

12 Noise

Chapter 12 evaluates potential noise impacts from Program implementation on human receptors. Impacts of Program noise on fish and wildlife are addressed in Chapter 4, Biological Resources—Aquatic and Chapter 5, Biological Resources—Terrestrial. Results of the evaluation are provided at a programmatic level. Section 12.1, Environmental Setting, presents an overview of the physical properties and environmental noise; and contains federal, state, and local ordinances, plans, and regulations that are applicable to the Program. Section 12.2, Environmental Impacts and Mitigation Measures, presents the following:

- > Environmental concerns and evaluation criteria used to determine whether the Program alternatives would cause significant impacts on noise levels throughout the region
- > Evaluation methods and assumptions
- > Discussion of noise impacts of the Program alternatives
- > Cumulative impacts summary
- > A summary of environmental impacts due to noise

Appendix D, Noise Analysis Technical Report includes additional detailed information regarding the physical properties of noise; federal, state, and local noise regulations; and equipment use noise generated by each of the Program alternatives. Table 2-7 (Chapter 2) presents the District's list of equipment that could generate noise. Handheld equipment is not included in this table.

12.1 Environmental Setting

12.1.1 Overview of Environmental Sound

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. Several noise measurement scales are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 dB represents a 10-fold increase in acoustic energy, while 20 dB is 100 times more intense, 30 dB is 1,000 times more intense, etc. A relationship exists between the subjective noisiness or loudness of a sound and its intensity. Each 10-dB increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities.

Several methods are used to characterize sound. The most common is the A-weighted sound level, or dBA. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be used. Most commonly, sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called L_{eq} . The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

Because the sensitivity to noise increases during the evening and at night—excessive noise interferes with the ability to sleep—24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The Community Noise Equivalent Level (CNEL) is a measure of the cumulative noise exposure in a community, with a 5-dB penalty added to evening (7:00 pm to 10:00 pm) and a 10-dB addition to nocturnal (10:00 pm to 7:00 am) noise levels. The day/night average sound level (L_{dn}) is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this 3-hour period are grouped into the daytime period.

Noise changes both in level and frequency spectrums as it travels from the source to the receiver. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise is reduced depends on a variety of factors, including the noise source type as well as the region over which the noise source propagates. Noise generated by a point source, such as equipment at a construction site, drops off at a rate of 6 dBA per doubling of distance. Traffic noise attenuates, or is reduced, at a different rate. The movement of vehicles makes the noise source appear to emanate from a line as opposed to a single point when viewed over a period of time. Noise levels drop-off at a rate of about 3 dBA per doubling of distance for this type of source near hard surfaces, such as paved areas or bodies of water. However, ground type also plays into how much of a drop off over distance will occur. Surfaces, such as plowed fields, crops, or grass, absorb some of the sound energy as the sound passes over; therefore, noise is reduced by 4.5 dBA for every doubling of the distance in such areas.

12.1.2 **Community Noise Levels**

Community noise levels depend on the intensity of nearby human activity. Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45- to 60-dBA range, and high above 60 dBA. In rural and undeveloped areas, L_{dn} can fall below 35 dBA. Levels above 75 to 80 dBA are more common near major freeways and airports. Although people often accept the higher levels associated with very noisy urban areas, they nevertheless are considered to be adverse to public health. The human pain threshold for sound is 120 dBA.

Typical noise levels from both mobile and stationary sources, including noise sources not associated with the Program but provided for comparison purposes, are included in Table 12-1. Appendix D provides additional information on equipment noise levels at 400 feet from the source.

Table 12-1 Typical Stationary and Mobile Noise Source Sound Levels in dBA

Noise Source	Sound Level in dBA
Sprayer, handheld	10-20
Noise at ear level from rustling leaves	20
Room in a quiet dwelling at midnight	32
Soft whisper at 5 feet	34
Large department store	50 to 65
Room with window air conditioner	55
Leaf blower/vac	55-105
Conversational speech	60 to 75
Pump station equipment with noise abatement	62
Sprayer, powered, truck- or trailer-mounted	65-105
Passenger car at 50 feet	69
Vacuum cleaner in private home at 10 feet	69
Tractor, agricultural	76-110
Ringling alarm at 2 feet	80
Brush/weed cutter	90-97
Roof-top air conditioner	85
Small bulldozer (Cat D3) or excavator (Cat 320)	74-80
Heavy bulldozer at 50 feet	87

Table 12-1 Typical Stationary and Mobile Noise Source Sound Levels in dBA

Noise Source	Sound Level in dBA
All-terrain vehicle (ATV)	87-109
Heavy city traffic	90
Lawn mower	91-98
Chainsaw	90 at 50 feet and 72 at 400 feet
Jet aircraft at 500 feet overhead	115
Construction blast	120 to 145 at 50 feet

Sources: Equipment manufacturer specification sheets, Noise Control Reference Handbook, Industrial Acoustics Company

Notes:

Bold indicates equipment used in the Program. Sound levels are measured at 50 feet from the source unless otherwise noted.

The human pain threshold for sound is 120 dBA.

12.1.3 Noise Level Acceptance Criteria

The surrounding land uses dictate what noise levels would be considered acceptable or unacceptable. In rural and undeveloped areas away from roads and other human activity, the day-to-night difference is normally small. Because of diurnal activity, nighttime ambient levels in urban environments are about 7 dB lower than the corresponding daytime levels. Nighttime noise is a concern because of the likelihood of disrupting sleep. Noise levels above 45 dBA at night can result in the onset of sleep interference. At 70 dBA, sleep interference effects become considerable (USEPA 1974).

12.1.4 Sensitive Receptors

Some land uses are generally regarded as being more sensitive to noise than others due to the types of population groups or activities involved. The definition of sensitive receptors varies by jurisdiction, but in general sensitive population groups include children and the elderly and sensitive land uses include residential (single- and multifamily, mobile homes, dormitories, and similar uses), guest lodging, parks and outdoor recreation areas, hospitals, nursing homes and other long-term medical care facilities, and educational facilities, including schools, libraries, churches, and places of public assembly.

12.1.5 Regulatory Setting

Federal and state guidelines and local ordinances pertaining to environmental noise within the Service Area are cited in this section.

12.1.5.1 Federal Regulations

The federal noise standards or guidelines discussed in this section are relevant to the implementation of Program alternatives. Noise regulations and standards are provided for the following agencies:

- > USEPA
- > Federal Aviation Administration (FAA)

12.1.5.1.1 US Environmental Protection Agency

The USEPA has developed guidelines on recommended maximum long-term noise levels to protect public health and welfare (USEPA 1974). The USEPA does not enforce these guidelines, but rather offers them as a planning tool for state and local agencies. Table 12-2 provides examples of protective noise levels recommended by the USEPA. They are applicable to noise generated on federal lands, such as national wildlife refuges.

Table 12-2 USEPA-Designated Long-Term Noise Safety Levels

Effects	Noise Level	Area
Hearing Loss	$L_{eq}(24) < 70$ dB	All areas
Outdoor Activity Interference and Annoyance	$L_{dn} < 55$ dB	Outdoors in residential areas and farms and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use.
	$L_{eq}(24) < 55$ dB	Outdoor areas where people spend limited amounts of time, such as schoolyards, playgrounds, etc.
Indoor Activity Interference and Annoyance	$L_{dn} < 45$ dB	Indoor residential areas
	$L_{eq}(24) < 45$ dB	Other indoor areas with human activities such as schools, etc.

Source: USEPA 1974

$L_{eq}(24)$ = sound energy averaged over a 24-hour period.

L_{dn} = L_{eq} with a 10-dB nighttime weighting.

12.1.5.1.2 Federal Aviation Administration

The major parts of 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, were reviewed for applicability to Program flight operations, specifically:

Part 91: Flight Operations

Portions of Part 91 are provided to describe operational restrictions associated with different aircraft types. Altitude limitations governing agricultural operations are given in Part 137, Agricultural Operations. They are included because the FAA considers aerial spraying to be an agricultural use, even if it is not specifically used for agricultural purposes.

Fixed-wing aircraft not operating under 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.
- (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.

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.

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 are 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.

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.

12.1.5.2 State Regulations

California Government Code Section 65302(f) encourages each local government entity to conduct noise studies and implement a noise element as part of its General Plans. In addition, the California Office of Planning and Research published guidelines for evaluating the compatibility of various land uses as a function of community exposure to permanent or long-term noise sources, and they are listed in Table 12-3. In general, noise levels less than 60-dBA L_{dn} are acceptable for all land uses, including residences, schools, and other noise-sensitive receptors.

Table 12-3 Land Use Compatibility for Community Noise Environment

Land Use Category	Community Noise Exposure – L _{dn} or CNEL in dBA							
	50	55	60	65	70	75	80	
Residential – Low-Density Single Family, Duplex, Mobile Home	Green	Green	Green	Green	Green	Green	Green	Green
Residential – Multifamily	Green	Green	Green	Green	Green	Green	Green	Green
Transient Lodging – Motel, Hotel	Green	Green	Green	Green	Green	Green	Green	Green
Schools, Libraries, Churches, Hospitals, Nursing Homes	Green	Green	Green	Green	Green	Green	Green	Green
Auditorium, Concert Hall, Amphitheaters	Green	Green	Green	Green	Green	Green	Green	Green
Sports Arena, Outdoor Spectator Sports	Green	Green	Green	Green	Green	Green	Green	Green
Playgrounds, Neighborhood Parks	Green	Green	Green	Green	Green	Green	Green	Green
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Green	Green	Green	Green	Green	Green	Green	Green
Office Buildings, Business Commercial and Professional	Green	Green	Green	Green	Green	Green	Green	Green
Industrial, Manufacturing, Utilities, Agriculture	Green	Green	Green	Green	Green	Green	Green	Green

Legend

	Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
	Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design.
	Normally Unacceptable: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.
	Clearly Unacceptable: New construction or development generally should not be undertaken.

Source: State of California 1998

CNEL = Community Noise Equivalent Level

dBA = A-weighted decibel(s)

L_{dn} = Day-Night Noise Level

12.1.5.3 Local Regulations

A listing of noise ordinances for Napa County and the cities of American Canyon, Calistoga, Napa, and St. Helena, and the Town of Yountville is included herein and relevant provisions are summarized in Table 12-4. 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 and are usually the same as or similar to those recommended by the state. The standards established in the noise elements for the Program 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 would be generated by the Proposed Program (IMVMP) addressed in this PEIR. Noise elements are, therefore, not discussed further.

Napa County and each of the cities in the NCMAD Service Area specify allowable hours for construction, and Napa County and American Canyon specify allowable noise levels resulting from construction during certain times of day. Although the District's IMVMP does not include construction per se, some alternatives use construction-type equipment, such as trucks and forklifts, and like construction, would cause temporary impacts. Therefore, construction noise standards are used as a method to describe allowable temporary noise. Napa County, American Canyon, and Yountville have exemptions for certain types of emergency work, but the IMVMP generally does not fall under their definitions of emergency work. The City of Napa, however, exempts emergency actions that are intended to protect, maintain, or restore public health and safety, such as the IMVMP. Several jurisdictions also allow variances to be issued by local authorities.

12.2 Environmental Impacts and Mitigation Measures

The noise impacts evaluation is provided below. The evaluation qualitatively and quantitatively compares probable noise levels against the impact significance criteria presented in Section 12.2.1.

12.2.1 Evaluation Concerns and Criteria

Temporary noise increases within the Program Area would be associated with the use of vehicles, backpack sprayers and ancillary equipment, sprayers, boats, heavy equipment, and aerial applications similar to current use of this equipment. The primary public concern is:

- > Evaluate noise-related impacts on humans, in particular consistency with local noise regulations.

For this evaluation, impacts from Program noise sources would be considered significant if noise levels would:

- > Expose people to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- > Result in a substantial temporary increase in ambient noise levels above levels existing without the Program.

The CEQA Guidelines, and most cities and counties, do not provide a definition of what constitutes a substantial noise increase for the second bullet point above. A common practice has been to assume that minimally perceptible to clearly noticeable increases of 3 to 5 dBA represent a significant increase in ambient noise levels. A sliding scale is commonly used to identify the significance of noise increases, allowing greater increases at lower absolute sound levels than at higher sound levels. This approach is based on research that relates changes in noise to the percentage of individuals that would be highly annoyed by the change (Federal Interagency Committee on Noise 1992). The significance criteria for changes in noise from Program operations would be a 3-dBA CNEL increase in noise levels if the existing noise level already exceeds the acceptable range for the land use, or a 5-dBA CNEL increase in noise if the existing noise level is in the acceptable range and the resulting level remains within the acceptable range for the land use.

Table 12-4 Relevant Local Noise Standards in the Napa County Mosquito Abatement District Service Area

Jurisdiction	Source	Summary of Applicable Standards	Applicability to Project												
Napa County	Napa County Code of Ordinances, Title 8 Health and Safety, Chapter 8.16 Noise Control Regulations	<p>2. Construction or Demolition.</p> <p>a. Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between the hours of 7 pm and 7 am, such that the sound from there creates a noise disturbance across a residential or commercial real property line, except for emergency work of public service utilities or by variance issued by the appropriate authority. This subsection shall not apply to the use of domestic power tools, as specified in subsection (B)(3) of this section.</p> <p>b. Noise Restrictions at Affected Properties. Where technically and economically feasible, construction activities shall be conducted in such a manner that the maximum noise levels at affected properties will not exceed those listed in the following schedule: a manner that the maximum noise levels at affected properties will not exceed those listed in the following schedule:</p> <p>Table 8.16.080 Noise Limits for Construction Activities</p> <table border="1" data-bbox="835 756 1587 878"> <thead> <tr> <th>Timeframe</th> <th>Residential</th> <th>Commercial</th> <th>Industrial</th> </tr> </thead> <tbody> <tr> <td>Daily: 7 am to 7 pm</td> <td>75 dBA</td> <td>80 dBA</td> <td>85 dBA</td> </tr> <tr> <td>Daily: 7 pm to 7 am</td> <td>60 dBA</td> <td>65 dBA</td> <td>70 dBA</td> </tr> </tbody> </table> <p>16.090 Exemptions to noise regulations.</p> <p>A. Emergency Exemption. The provisions of this chapter shall not apply to:</p> <p>2. The emission of sound in the performance of emergency work.</p> <p>"Emergency work or action" means any work or action necessary to restore property to a safe and usable condition after a public calamity, or work required to protect persons or property from imminent exposure to danger or damage, or work by public or private utilities to restore utility service.</p>	Timeframe	Residential	Commercial	Industrial	Daily: 7 am to 7 pm	75 dBA	80 dBA	85 dBA	Daily: 7 pm to 7 am	60 dBA	65 dBA	70 dBA	The proposed work includes temporary impacts, similar to construction. Although some emergency work may be required as part of the Program (refer to Section 2.5 (Chapter 2), Emergency Activities), the Program generally does not meet the definition of emergency work.
Timeframe	Residential	Commercial	Industrial												
Daily: 7 am to 7 pm	75 dBA	80 dBA	85 dBA												
Daily: 7 pm to 7 am	60 dBA	65 dBA	70 dBA												

Table 12-4 Relevant Local Noise Standards in the Napa County Mosquito Abatement District Service Area

Jurisdiction	Source	Summary of Applicable Standards	Applicability to Project															
American Canyon	American Canyon Municipal Code, Title 8 Health and Safety, Chapter 8.12 Community Noise	<p>8.12.080 Specific types of noise prohibited.</p> <p>2. Construction or Demolition.</p> <p>a. Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between the hours of 7 pm and 7 am, such that the sound therefrom creates a noise disturbance across a residential or commercial real property line, except for emergency work of public service utilities or by variance issued by the appropriate authority.</p> <p>“Emergency work” means any work or action necessary to restore property to a safe and usable condition after a public calamity, or work required to protect persons or property from imminent exposure to danger or damage, or work by public or private utilities to restore utility service.</p> <p>b. Noise Restrictions at Affected Properties. Where technically and economically feasible, construction activities shall be conducted in such a manner that the maximum noise levels at affected properties will not exceed those listed in the following schedule:</p> <p>Table 8.12.080 Noise Limits for Construction Activities</p> <table border="1" data-bbox="835 881 1585 1047"> <thead> <tr> <th rowspan="2">Timeframe</th> <th colspan="3">Zoning</th> </tr> <tr> <th>Residential</th> <th>Commercial</th> <th>Industrial</th> </tr> </thead> <tbody> <tr> <td>Daily: 7 am to 7 pm</td> <td>75 dBA</td> <td>80 dBA</td> <td>85 dBA</td> </tr> <tr> <td>Daily: 7 pm to 7 am</td> <td>60 dBA</td> <td>65 dBA</td> <td>70 dBA</td> </tr> </tbody> </table> <p>8.12.100 Variances.</p> <p>A. The noise control officer is authorized to grant variances for a period of not more than 5 years from any provision of this chapter, subject to limitations as to area, noise levels, time limits, and other terms and conditions as the noise control officer determines are appropriate to protect the public health, safety and welfare from the noise disturbance. Variances exceeding 5 years are not permitted. This section shall in no way affect the duty to obtain any other permit or license that may be required by law before implementing a proposed project.</p>	Timeframe	Zoning			Residential	Commercial	Industrial	Daily: 7 am to 7 pm	75 dBA	80 dBA	85 dBA	Daily: 7 pm to 7 am	60 dBA	65 dBA	70 dBA	The proposed work includes temporary impacts, similar to construction. The noise limits in Table 8.12.080 are appropriate because they are applicable to temporary noise sources. Although some emergency work may be required as part of the Program (refer to Section 2.5 (Chapter 2), Emergency Activities), the Program generally does not meet the definition of emergency work.
Timeframe	Zoning																	
	Residential	Commercial	Industrial															
Daily: 7 am to 7 pm	75 dBA	80 dBA	85 dBA															
Daily: 7 pm to 7 am	60 dBA	65 dBA	70 dBA															

Table 12-4 Relevant Local Noise Standards in the Napa County Mosquito Abatement District Service Area

Jurisdiction	Source	Summary of Applicable Standards	Applicability to Project
Calistoga	Calistoga Municipal Code, Title 8, Health and Safety, Chapter 8.20 Nuisances, Sections 8.20.010-8.20.025	<p>8.20.020 General noise regulations.</p> <p>A. It is unlawful for any person, firm or corporation to use or operate or cause...any sound or noise, in any public or private place in such a manner that the peace and good order of the neighborhood is disturbed, or that persons owning, using or occupying the property in the neighborhood are disturbed or annoyed, unless the amplification or intensification has been previously approved through an established permit process.</p> <p>B. Notwithstanding any other provisions of this code, and in addition thereto, it is unlawful for any person willfully to make or continue, or cause to be made or continued, any loud, unnecessary or unusual noise which disturbs the peace and quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitivities residing in the area.</p> <p>8.20.025 Construction activity – Noise – Prohibited hours.</p> <p>A. It shall be unlawful for professional construction activity to occur on Sunday or between 7:00 pm and 7:00 am, any time during the week.</p>	The general noise regulations apply, and the proposed work includes temporary impacts, similar to construction.
City of Napa	Napa Municipal Code, Title 8, Health and Safety, Chapter 8.08 Noise Control Regulations	<p>8.08.025 Noise—Construction activity.</p> <p>Any person engaged in construction activity, other than construction activity on an existing residential unit which such person owns or rents, pursuant to any provision of this code, shall limit said construction activity as follows:</p> <p>A. Construction activities throughout the entire duration of the project shall be limited to the hours of 7:00 am to 7:00 pm, Monday through Friday. There will be no startup of machines nor equipment prior to 8:00 a.m., Monday through Friday; no delivery of materials nor equipment prior to 7:30 am nor past 5:00 pm, Monday through Friday; no cleaning of machines nor equipment past 6:00 pm, Monday through Friday; no servicing of equipment past 6:45 p.m., Monday through Friday; and construction on weekends or legal holidays shall be limited to the hours of 8:00 am to 4:00 pm, unless a permit shall first have been secured from the City Manager, or designee, pursuant to Section 8.08.050 of this code. The City Manager, or designee, shall grant such permit:</p> <p>2. Other work, if work and equipment will not create noise that may be unreasonably offensive to neighbors as to constitute a nuisance.</p>	The proposed work is exempt from construction limitations because it is necessary to protect public health and safety.

Table 12-4 Relevant Local Noise Standards in the Napa County Mosquito Abatement District Service Area

Jurisdiction	Source	Summary of Applicable Standards	Applicability to Project
St. Helena	St. Helena Municipal Code, Title 8 Health and Safety, Chapter 8.24 Noise	<p>Construction activity limitations:</p> <ol style="list-style-type: none"> 1. Monday through Saturday. Construction activities which generate noise that can be heard at the property line of any parcel of real property within the city limits shall be limited to 8 am to 5 pm Delivery of materials/equipment and cleaning and servicing of machines/equipment shall be limited to 7 am to 6 pm. Exceptions to these time restrictions may be granted by the public works director for one of the following reasons: (a) inclement weather affecting work; (b) emergency work; or (c) other work, if work and equipment will not create noise that may be unreasonably offensive to neighbors as to constitute a nuisance. The city engineer must be notified and give approval in advance of such work. 2. Sundays and Holidays (federal and local). No construction activities allowed which generate noise that can be heard at the property line of any parcel of real property within the city limits. 	The proposed work includes temporary impacts, similar to construction.
Yountville	Yountville Municipal Code, Title 8, Chapter 8.04 Noise Control Regulations	<p>8.04.020 General noise restriction.</p> <ol style="list-style-type: none"> A. It is unlawful for any person to willfully or negligently make or continue, or cause to be made or continued, any unnecessary, unusual or intrusive noise which disturbs the peace and quiet of any neighborhood or which causes any discomfort or annoyance to any reasonable person of normal sensitivity residing in the area. <p>Specific types of noise prohibited.</p> <p>Contracted services. No person engaged in construction or demolition activity as a contracted service shall operate or cause the operation of any tools or equipment except between the hours of 7:30 am and 5:00 pm, Monday through Friday (excluding holidays), such that the sound therefrom creates intrusive noise across a residential or commercial real property boundary, except by permit issued pursuant to Section 8.04.040(E).</p> <p>8.04.040 Exemptions to noise regulations.</p> <ol style="list-style-type: none"> A. Emergency Exemption. The provisions of this chapter shall not apply to: <ol style="list-style-type: none"> 2. The emission of sound in the performance of emergency work or action. “Emergency work or action” means any work or action necessary to restore property to a safe and usable condition after a public calamity, or work required to protect persons or 	The proposed work includes temporary impacts, similar to construction. Although some emergency work may be required as part of the Program (refer to Section 2.5 (Chapter 2), Emergency Activities), the Program generally does not meet the definition of emergency work.

Table 12-4 Relevant Local Noise Standards in the Napa County Mosquito Abatement District Service Area

Jurisdiction	Source	Summary of Applicable Standards	Applicability to Project
		<p>property from imminent exposure to danger or damage, or work by public or private utilities to restore utility service.</p> <p>E. Special Circumstances. The Town Manager may grant an exception to the provisions of this chapter upon written application if the Town Manager determines that: (1) the activity is otherwise permitted by this code; and (2) the benefit to be derived by the applicant from conducting such activity at the time and place specified in the application outweighs the detriment, if any, to the neighborhood in which the activity will be conducted.</p> <p>F. Established, Entitled, and/or Service Activities. The activities listed below are established, permitted, or otherwise routine activities that have the potential to exceed adopted standards for relatively short periods of duration. These activities are exempt from the noise standards; however, chronic and continued nuisance noise produced by such uses will be cause for conciliation with Town staff to discuss modification of operations to mitigate and abate the nuisance.</p> <p>10. Town, state, federal, and public utility projects and activities. Construction work performed by the town, the state, federally regulated activities, and/or public utilities, and their respective agents or contractors, for maintenance, repair, or construction projects or activities regulated or exempted by these agencies (e.g., the Wine Train) or activities that cannot be performed within the defined construction hours.</p>	

Sources: Napa County 2014; City of American Canyon 2014 City of Calistoga 2014; City of Napa 2014; City of St. Helena 2014; Town of Yountville 2014

Other CEQA Guidelines Appendix G criteria for noise impacts include impacts from permanent increases in noise levels, ground-borne vibration, and impacts from nearby airports and airstrips. With regard to vibration, Program equipment with the highest vibratory potential would include light trucks. While these vehicles may produce vibration, the levels would not be expected to be perceptible over existing vibration from delivery or highway truck traffic, and vibration levels would not reach thresholds for human annoyance or structural damage. With regard to permanent increases in noise levels, noise from the Program 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 Program. Finally, with regard to airports and airstrips, the Program would not result in the location of any new receptors near airports or airstrips. Therefore, these three criteria have been dismissed from the analysis and are not discussed further.

Concerns raised during scoping include:

- > Noise-related impacts on humans, in particular consistency with local noise regulations.
- > Noise-related impacts on wildlife; i.e., the impact of using motorized vehicles in marshes.

The potential to exceed noise standards and result in substantial temporary noise levels above those existing (and without the Program equipment in use) within the Program Area are evaluated for each Program alternative. Impacts of Program noise on wildlife are addressed in Chapter 4, Biological Resources—Aquatic and Chapter 5, Biological Resources—Terrestrial.

12.2.2 Evaluation Methods and Assumptions

The methodology and assumptions of this noise impact evaluation for Program alternatives are provided below.

12.2.2.1 *Methodology*

The methodology used to prepare this programmatic noise impact section is as follows:

- > Reviewed transcripts from public scoping meetings on the PEIR held in 2012.
- > Reviewed federal, state, and selected county and municipal noise regulations, plans, ordinances, and/or guidelines for general noise issues and issues related to Program-specific noise sources.
- > Obtained source-specific noise data for Program-specific noise sources where available.
- > Estimated noise levels for specific and categorical equipment types proposed for Program operations where specific noise data were not available at 50 feet and 400 feet from point of measure.
- > Compared Proposed Program activities with those that currently occur under the existing vector control program (existing conditions).
- > Determined probable noise impacts associated with the alternatives proposed in Chapter 2 based on the above significance thresholds. The impact analysis is based on detailed information regarding equipment and vehicle types and usage, and land uses where they would be used provided by the District. Detailed information regarding the noise generated by each type of equipment and vehicles that would be used is shown in Appendix D, Table 4-5.

12.2.2.2 Assumptions

The following assumptions were used in the assessment of potential noise impacts from the Program alternatives:

- > Impacts are addressed at a programmatic level based on categories of land use types. Site-specific evaluation of noise sources and potential impacts is beyond the scope of this programmatic evaluation.

Also, the District has implemented BMPs to avoid and minimize impacts from their Program activities. The analysis of impacts considered the implementation of the following BMPs (from Table 2-9: BMPs A8, A11, and A12, respectively) that are used by the District for operations that generate noise expected to be of concern to the public.

- > Vehicles driving on levees to travel through tidal marsh, or to access sloughs or channels for surveillance or treatment activities will travel at speeds no greater than 10 miles per hour to minimize noise and dust disturbance.
- > Operation of noise-generating equipment (e.g., chainsaws, wood chippers, brush-cutters, pickup trucks) will abide by the time-of-day restrictions established by the applicable local jurisdiction (i.e., City and/or County) if such noise activities would be audible to receptors (e.g., residential land uses, schools, hospitals, places of worship) located in the applicable local jurisdiction. Shut down all motorized equipment when not in use.
- > For operations that generate noise expected to be of concern to the public, the following measures will be implemented:
 - Measure 1: Provide Advance Notices: A variety of measures are implemented depending on the magnitude/nature of the activities undertaken by the District, and may include, but are not limited to, press releases, hand-delivered flyers, and posted signs. Public agencies and elected officials also may be notified of the nature and duration of the activities, including the Board of Supervisors or City Council, environmental health and agricultural agencies, emergency service providers, and airports.
 - Measure 2: Provide Mechanism to Address Complaints: District staff is available during regular business hours to respond to service calls and address concerns about nighttime operations.

12.2.3 Surveillance Alternative

The Surveillance Alternative would involve both ground surveillance and water surveillance. As shown in Table 12-5, ground surveillance would require the periodic use of light trucks, such as pickup trucks and jeeps, and ATVs and would take place in all land use types. Water surveillance would require the use of ATVs and, occasionally, boats and sprayers and most frequently would occur in agricultural and open-space areas including wildlife refuges, where noise-sensitive human receptors are typically not located. Table 12-5 also shows the range of noise levels that vehicles and equipment typically would generate at 50- and 400-foot distances from the source. As indicated, noise attenuates, or is reduced, rapidly as the distance from the noise source increases. Detailed information regarding the average number of hours per day and the number of days in a quarter that equipment and vehicles would be used is included in Appendix D. Most equipment would only be operated a few hours per day for varying periods of time throughout the year.

Table 12-5 Surveillance Alternative—Primary Equipment Use, Noise Levels, and Land Use Types

Activity	Application Equipment	Predicted Noise Level (dBA)		Land Use Types				
		50 feet	400 feet	Residential	Commercial	Industrial	Agricultural	Open Space
Napa County Mosquito Abatement District								
Ground Surveillance & Application/Mgt	Light trucks	83	65	•	•	•	•	•
	ATVs	87	69			•	•	•
Water Surveillance & Applications/Mgt	Tracker boat, airboat*	75-95	57-71					•

*The District does not currently own an airboat, but will be acquiring one in about 1 year. Airboats could operate within 100 yards of residential areas, but not in those areas.

12.2.3.1 Exceedance of Noise Standards

As discussed in Section 12.1.5.3, the City of Napa specifically exempts activities intended to protect public health and safety, such as those implemented under the Proposed Program, from its noise standards. The District BMPs (Table 2-9) include requiring operation of noise-generating equipment to abide by the time-of-day restrictions established by the applicable local jurisdiction if such noise activities would be audible to receptors located in the applicable local jurisdiction (BMP A11); thus, this alternative would be consistent with the time-of-day standards established by each of the local jurisdictions.

Napa County and American Canyon identify noise limits allowed during certain times of day as a result of construction activities. As noted above, the BMPs include requiring operation of noise-generating equipment to abide by the time-of-day restrictions established by the applicable local jurisdiction if such noise activities would be audible to receptors located in the applicable local jurisdiction. Noise from this alternative would be periodic, limited to brief periods of time spread out over multiple days in multiple locations, minimizing the amount of time any sensitive receptor was exposed to increased noise. The only land-based equipment operated near residential and commercial development would be light trucks, which are commonly used in such areas and would not increase noise levels beyond the established thresholds given that only a few trucks would be used and they would be in proximity to such uses only for a brief period of time.

ATVs primarily would be used in agricultural and open-space areas, as well as industrial areas, which are typically not considered noise-sensitive receptors. No thresholds for agricultural and open-space land uses have been established by local jurisdictions, and the guidelines established by the USEPA and State of California are intended to protect receptors in such areas from long-term sources of noise, not temporary, sporadic sources such as would occur under the Program. Boats, including an airboat in the future, would be used in open-space areas, although they could be used within approximately 100 yards of residential areas. Airboats would be used primarily in marshes and sloughs managed for wildlife. Given the temporary, sporadic increase in noise at any given location, noise from the Surveillance Alternative would not exceed regulatory standards.

Impact N-1: Use of equipment and vehicles would increase noise levels during operations, but this increase would not exceed noise standards. This impact is **less than significant** based on the frequency and duration of the activity, resulting noise levels, and compliance with BMPs. No mitigation is required.

12.2.3.2 **Substantial Temporary Increase in Noise Levels**

Noise from the use of light trucks generally would not be distinguishable from ambient noise levels because it takes a doubling of traffic to increase noise levels by only 3 dB. The types of light trucks that would be used (e.g., pickup trucks and jeeps) are common, and a limited number of vehicles would be used and would be dispersed over a large area. Use of ATVs and boats would occur in agricultural and open-space areas; they generally would not be used in proximity to noise sensitive receptors, although certain types of open-space areas may have increased sensitivity to noise, such as those used by recreational users seeking quiet, and some boats could be used within 100 yards of residential areas. Given the limited numbers of vehicles and boats that would be used sporadically for brief periods of time over a large area and the limited duration that they would be used in any given location, noise levels would not increase by 3- to 5-dBA CNEL in proximity to noise-sensitive receptors. The District also is already implementing the types of activities that are part of this alternative; thus, this alternative represents a continuation of existing conditions, and noise levels from Program activities would not increase beyond those that already occur. In addition, BMP A8 would require reduced vehicle speed on levees, reducing noise levels in these areas. Furthermore, BMP 14 requires that all equipment and vehicles will be maintained and properly tuned in accordance with the manufacturer's specifications, not only improving air quality but reducing noise as well. In addition, BMPs A11 and A12 would be implemented as appropriate by providing advance notification of noise-generating activities expected to be of concern to the public and providing a means for registering public complaints about noise, thus further minimizing the potential for public annoyance.

Impact N-2: Use of equipment and vehicles would cause a temporary increase in noise levels during operations. This increase would not be substantial and, therefore, is **less than significant** based on the frequency and duration of the activity, resulting noise levels, comparability to noise resulting from existing activities, and implementation of BMPs. No mitigation is required.

12.2.4 **Physical Control Alternative**

The Physical Control Alternative involves a variety of actions, some of which would not directly result in noise; they include educating and advising landowners regarding appropriate methods to manage vectors such as rats and mosquitoes. Other activities would require the implementation of maintenance activities within marshes and wetlands, which typically are in undeveloped areas and not in proximity to noise-sensitive receptors. Other activities would take place in more urban areas, such as those including localized management associated with wastewater treatment facilities. Joint "projects" with resource agencies and/or landowners such as clearing silt and debris from ditches that are routinely cleared under existing permits would be covered under the Program and may involve backhoes and small excavators owned by the agency/landowner or the District.

As shown in Table 12-6, ground management would require the periodic use of light trucks, such as pickup trucks and jeeps, and ATVs. Water management would require the use of ATVs and, occasionally, boats. Table 12-6 also shows the range of noise levels that they typically would generate at 50- and 400-foot distances from the source. This table also shows the land use types where activities typically would occur. However, in the event of an emergency such as a major flood, the District could respond in any of the land use types identified with any equipment that might be needed.

Table 12-6 Physical Control Alternative—Primary Equipment Use, Noise Levels, and Land Use Types

Activity	Application Equipment	Predicted Noise Level (dBA)		Land Use Types				
		50 feet	400 feet	Residential	Commercial	Industrial	Agricultural	Open Space
Napa County Mosquito Abatement District								
Ground Surveillance & Application/Mgt	Light trucks	83	65	•	•	•	•	•
	ATVs	87	69			•	•	•
	Excavator, dozer, mower	56-80	38-62				•	•
Water Surveillance & Applications/Mgt	ATVs	87	69					•
	Tracker boat, airboat*	75-95	57-71					•

* The District does not currently own an airboat, but will be acquiring one in about 1 year. Airboats could operate within 100 yards of residential areas, but not in those areas.

12.2.4.1 Exceedance of Noise Standards

The discussion under the Surveillance Alternative is generally applicable to the Physical Control Alternative because similar types of vehicles and equipment would be used, or they would generate similar amounts of noise and be used for a similar length of time. Noise generated by the Physical Control Alternative would not exceed noise standards because time-of-day restrictions would be followed under BMP A11. Also, use of some of the equipment and boats occurs only in industrial, agricultural, and open-space areas, avoiding land use conflicts. Furthermore, the temporary and sporadic use of a few light trucks, ATVs, and boats would not exceed any thresholds.

Impact N-3: Use of equipment and vehicles would increase noise levels during operations, but this increase would not exceed noise standards. This impact is **less than significant** based on the frequency and duration of the activity, resulting noise levels, and compliance with BMPs. No mitigation is required.

12.2.4.2 Substantial Temporary Increase in Noise Levels

The discussion under the Surveillance Alternative is generally applicable to the Physical Control Alternative because similar types of vehicles and equipment would be used, or they would generate similar amounts of noise and be used for a similar length of time. The types of activities that would occur under this alternative already are being implemented by the District and noise impacts, therefore, would be comparable to those that already occur. In addition, BMPs A8, A11, A12, and A14 would be implemented as appropriate.

Impact N-4: Use of equipment and vehicles would cause a temporary increase in noise levels during operations. This increase would not be substantial and, therefore, is **less than significant** based on the frequency and duration of the activity, resulting noise levels, comparability to noise resulting from existing activities, and implementation of BMPs. No mitigation is required.

12.2.5 Vegetation Management Alternative

Certain elements of the Vegetation Management Alternative would not directly generate noise, such as teaching landowners how to perform vegetation management on their property. At other times, District staff periodically would undertake vegetation management activities, which require the use of hand tools or other mechanical means (i.e., heavy equipment) for vegetation removal or thinning and sometimes would apply herbicides (chemical pesticides with specific toxicity to plants) 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.

To reduce the potential for mosquito breeding associated with water retention and infiltration structures, District staff may, in consultation with appropriate resource agencies and any required permits, systematically clear weeds and other obstructing vegetation in wetlands and retention basins (or request the land owners to perform this task). Tools ranging from shovels and pruners to chainsaws and weed eaters up to heavy equipment can all be used at times to clear plant matter that either prevents access to vector breeding sites or that prevents good water management practices that would minimize mosquito populations. Generally, however, District “brushing” activities rely almost entirely on hand tools. As shown in Table 12-7, vegetation management would require the periodic use of light trucks, such as pickup trucks and jeeps, and ATVs, as well as equipment such as tractors, mowers, chainsaws, weed eaters, and sprayers. Water management would require the use of ATVs and, occasionally, boats and sprayers. An airboat may be acquired in the future and could be operated near residential, commercial, and industrial areas (within 100 yards) but not in these developed areas. Helicopters could be used for aerial application of herbicides to control cattail growth in sewage treatment ponds and unwanted vegetation in agricultural and open-space areas, although their use has been rare in the past and would not occur during nighttime hours. In addition to the vehicles and equipment that would be used by the District, Table 12-7 shows the range of noise levels that they typically would generate at 50- and 400-foot distances from the source and the land uses that typically would be affected. Helicopter noise is shown at a distance of 500 feet from the source. Shovels and other hand tools that generate no noise or minimal noise are not included in this table.

Table 12-7 Vegetation Management Alternative–Primary Equipment Use, Noise Levels, and Land Use Types

Activity	Application Equipment	Predicted Noise Level (dBA)			Land Use Types				
		50 feet	400 feet	500 feet	Residential	Commercial	Industrial	Agricultural	Open Space
Napa County Mosquito Abatement District									
Ground Surveillance & Application/Mgt	Light trucks	83	65	—	•	•	•	•	•
	ATVs, sprayers	75-87	57-69	—				•	•
	Chainsaw, leaf blower	90	72	—				•	
Water Surveillance & Applications/Mgt	Airboat,* other boats	75-95	57-71	—					•
	Sprayer	65	75						•
Aerial Applications	Helicopters	—	—	84-89			•	•	•

* The District does not currently own an airboat, but will be acquiring one in about 1 year. Airboats could operate within 100 yards of residential areas, but not in those areas.

12.2.5.1 Exceedance of Noise Standards

The discussion under the Surveillance Alternative is generally applicable to the Vegetation Management Alternative because, with the exception of helicopters, similar types of vehicles and equipment would be used, or they would have comparable noise levels and also would be used for brief periods of time over multiple locations. Noise generated would be similar to that which already occurs and would not exceed noise standards. Helicopters would be used only in agricultural, open-space, and industrial areas; such areas are not noise-sensitive, and helicopters would remain at any one location only briefly during the daytime. Thus, their use would not exceed noise standards.

Impact N-5: Use of equipment and vehicles (including helicopters) would increase noise levels during operations, but this increase would not exceed noise standards. This impact is **less than significant** based on the frequency and duration of the activity, resulting noise levels, and compliance with BMPs. No mitigation is required.

12.2.5.2 Substantial Temporary Increase in Noise Levels

The discussion under the Surveillance Alternative generally is applicable to the Vegetation Management Alternative because, with the exception of helicopters, similar types of vehicles and equipment would be used, or they would have comparable noise levels and also would be used for brief periods of time over multiple locations. Noise generated by these vehicles and equipment would be similar to that which already occurs and would not result in a substantial temporary increase in noise levels. Helicopters would be used only in agricultural, open-space, and industrial areas; such areas are not noise-sensitive, and helicopters would remain at any one location only briefly. Thus, their use would not result in a substantial increase in noise levels at noise-sensitive human receptors.

Impact N-6: Use of equipment and vehicles (including helicopters) would cause a temporary increase in noise levels during operations. This increase would not be substantial and, therefore, is **less than significant** based on the frequency and duration of the activity, resulting noise levels, comparability to noise resulting from existing activities, and implementation of BMPs. No mitigation is required.

12.2.6 Biological Control Alternative

The Biological Control Alternative involves the use of mosquito pathogens, parasites, and predators (i.e., mosquitofish). The parasites are not commercially available at present. The other options (Bs and mosquitofish) would generate noise, from the periodic use of light trucks (for distribution of mosquitofish at artificial waterbodies only), and occasionally, ATVs, boats, tractors, and sprayers (for the pathogen Bs which is discussed under the Chemical Control Alternative). Mosquitofish are trucked to artificial water bodies and dispensed using scoop nets from 5-gallon buckets.

Table 12-8 shows the number and type of vehicles required and the range of noise levels that they typically would generate at 50- and 400-foot distances from the source, and the land uses that would be affected.

Table 12-8 Biological Control–Primary Equipment Use, Noise Levels, and Land Use Types

Activity	Application Equipment	Predicted Noise Level (dBA)			Land Use Types					
		50 feet	400 feet	500 feet	Residential	Commercial	Industrial	Agricultural	Open Space	
Napa County Mosquito Abatement District										
Ground Surveillance & Application/Mgt	Light trucks	83	65	—	•	•	•	•	•	

12.2.6.1 **Exceedance of Noise Standards**

The Biological Control Alternative would have noise levels associated with ground applications involving light trucks only that would be used for brief periods of time over multiple locations. The brief increase in noise from the periodic use of vehicles and equipment would not exceed noise standards.

Impact N-7: Use of equipment and vehicles would increase noise levels during operations, but this increase would not exceed noise standards. This impact is **less than significant** based on the frequency and duration of the activity, resulting noise levels, and compliance with BMPs. No mitigation is required.

12.2.6.2 **Substantial Temporary Increase in Noise Levels**

The Biological Control Alternative would have noise levels associated with the use of light trucks that would be used for brief periods of time over multiple locations.

Impact N-8: Use of equipment and vehicles would cause a temporary increase in noise levels during operations. This increase would not be substantial and, therefore, is **less than significant** based on the frequency and duration of the activity, resulting noise levels, comparability to noise resulting from existing activities, and implementation of BMPs. No mitigation is required.

12.2.7 **Chemical Control Alternative**

A variety of activities would be implemented under the Chemical Control Alternative. Some activities, such as baiting, would not result in noise impacts, other than from the use of vehicles to access the bait treatment sites. Others would require more extensive use of vehicles and equipment. The District would use a variety of techniques and equipment to apply mosquito larvicides, including handheld sprayers, backpack sprayers and blowers, truck- or ATV-mounted spray rigs, and helicopters or other aircraft. The District uses conventional pickup trucks and ATVs as larvicide vehicles. Equipment used in ground applications of liquid formulations include handheld sprayers (handcans or spray bottles), and backpack sprayers and blowers. Handheld sprayers (handcans) are standard 1- or 2- or 3-gallon garden style pump-up sprayers used to treat very small isolated areas. Backpack sprayers are either hand pump-up for liquid applications and have a 2.5/3 to 5-gallon tank or are gas powered. When large areas are simultaneously producing mosquito larvae at densities exceeding District treatment thresholds, then the District may use helicopters or other aircraft to apply larvicides. Aerial application of larvicides is a relatively infrequent activity for the District, typically occurring only a few times each year, with each application covering around 200 to 1,200 acres. Aerial application of liquid larvicides typically occurs during daylight hours and at an altitude above the treatment site of less than 40 feet. Granular applications would occur during daylight hours at a less-than-50-foot altitude.

The most common form of adulticide application is via insecticide aerosols at very low dosages using ULV- equipment mounted on trucks, ATVs, and watercraft or handheld for small localized ground applications. Barrier or residual treatments for adult mosquitoes consist of an application using a material generally applied with a compressed air sprayer to the preferred foliage, buildings, or resting areas of the mosquito species.

Aerial applications using helicopters and fixed-wing aircraft are used to obtain effective control in areas bordered by extensive mosquito production sites or with small, narrow, or inaccessible network of roads. The flight parameters differ by program and technique. Some operations fly during hours of daylight so their applications begin either at morning's first light or before sunset and work into twilight. The aircraft can be flown at a less than 200-foot altitude, which may make it easier to hit the target area. Other operations may be conducted in the dark of the night, typically after twilight or early in the morning before dawn. The aircraft typically are flown between 200- and 300-foot altitudes. Swath widths vary from operation to operation but are normally set somewhere between 400 and 1,200 feet. Aerial applications may be

conducted over, but are not limited to, the following land uses within the Program Area: salt marsh, diked marsh, seasonal wetlands; evaporation ponds and wastewater ponds; and agricultural, residential, commercial, industrial, and recreational areas.

Table 12-9 shows the major types of vehicles and equipment required, the range of noise levels that they typically would generate at 50- and 400-foot distances from the source, and the land uses that typically would be affected. Noise from helicopters also is shown at a distance of 500 feet from the source. All land use types potentially could be treated through aerial applications.

Table 12-9 Chemical Control Alternative—Primary Equipment Use, Noise Levels, and Land Use Types

Activity by District	Application Equipment	Predicted Noise Level (dBA) ^a			Land Use Types				
		50 feet	400 feet	500 feet	Residential	Commercial	Industrial	Agricultural	Open Space
Napa County Mosquito Abatement District									
Ground Surveillance & Application/Mgt	Light trucks	83	65	—	•	•	•	•	•
	Sprayers	87	69	—	•	•	•	•	•
Water Surveillance & Applications/Mgt	ATVs	87	69	—			•	•	•
	Airboats ^a , other boats	75-85	57-67	—					•
	Sprayers	87	69	—			•	•	•
Aerial Applications*	Helicopters and Fixed-wing aircraft ^b	—	—	84-89	•	•	•	•	•

^a The District does not currently own an airboat, but will be acquiring one in about 1 year. Airboats would operate within 100 yards of residential areas, but not in those areas.

^b Noise from aircraft used for agricultural operations, such as those expected to be used for aerial applications, is not regulated by the FAA and, therefore, no noise information is available. Noise likely would be comparable to that of helicopters.

12.2.7.1 Exceedance of Noise Standards

The discussions under the Surveillance Alternative and Biological Control Alternative are generally applicable to the Chemical Control Alternative because similar types of vehicles and equipment would be used, or they would have comparable noise levels and also would be used for brief periods of time over multiple locations. In addition, helicopters or fixed-wing aircraft would be used under this alternative; they would be used only briefly in any given area and generally would operate in open-space or agricultural areas, although other land use types could be affected as well.

Impact N-9: Use of equipment and vehicles would increase noise levels during operations, but this increase would not exceed noise standards. This impact is **less than significant** based on the frequency and duration of the activity, resulting noise levels, and compliance with BMPs. No mitigation is required.

Impact N-10: Helicopter/aircraft use would temporarily increase noise levels during operations, but would not exceed regulatory thresholds. This impact is **less than**

significant based on the frequency and duration of the activity and resulting noise levels. No mitigation is required.

12.2.7.2 Substantial Temporary Increase in Noise Levels

The discussions under the Surveillance Alternative and Biological Control Alternative are generally applicable to the Chemical Control Alternative because similar types of vehicles and equipment would be used, or they would have similar noise levels and also would be used for brief periods of time over multiple locations. As discussed in the preceding section, helicopters/fixed-wing aircraft also would be used, but only for brief periods up to several times a year, and they would affect any given area only briefly. In addition, BMPs would be implemented as appropriate by providing advance notification of noise-generating activities expected to be of concern to the public and providing a means for registering public complaints about noise, thus further minimizing the potential for public annoyance.

Impact N-11: Program activities would cause a temporary increase in noise levels during operations. This increase would not be substantial and, therefore, is **less than significant** based on the frequency and duration of the activity, resulting noise levels, comparability to noise resulting from existing activities, and implementation of BMPs. No mitigation is required.

Impact N-12: Helicopter/aircraft/airboat use would temporarily increase noise levels during operations, but this increase would not be substantial. This impact is **less than significant** based on the frequency and duration of the activity, resulting noise levels, and implementation of BMPs. No mitigation is required.

12.2.8 Other Nonchemical Control/Trapping Alternative

This alternative primarily includes the trapping of rodents and/or yellow jackets that pose a threat to public health and welfare; light trucks and ATVs would be used to access sites for trap placement. Table 12-10 shows the type of vehicles and equipment required, the range of noise levels that they typically would generate at 50- and 400-foot distances from the source, and the land uses that would typically be affected.

Table 12-10 Other Nonchemical Control/Trapping Alternative—Primary Equipment Use, Noise Levels, and Land Use Types

Activity	Application Equipment	Predicted Noise Level (dBA)		Land Uses Types				
		50 feet	400 feet	Residential	Commercial	Industrial	Agricultural	Open Space
Napa County Mosquito Abatement District								
Ground Surveillance & Application/Mgt	Light trucks	83	65	•	•	•	•	•
	ATVs	87	69				•	•

12.2.8.1 Exceedance of Noise Standards

The discussion under the Surveillance Alternative is generally applicable to the Other Nonchemical Control/Trapping Alternative because similar types of vehicles and equipment would be used (excluding boats), or they would have comparable noise levels and also would be used for brief periods of time over multiple locations. Noise generated would be similar to that which already occurs and would not exceed noise standards.

Impact N-13: Use of equipment and vehicles would increase noise levels during operations, but this increase would not exceed noise standards. This impact is **less than significant** based on the frequency and duration of the activity, resulting noise levels, and compliance with BMPs. No mitigation is required.

12.2.8.2 Substantial Temporary Increase in Noise Levels

The discussion under the Surveillance Alternative generally is applicable to the Other Nonchemical Control/Trapping Alternative because similar types of vehicles and equipment would be used, or they would have comparable noise levels and also would be used for brief periods of time over multiple locations. Noise generated would be similar to that which already occurs and would not result in a substantial temporary increase in noise levels. In addition, BMPs would be implemented as appropriate by providing advance notification of noise-generating activities expected to be of concern to the public and providing a means for registering public complaints about noise, thus further minimizing the potential for public annoyance.

Impact N-14: Use of equipment and vehicles would cause a temporary increase in noise levels during operations. This increase would not be substantial and, therefore, is **less than significant** based on the frequency and duration of the activity, resulting noise levels, comparability to noise resulting from existing activities, and implementation of BMPs. No mitigation is required.

12.2.9 Cumulative Impacts

Cumulative noise impacts are discussed in Section 13.10. In summary, the potential for cumulative impacts is low, and any impacts that did occur would be of short duration and less than significant. **The incremental noise impacts from any of the Program alternatives, individually or in combination for the entire Program, would not be cumulatively considerable and would not trigger cumulative noise impacts in a given area.**

12.2.10 Environmental Impacts Summary

Table 12-11 is a summary of all of the potential noise impacts associated with the Program alternatives in comparison to existing conditions. The number of each statement correlates to its number in the text.

Table 12-11 Summary of Noise Impacts by Alternative

Impact Statement	Surveillance	Physical Control	Vegetation Management	Biological Control	Chemical Control	Other Nonchemical/ Trapping
Effects on Noise						
Impact N-1: Use of equipment and vehicles would increase noise levels during operations, but this increase would not exceed noise standards. This impact is less than significant based on the frequency and duration of the activity, resulting noise levels, and compliance with BMPs. No mitigation is required.	LS	na	na	na	na	na
Impact N-2: Use of equipment and vehicles would cause a temporary increase in noise levels during operations. This increase would not be substantial and, therefore, is less than significant based on the frequency and duration of the activity, resulting noise levels, comparability to noise resulting from existing activities, and implementation of BMPs. No mitigation is required.	LS	na	na	na	na	na
Impact N-3: Use of equipment and vehicles would increase noise levels during operations, but this increase would not exceed noise standards. This impact is less than significant based on the frequency and duration of the activity, resulting noise levels, and compliance with BMPs. No mitigation is required.	na	LS	na	na	na	na
Impact N-4: Use of equipment and vehicles would cause a temporary increase in noise levels during operations. This increase would not be substantial and, therefore, is less than significant based on the frequency and duration of the activity, resulting noise levels, comparability to noise resulting from existing activities, and implementation of BMPs. No mitigation is required.	na	LS	na	na	na	na
Impact N-5: Use of equipment and vehicles (including helicopters) would increase noise levels during operations, but this increase would not exceed noise standards. This impact is less than significant based on the frequency and duration of the activity, resulting noise levels, and compliance with BMPs. No mitigation is required.	na	na	LS	na	na	na

Table 12-11 Summary of Noise Impacts by Alternative

Impact Statement	Surveillance	Physical Control	Vegetation Management	Biological Control	Chemical Control	Other Nonchemical/ Trapping
<p>Impact N-6: Use of equipment and vehicles (including helicopters) would cause a temporary increase in noise levels during operations. This increase would not be substantial and, therefore, is less than significant based on the frequency and duration of the activity, resulting noise levels, comparability to noise resulting from existing activities, and implementation of BMPs. No mitigation is required.</p>	na	na	LS	na	na	na
<p>Impact N-7: Use of equipment and vehicles would increase noise levels during operations, but this increase would not exceed noise standards. This impact is less than significant based on the frequency and duration of the activity, resulting noise levels, and compliance with BMPs. No mitigation is required.</p>	na	na	na	LS	na	na
<p>Impact N-8: Use of equipment and vehicles would cause a temporary increase in noise levels during operations. This increase would not be substantial and, therefore, is less than significant based on the frequency and duration of the activity, resulting noise levels, comparability to noise resulting from existing activities, and implementation of BMPs. No mitigation is required.</p>	na	na	na	LS	na	na
<p>Impact N-9: Use of equipment and vehicles would increase noise levels during operations, but this increase would not exceed noise standards. This impact is less than significant based on the frequency and duration of the activity, resulting noise levels, and compliance with BMPs. No mitigation is required.</p>	na	na	na	na	LS	na
<p>Impact N-10: Helicopter/aircraft use would temporarily increase noise levels during operations, but would not exceed regulatory thresholds. This impact is less than significant based on the frequency and duration of the activity and resulting noise levels. No mitigation is required.</p>	na	na	na	na	LS	na

Table 12-11 Summary of Noise Impacts by Alternative

Impact Statement	Surveillance	Physical Control	Vegetation Management	Biological Control	Chemical Control	Other Nonchemical/ Trapping
Impact N-11: Program activities would cause a temporary increase in noise levels during operations. This increase would not be substantial and, therefore, is less than significant based on the frequency and duration of the activity, resulting noise levels, comparability to noise resulting from existing activities, and implementation of BMPs. No mitigation is required.	na	na	na	na	LS	na
Impact N-12: Helicopter/aircraft/airboat use would temporarily increase noise levels during operations, but this increase would not be substantial. This impact is less than significant based on the frequency and duration of the activity, resulting noise levels, and implementation of BMPs. No mitigation is required.	na	na	na	na	LS	na
Impact N-13: Use of equipment and vehicles would increase noise levels during operations, but this increase would not exceed noise standards. This impact is less than significant based on the frequency and duration of the activity, resulting noise levels, and compliance with BMPs. No mitigation is required.	na	na	na	na	na	LS
Impact N-14: Use of equipment and vehicles would cause a temporary increase in noise levels during operations. This increase would not be substantial and, therefore, is less than significant based on the frequency and duration of the activity, resulting noise levels, comparability to noise resulting from existing activities, and implementation of BMPs. No mitigation is required.	na	na	na	na	na	LS

LS = Less-than-significant impact

N = No impact

na = Not applicable

SM = Potentially significant but mitigable impact

SU = Significant and unavoidable impact

12.2.11 Mitigation and Monitoring

No mitigation measures or monitoring are required because no significant impacts were identified.