</sup>	Bell 206B / Robinson R44 Raven II	Air	Jet fuel	control/ surveillance
Aircraft (fixed-wing)	Piper Chieftain	Air	Fuel	control/ surveillance
Dump Truck <sup>9</sup>	Dump Truck	Land	Gas	control
Excavator <sup>10</sup>	Caterpillar 320	Land	Gas	control
Polaris Sportsman ATV <sup>11</sup>	Polaris Sportsman 6x6 570 with plow	Land	Gas	control
Tractor <sup>12</sup>	John Deere 6420 with Flail Mulch Mower S900	Land	Gas	control
Tracked Dozer <sup>13</sup>	Caterpillar D3	Land	Gas	control

**Appendix A (cont.)**  
**IVMP EQUIPMENT LIST**

Equipment	Manufacturer Name / General Description / Model Number	Method of Application (Aerial, Water, Land)	Power Source	IVMP Activity Type
Wood Chipper**	Salsco 6" 6235BXT	Land	Gas	control
Aquatic Weed Harvester**	Marshmaster MM-1LX	Water	Gas	control
LECO ULV**	Model 1600/DP, Lowndes Engineering Co., Inc w/ Universal RAI Blower (45 U-RAI)	Land	Gas	control

Source of equipment inventory: County of San Diego, Department of Environmental Health. Date of Inventory: 4/21/20

\* Equipment noise levels are incorporated by reference based on comparable equipment for vector control activities as cited in the Integrated Mosquito and Vector Management Programs for Nine Districts project (Grant Visual Technology 2013) and respective vector districts' Program Environmental Impact Reports. See Table 3 in the Noise Technical Report for IVMP equipment and documented noise levels. Equipment that is not notated would not generate elevated noise levels and were therefore excluded from further analysis.

\*\* Noise levels provided by manufacturer or measured by County personnel (levels assumed at source and extrapolated based on 50-foot distance).

- 1 Napa County Mosquito and Vector Control District (SCH# 2012052042): FloTech Trash Pump
- 2 Napa County Mosquito and Vector Control District (SCH# 2012052042): Pioneer Backpack Fogger
- 3 Contra Costa Mosquito and Vector Control District (SCH# 2012052055): Colt-T ULV
- 4 Alameda County Mosquito Abatement District (SCH# 2012052037): Maruyama Mist Duster MD155DX
- 5 San Mateo County Mosquito and Vector Control District (SCH# 2012052063): Nurse Rig 200 gal tank and sprayer
- 6 San Mateo County Mosquito and Vector Control District (SCH# 2012052063): Clark Grizzly ULV Truck Mounted Sprayer
- 7 Marin-Sonoma Mosquito and Vector Control District (SCH# 2012052066): Klamath Boat
- 8 Marin-Sonoma Mosquito and Vector Control District (SCH# 2012052066): Bell 206 Jet Ranger
- 9 Marin-Sonoma Mosquito and Vector Control District (SCH# 2012052066): Dump Truck 5-ton
- 10 Northern Salinas Valley Mosquito Abatement District (SCH# 2012051081): Cat 320 Excavator
- 11 Alameda County Mosquito Abatement District (SCH# 2012052037): 2001 6x6 Polaris ATV
- 12 Northern Salinas Valley Mosquito Abatement District (SCH# 2012051081): John Deere 6420 with Flail Mulch Mower S900 (PTO)
- 13 Northern Salinas Valley Mosquito Abatement District (SCH# 2012051081): Cat D3 Dozer