5.10 Noise

This section analyzes the potential noise and vibration impacts associated with the proposed Project. Information in this section is based on the Trinitas Mixed-Use Project Noise and Vibration Assessment (Noise Assessment) prepared by Illingworth & Rodkin, Inc. dated August 22, 2017. The Noise Assessment analyzes the potential impact on the surrounding land uses and considers construction noise, traffic noise and other on-site activity noise impacts. The Noise Assessment is included in its entirety herein as Appendix M.

5.10.1 Existing Conditions

The Project site is approximately 11.55 acres, located in Napa Valley Commons corporate park and is currently vacant and covered with grasses and limited trees. The site is surrounded by commercial/industrial development with Highway 221 along the easterly boundary of the site. Exterior noise levels are consistent with the commercial/industrial nature of the area. The Noise Assessment has shown that the ambient noise levels at the Project site are generally at or above the “normally acceptable” threshold levels as further detailed herein. Background information related to noise is discussed below including the methodology for assessing impacts.

1. Noise Criteria Background

Noise is often defined as an unwanted sound, and it is known to have adverse effects on people because it is disturbing or annoying. The objectionable nature of sound could be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is intensity of sound waves combined with the reception characteristics of the ear.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which 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. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a tenfold increase in acoustic energy, while 20 decibels is 100 times more intense. Each 10-decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms in the Noise Assessment are defined in Table 5.10-1 below.
### Table 5.10-1 Definition of Acoustical Terms Used in this Report

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decibel, dB</td>
<td>A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20 micro Pascals.</td>
</tr>
<tr>
<td>Sound Pressure Level</td>
<td>Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.</td>
</tr>
<tr>
<td>Frequency, Hz</td>
<td>The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.</td>
</tr>
<tr>
<td>A-Weighted Sound Level, dBA</td>
<td>The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.</td>
</tr>
<tr>
<td>Equivalent Noise Level, Leq</td>
<td>The average A-weighted noise level during the measurement period.</td>
</tr>
<tr>
<td>Lmax, Lmin</td>
<td>The maximum and minimum A-weighted noise level during the measurement period.</td>
</tr>
<tr>
<td>L01, L10, L50, L90</td>
<td>The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.</td>
</tr>
<tr>
<td>Day/Night Noise Level, Ldn or DNL</td>
<td>The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 p.m. and 7:00 a.m.</td>
</tr>
<tr>
<td>Community Noise Equivalent Level, CNEL</td>
<td>The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 p.m. to 10:00 p.m. and after addition of 10 decibels to sound levels measured in the night between 10:00 p.m. and 7:00 a.m.</td>
</tr>
<tr>
<td>Ambient Noise Level</td>
<td>The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.</td>
</tr>
<tr>
<td>Intrusive</td>
<td>That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.</td>
</tr>
</tbody>
</table>

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998

The most common method in California for characterizing sound is the A-weighted sound level (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 5.10-2 below. 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 utilized. This energy-equivalent sound/noise descriptor is called Leq.
Table 5.10-2  Typical Noise Levels in the Environment

<table>
<thead>
<tr>
<th>Common Outdoor Activities</th>
<th>Noise Level (dBA)</th>
<th>Common Indoor Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jet fly-over at 1,000 feet</td>
<td>110 dBA</td>
<td>Rock band</td>
</tr>
<tr>
<td>Gas lawn mower at 3 feet</td>
<td>100 dBA</td>
<td></td>
</tr>
<tr>
<td>Diesel truck at 50 feet at 50 mph</td>
<td>90 dBA</td>
<td></td>
</tr>
<tr>
<td>Noisy urban area, daytime</td>
<td>80 dBA</td>
<td>Garbage disposal at 3 feet</td>
</tr>
<tr>
<td>Gas lawn mower, 100 feet</td>
<td>70 dBA</td>
<td>Vacuum cleaner at 10 feet</td>
</tr>
<tr>
<td>Commercial area</td>
<td></td>
<td>Normal speech at 3 feet</td>
</tr>
<tr>
<td>Heavy traffic at 300 feet</td>
<td>60 dBA</td>
<td>Large business office</td>
</tr>
<tr>
<td>Quiet urban daytime</td>
<td>50 dBA</td>
<td>Dishwasher in next room</td>
</tr>
<tr>
<td>Quiet urban nighttime</td>
<td>40 dBA</td>
<td>Theater, large conference room</td>
</tr>
<tr>
<td>Quiet suburban nighttime</td>
<td>30 dBA</td>
<td>Library</td>
</tr>
<tr>
<td>Quiet rural nighttime</td>
<td>20 dBA</td>
<td>Bedroom at night, concert hall (background)</td>
</tr>
<tr>
<td>10 dBA</td>
<td></td>
<td>Broadcast/recording studio</td>
</tr>
<tr>
<td>0 dBA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Technical Noise Supplement (TeNS), California Department of Transportation, September 2013

Based on known health effects on humans, the observation has been made that the potential for a noise to impact people is dependent on the total acoustical energy content of the noise. The two predominant noise scales developed to account for this observation are the Equivalent Noise Level (LEQ) and the Community Noise Equivalent Level (CNEL) described as follows:

- **LEQ** is the sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period. LEQ is the “energy” average noise level during the time period of the sample. LEQ can be measured for any time period, but is typically measured for 1 one hour, which can also be referred to as the Hourly Noise Level (HNL). This is the energy sum of all events and background noise levels that occur during that time period.

- **CNEL** is the predominant rating scale in use in California for land use compatibility assessment. The CNEL scale represents a time weighted 24-hour average noise level based on the A-weighted decibel. Time weighted refers to the fact that noise that occurs during certain sensitive time periods is penalized for occurring at these times. The evening time period (7:00 p.m. to 10:00 p.m.) penalizes noises by 5 dBA, while nighttime (10:00 p.m. to 7:00 a.m.) noises are penalized by 10 dBA. The
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daytime noise levels are combined with the weighted levels and averaged to obtain a CNEL value. Counties and cities adopt noise levels based on CNEL.

• L(%) is a statistical method of describing noise, which accounts for variance in noise levels throughout a given measurement period. L(%) is a way of expressing the noise level exceeded for a percentage of time. For example, since 15 minutes is 25% of 1 hour, L(25) is the noise level that is equal to or exceeded for 15 minutes in a 1-hour period. Most daytime county, state, and city noise ordinances use an ordinance standard of 55 dBA for 30 minutes per hour or an L(50) level of 55 dBA. Therefore, the ordinance states that no noise level should exceed 55 dBA for more than 50% of a given period. 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 period are grouped into the daytime period.

In response to the identified adverse effects, criteria have been established to help protect the public health and safety and prevent disruption of certain activities. The criteria is based on known impacts such as hearing loss, speech interference, sleep interference, physiological responses, and annoyance and described as follows:

• **Hearing Loss** - More commonly associated with occupational noise exposures in heavy industry or very noisy work environments rather than residential communities.

• **Speech Interference** - One of the primary concerns related to environmental noise analysis. Normal conversational speech is in the range of 60 to 65 dBA and noise louder than this level may interfere with speech. Thresholds for speech interference indoors are about 45 dBA if the noise is steady, and above 55 dBA if the noise is fluctuating. Outdoor thresholds are about 15 dBA higher.

• **Sleep Interference** - Steady noises of sufficient intensity (above 35 dBA) and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Sleep disturbance studies have identified interior noise levels that have the potential to cause sleep disturbance. Interior residential standards for multi-family dwellings are set by the state at 45 dBA {\text{L}_{dn}}. Sleep and speech interference is possible when exterior noise levels are about 57 to 62 dBA {\text{L}_{dn}} with open windows and 65-70 dBA {\text{L}_{dn}} if the windows are closed. There is a major concern due to traffic noise. Levels of 55 to 60 dBA are common along collector streets and secondary arterials, while 65 to 70 dBA is a typical value for a primary/major arterial. Levels of 75 to 80 dBA are normal noise levels at the first row of development outside a freeway right-of-way.

• **Physiological Responses** - These are measurable effects of noise on people such as changes in pulse rate and blood pressure. While such effects can be induced and observed, the extent is not known to which these responses cause harm or are a sign of harm.

• **Annoyance** - This is the most difficult of all noise responses to describe. Annoyance is very individual and can vary widely from person to person. What is tolerable to one person is unbearable to another of equal hearing capability. Attitude surveys
are used for measuring the annoyance felt for noises intruding into homes or affecting outdoor activity areas. The surveys identified the causes for annoyance as interference with speech, radio and television, house vibrations, and interference with sleep and rest. People appear to respond more adversely to aircraft noise. When the $L_{dn}$ is 60 dBA, approximately 30% to 35% of the population is believed to be highly annoyed.

2. **Noise Assessment Metrics**

Numerous noise metrics have been developed for describing noise impacts and attempt to quantify noise levels with respect to community response. Most of the metrics use the A-weighted noise level to quantify noise impact on humans. Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The perceived noise volume relative to human sensitivity is known as the A-weighted decibel (dBA) and is subjective to the hearer. A-weighting is a frequency weighting that accounts for human sensitivity to different frequencies.

Sound pressures can be measured in units called microPascals. More commonly, sound pressure levels are described in logarithmic units of ratios of actual sound pressures called bels. A bel is subdivided into 10 decibels (dB) to provide a finer resolution. Sound or noise can vary in intensity by over one million times within the range of human hearing. However, as noted, the human ear is not equally sensitive to all sound frequencies within the entire spectrum. Noise levels at maximum human sensitivity from 500 to 2,000 cycles per second are factored more heavily into the A-weighting process.

Since decibels are logarithmic units, sound pressure levels cannot be added or subtracted by ordinary arithmetic means. For example, if an automobile produces a sound pressure level of 70 dB when passing an observer, two automobiles passing together would produce a sound pressure level of 73 dB rather than 140 dB. Conversely, reducing the traffic volume by half would result in a 3 dB reduction in the noise level.

Noise metrics can be divided into two categories: single event and cumulative. Single event metrics describe the noise levels from an individual event such as an aircraft fly-over. Cumulative metrics average the total noise over a specific time period, which is typically 1 or 24 hours for community noise problems.

Community noise can be measured using several rating scales. The scales account for:

- the parameters of noise that have been shown to contribute to the effects of noise on man
- the variety of noises found in the environment
- the variations in noise levels that occur as a person moves through the environment
- the variations associated with the time of day

Sound levels decrease due to distance from the source as a result of wave divergence, atmospheric absorption, and ground attenuation. As the sound wave form travels away from the source, the sound energy is dispersed over a greater area, thereby dispersing the sound.
power of the wave. Atmospheric absorption also influences the levels that are received by the observer. The greater the distance traveled, the greater the influence and the resultant fluctuations in noise levels. The degree of absorption is a function of the frequency of the sound as well as the humidity and temperature of the air. Turbulence and gradients of wind, temperature, and humidity also play a significant role in determining the degree of attenuation. Intervening topography can also have a substantial effect on the effective perceived noise levels.

3. Fundamentals of Groundborne Vibration

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several methods are typically used to quantify vibration amplitude. One method is the Peak Particle Velocity (PPV). The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The Noise Assessment used a PPV descriptor with units of mm/sec or in/sec to evaluate construction generated vibration for building damage and human complaints. Table 5.10-3 displays the reactions of people and effects on buildings of vibration.

<table>
<thead>
<tr>
<th>Velocity Level PPV (in/sec)</th>
<th>Human Reaction</th>
<th>Effect on Buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.01</td>
<td>Barely perceptible</td>
<td>No effect</td>
</tr>
<tr>
<td>0.04</td>
<td>Distinctly perceptible</td>
<td>Vibration unlikely to cause damage of any type to any structure</td>
</tr>
<tr>
<td>0.08</td>
<td>Distinctly perceptible to strongly perceptible</td>
<td>Recommended upper level of the vibration to which ruins and ancient monuments should be subjected</td>
</tr>
<tr>
<td>0.1</td>
<td>Strongly perceptible</td>
<td>Virtually no risk of damage to normal buildings</td>
</tr>
<tr>
<td>0.3</td>
<td>Strongly perceptible to severe</td>
<td>Threshold at which there is a risk of damage to older residential dwellings such as plastered walls or ceilings</td>
</tr>
<tr>
<td>0.5</td>
<td>Severe - Vibrations considered unpleasant</td>
<td>Threshold at which there is a risk of damage to newer residential structures</td>
</tr>
</tbody>
</table>

Source: Transportation and Construction Vibration Guidance Manual, California Department of Transportation, September 2013

The Noise Assessment notes that levels shown in Table 5.10-3 should be interpreted with care, because vibration may be annoying at much lower levels than those shown depending on the level of activity or the sensitivity of the individual. Low level vibrations frequently cause irritating secondary vibration such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage.

During construction, the use of pile-driving and vibratory compaction equipment typically generates the highest construction-related groundborne vibration levels. Because of the impulsive nature of such activities, the PPV descriptor has been routinely used to measure and assess groundborne vibration and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans. Studies have shown that the threshold of perception for average persons is in the range of 0.008 to 0.012 inches per second PPV. Human perception to vibration varies with the individual and is a function of
physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as minor cracking of building elements, or may threaten the integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity occurs immediately adjacent to the structure.

5.10.2 Regulatory Setting

1. **2016 California Green Building Standards Code (Cal Green Code)**
   The State of California establishes exterior sound transmission control standards for new non-residential buildings exposed to exterior noise levels greater than 65 dBA $L_{dn}$/CNEL as set forth in the 2016 Cal Green Code (§5.507.4.1 and §5.507.4.2). The following sections are relevant to the proposed Project.
   - **5.507.4.1** - Exterior noise transmission, prescriptive method. Wall and roof-ceiling assemblies exposed to the noise source making up the building envelope shall meet a composite Sound Transmission Class (STC) rating of at least 50 or a composite OITC rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 when the building falls within the 65 dBA $L_{dn}$ noise contour of a freeway or expressway, railroad, industrial source or fixed-guideway noise source, as determined by the local general plan noise element.
   - **5.507.4.2** - Performance method. For buildings located, as defined by Section 5.507.4.1, wall and roof-ceiling assemblies exposed to the noise source making up the building envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level of 50 dBA in occupied areas during any hour of operation.

   The performance method, which establishes the acceptable interior noise level, is the method typically used when applying these standards.

2. **City of Napa General Plan**
   The City of Napa’s Health and Safety Element of the General Plan sets forth Goal HS-9, “... to protect Napa’s residents, workers and visitors from the deleterious effects of noise.” The following policies are applicable to the proposed Project.
   1. Policy HS-9.1: The City shall require new development to meet the exterior noise level standards set out in Table 8-1 (not shown). For residential areas, these exterior noise guidelines apply to backyards; exceptions may be allowed for front yards where overriding design concerns are identified.
   2. Policy HS-9.2: The City shall use CEQA and the development review process to ensure that new development does not exceed City standards.
3. Policy HS-9.6: The City shall use the development and building permit review processes to site new construction in ways that reduce noise levels.

4. Policy HS-9.9: When feasible and appropriate, the City shall limit construction activities to that portion of the day when the number of persons occupying a potential noise impact area is lowest.

5. Policy HS-9-10: The City shall encourage new development to maintain the ambient sound environment as much as possible. The City shall require new transportation-related noise sources that cause the ambient sound levels to exceed the compatibility standards in Table 8-1 to incorporate conditions or design modifications to reduce the potential increase in the noise environment.

6. Policy HS-9.11: The City shall regulate construction in a manner that allows for efficient construction mobilization and activities, while also protecting noise sensitive land uses.

7. Policy HS-9.13: The City shall require new residential projects to provide for an interior CNEL of 45 dB or less due to exterior noise sources. To accomplish this, the City shall review all residential and other noise sensitive land uses within the 60 dB contours defined in the Table 8-2 and Figure 8-11 (not shown) to ensure that adequate noise attenuation has been incorporated into the design of the project, or that other measures are implemented to protect future sensitive receptors.

8. Policy HS-9.14: The City shall encourage new development to identify alternatives to the use of sound walls to attenuate noise impacts. Appropriate techniques include site planning such as incorporating setbacks, revisions to the architectural layout such as changing building orientation to provide noise attenuation for portions of outdoor yards, and construction modifications. In the event that sound walls are the only practicable alternative, such walls should be designed to be as visually pleasing as possible, incorporating landscaping, variations in color and patterns and/or changes to texture or building materials.

3. City of Napa Municipal Code

Section 17.52.310 of the Napa Municipal Code establishes the City's noise standards:

A. Public Address Systems. Noise control regulations related to outdoor public address/amplification (PA) systems, except for PA systems associated with an approved discretionary permit, are regulated in accordance with Section 8.08.010 of the Napa Municipal Code, or, in city parks, in accordance with Chapter 12.40.

B. Commercial Activity. Noise related to commercial activity is regulated per Section 8-08.020 of the Municipal Code.

C. Construction Activity. Noise related to construction activities is regulated per Section 8.08.025 of the Municipal Code.
E. Development Projects. Development projects shall address noise standards and policies in the General Plan as follows:

1. Proposed residential projects and other noise sensitive land uses (such as but not limited to schools and residential care facilities) within 60 dB CNEL contours of highways, arterials and some collectors listed in the General Plan Table 8-2 shall prepare a noise analysis as part of the project’s CEQA review to identify how 60 dB CNEL noise standards will be met and incorporate needed noise attenuation measures.

2. Proposed non-residential projects that in the opinion of the Community Development Director could generate noise that would, at the boundary of adjacent residential district properties, increase ambient noise levels by five dB CNEL or more, or in excess of 60 dB CNEL, shall prepare a noise analysis as part of the project’s CEQA review to identify anticipated noise levels and recommend noise attenuation measures to maintain ambient levels and to keep levels below 60 dB CNEL. Such measures shall be incorporated into the project approval.

3. Non-residential projects adjacent to residential districts shall locate or design potential noise generation areas, such as, but not limited to, truck parking and loading docks, garbage collection areas, to minimize impacts on adjacent sensitive uses to the extent feasible.

Section 8.08.010 - Outdoor sound systems - Permit required - of the City's Municipal Code addresses permit requirements for outdoor sound systems:

It is unlawful for any person to operate a loudspeaker, public address system or sound amplification system if such loudspeaker, public address system or sound amplification system can be heard outside any building, save and except as follows:

A. If said loudspeaker, public address system or sound amplification system is to be operated from an automobile between the hours of 9:00 a.m. and 9:00 p.m., a permit to so operate or play the same must first be obtained from the City Manager as hereinafter stated;

B. If said loudspeaker, public address system or sound amplification system is to be operated other than from an automobile at any time of the day or night, such operation must first be approved by the City Manager.

C. If said loudspeaker, public address system or sound amplification system is to be operated in connection with the playing of a musical instrument for fewer than three days in one year period, such operation must first be approved by the City Manager;

D. If said loudspeaker, public address system or sound amplification system is to be used in connection with a parade or filming operation for which a permit has been obtained, this section shall not be applicable;

E. If said loudspeaker, public address system or sound amplification system is used in connection with a use for which a permit has been obtained pursuant to Title 17 of this code, this section shall not be applicable.
Section 8.08.020 of the City’s Municipal Code regulates noise from commercial activity. The applicable portion of the section states:

A. Between the hours of 9:00 p.m. and 7:00 a.m., no commercial activity shall be conducted upon any privately owned real property within the city, which activity creates noise which can be heard at the property line of any parcel of real property within the city which bears an RP, residential/professional office district, or more restrictive zoning designation, as provided in Title 17 of this code unless a permit shall first have been secured from the City Manager pursuant to Section 2.08.050 of this code. The City Manager shall grant such permit if it reasonably appears that: (1) the activity is otherwise permitted under 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 to be suffered by the neighborhood, by neighboring residents and by the city generally. The collection of garbage and trash pursuant to Chapter 5.60 of this code is expressly exempt from the provisions of this section.

Section 8.08.025 of the Municipal Code regulates noise from construction activity. The applicable portion of this section states that any person engaged in construction activity shall limit said construction activity as follows:

A. Construction activities throughout the entire duration of the Project shall be limited to the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday. There will be no start up of machines nor equipment prior to 8:00 a.m., Monday through Friday; no delivery of materials nor equipment prior to 7:30 a.m. nor past 5:00 p.m., Monday through Friday; no cleaning of machines nor equipment past 6:00 p.m., 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 a.m. to 4:00 p.m., unless a permit shall first have been secured from the City Manager, or designee, pursuant to section 8.08.050 of this code.

B. All muffler systems on construction equipment shall be properly maintained.
C. All construction equipment shall not be placed adjacent to developed areas unless said equipment is provided with acoustical shielding.
D. All construction and grading equipment shall be shut down when not actively in use.
F. As a separate, distinct, and cumulative remedy established for a violation of this section, the Police and/or the Code Enforcement Officer may issue a stop work order for violation of this section. Such order shall become effective immediately upon posting of the notice. After service of the stop work order, no person shall perform any act with respect to the subject property in violation of any of the terms of the stop work order, except such actions the city determines are reasonably necessary to render the subject property safe and/or secure until the violation has been corrected.
4. **Napa County Airport Master Plan**

The Napa County Airport Master Plan dated January 2008 was reviewed to establish existing aircraft noise levels at the Project site and to determine whether the Project lies within the Noise contours of the airport. Exhibit 5.10-1, Napa County Airport Noise Contours, depicts the 55 dBA, 60 dBA and 65 dBA noise contours in relation to the location of the Project.

5.10.3 **Thresholds of Significance**

The State of California and the City of Napa have established regulatory criteria for the assessment of noise impacts. The California Environmental Quality Act (CEQA) Guidelines, Appendix G, has been used to assess the potential significance of impacts pursuant to local General Plan policies, municipal code standards or the applicable standards of other agencies.

As noted in the Noise Assessment, there are no state laws directly applicable to the assessment of noise associated with new projects. Appendix G of the CEQA Guidelines states that the proposed Project would have a potentially significant impact with respect to noise if the Project will result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, exposure of persons residing or working in the project area to excessive noise levels.

f) For a project within the vicinity of a private airstrip, exposure of persons residing or working in the project area to excessive noise levels.
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Exhibit 5.10-1  Napa County Airport Noise Contours

Source: Napa County, 2004
Note: American Canyon boundaries are shown as of that date (pre-2005)
Impacts may be significant if they create a substantial permanent or temporary increase in noise. The term "substantial" is not quantified in the CEQA Guidelines. Typically, project-generated noise level increases of +3 dBA Ldn/CNEL or greater would be considered significant where exterior noise levels would exceed the normally acceptable noise level standard (60 dBA for residential land uses). Where noise levels would remain at or below the normally acceptable noise level standard with the Project, noise level increases of 5 dBA or greater would be considered significant. In addition to the CEQA Guidelines impact criteria, the Noise Assessment identified the following specific significance criteria:

- A significant impact would be identified if traffic generated by the Project would substantially increase noise levels at sensitive receptors in the vicinity. A substantial increase would occur if: a) noise level increases are 5 dBA CNEL or greater, with a future noise level of less than 60 dBA CNEL, or b) the noise level increase is 3 dBA CNEL or greater, with a future noise level of 60 dBA CNEL or greater.
- A significant noise impact would be identified if construction-related noise would temporarily increase ambient noise levels at sensitive receptors. Hourly average noise levels exceeding 70 dBA Leq and the ambient noise environment by at least 5 dBA Leq at industrial land uses in the Project vicinity in the Project vicinity for a period exceeding one year would be considered significant.
- Groundborne vibration levels exceeding 0.5 in/sec PPV would have the potential to result in cosmetic damage to existing industrial buildings that are structurally sound and designed to modern engineering standards.

5.10.4 Project Impacts Prior to Mitigation

Noise impacts are generally divided into short-term (temporary) and long term. Temporary impacts are associated with noise generated by construction activities. Long-term impacts are divided into impacts on surrounding land uses generated by the proposed Project and impacts that occur at the Project site. Off-site impacts from on-site activities are measured against the City's standards as they relate to both short-term construction and long-term operation.

The City of Napa General Plan establishes acceptable exterior and interior noise level thresholds used in the siting of new noise-sensitive land uses. For transient lodging, such as the Project hotels, exterior noise levels up to 65 dBA CNEL are considered “normally acceptable.” The City also requires that new residential projects provide for an interior noise level of 45 dBA CNEL or less due to exterior noise sources.

For office buildings, the City of Napa considers exterior noise levels up to 70 dBA CNEL “normally acceptable.” Noise levels up to 75 dBA CNEL are “normally acceptable” for wineries (industrial, manufacturing, utilities and agriculture land uses category). The City of Napa does not establish acceptable interior noise levels for office or industrial land uses, but the State requires that noise levels within new non-residential buildings be maintained at 50 dBA Leq (1 hour) or less during hours of operation when exterior noise levels exceed 65 dBA Ldn/CNEL.
The baseline levels for the proposed Project were established using the existing noise levels in the vicinity of the Project site. A noise monitoring survey was performed to quantify and characterize ambient noise levels at the site and in the Project vicinity between Tuesday, March 28, 2017 and Thursday, March 30, 2017. Industrial land uses bound the site to the north, west and south. The Hillside Christian Church is the nearest noise-sensitive receptor and is located approximately 750 feet to the east, opposite SR 221. The noise environment at the Project site and in the immediate vicinity is primarily from vehicular traffic along SR 221, local traffic on Napa Valley Corporate Way and Napa Valley Corporate Drive, and aircraft operations related to the Napa County Airport located south of the Project site.

The monitoring survey included one long-term noise measurement (LT-1) and five short-term measurements (ST-1 through ST-5) as shown on Exhibit 5.10-2, Noise Measurement Locations. As detailed below, analysis has shown the existing exterior noise levels at the Project site exceed the “normally acceptable” standards for the proposed hotel uses, generally due to existing traffic along SR 221.

LT-1 was located near the southeast corner of the Project site approximately 115 feet from the centerline of SR 221. The short-term measurement locations are as follows:

- **ST-1**  Napa County South Campus, 175 feet west of the centerline of Napa Valley Corporate Drive
- **ST-2**  SW Corner of Project site, 135 feet north of the centerline of Napa Valley Corporate Way
- **ST-3**  Proposed hotel pool area, 250 feet west of the centerline of SR 221
- **ST-4**  Proposed winery function area, 540 feet east of the centerline of Napa Valley Corporate Drive
- **ST-5**  Proposed office, 180 feet east of the centerline of Napa Valley Corporate Drive

Hourly average noise levels at the LT-1 site ranged from 65 to 67 dBA \(L_{eq}\) during the day and from 56 to 66 dBA \(L_{eq}\) at night. The community noise equivalent level (CNEL) on Wednesday, March 29, 2017 was 70 dBA CNEL. The daily trend in noise levels at LT-1 is shown on the following Exhibit 5.10-3, Noise Levels at Noise Measurement Site LT-1.
Exhibit 5.10-2  Noise Measurement Locations

Source: Figure 1, Illingworth & Rodkin, Inc., August 2, 2017 (Appendix M to this EIR)
Chapter 5 – Environmental Setting, Impacts, and Mitigation Measures

5.10 – Noise

Draft Environmental Impact Report

January 2018 Trinitas Mixed-Use Project

Noise Levels at Noise Measurement Site LT-1
Southeast Corner of Site, ~115 feet from the Center of SR 221
Tuesday, March 28, 2017

Source: Figure 2, Noise and Vibration Assessment, Illingworth & Rodkin, Inc., August 2, 2017 (Appendix M to this EIR)

Exhibit 5.10-3 Noise Levels at Noise Measurement Site LT-1
Short-term noise measurements ST-1 through ST-5 were conducted on Thursday, March 30, 2017 to document noise levels throughout the Project site and nearby industrial land uses. Aircraft produced maximum instantaneous noise levels ranging from approximately 67 to 73 dBA \( L_{\text{max}} \) throughout the Project area. At Site ST-3, trucks along SR 221 produced maximum instantaneous noise levels ranging from 68 to 71 dBA. Automobiles produced maximum instantaneous noise levels ranging from 56 to 58 dBA. As noted, ambient noise sources primarily included local and distant vehicular traffic punctuated by intermittent aircraft overflights. The results of the short-term measurements are detailed in Table 5.10-4 below.

<table>
<thead>
<tr>
<th>Noise Measurement Location</th>
<th>( L_{\text{max}} )</th>
<th>( L_{(1)} )</th>
<th>( L_{(10)} )</th>
<th>( L_{(50)} )</th>
<th>( L_{(90)} )</th>
<th>( L_{\text{min}} )</th>
<th>( L_{\text{eq}} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST-1: Napa County South Campus, 175 feet west of the centerline of Napa Valley Corporate Drive (3/30/2017, 10:10 a.m. - 10:20 p.m.)</td>
<td>68</td>
<td>64</td>
<td>54</td>
<td>48</td>
<td>46</td>
<td>45</td>
<td>53</td>
</tr>
<tr>
<td>ST-2: Southwest corner of Project Site, 135 feet north of the centerline of Napa Valley Corporate Way (3/30/2017, 10:40 a.m. - 10:50 a.m.)</td>
<td>61</td>
<td>60</td>
<td>57</td>
<td>54</td>
<td>50</td>
<td>47</td>
<td>55</td>
</tr>
<tr>
<td>ST-3: Proposed Hotel pool area, 250 feet west of the centerline of SR 221 (3/30/2017, 11:00 a.m. - 11:10 a.m.)</td>
<td>72</td>
<td>65</td>
<td>61</td>
<td>56</td>
<td>51</td>
<td>49</td>
<td>58</td>
</tr>
<tr>
<td>ST-4: Proposed Winery function area, 540 feet east of the centerline of Napa Valley Corporate Drive (3/30/2017, 11:20 a.m. - 11:30 a.m.)</td>
<td>72</td>
<td>69</td>
<td>60</td>
<td>56</td>
<td>51</td>
<td>48</td>
<td>58</td>
</tr>
<tr>
<td>ST-5: Proposed Office, 180 feet east of the centerline of Napa Valley Corporate Drive (3/30/2017, 11:40 a.m. - 11:50 a.m.)</td>
<td>73</td>
<td>72</td>
<td>61</td>
<td>54</td>
<td>50</td>
<td>48</td>
<td>59</td>
</tr>
</tbody>
</table>

The Napa County Airport Master Plan noise contours indicate that the Project is located more than a mile outside the airport’s 55 dBA CNEL noise contour. Aircraft flying over the Project site produce maximum instantaneous noise levels ranging from approximately 67 to 73 dBA \( L_{\text{max}} \). The measured data confirmed that aircraft noise at the Project site is substantially below 55 dBA CNEL and noise from individual aircraft events is clearly audible but not excessive.

### 2. Short-Term Construction Noise Impacts

**Construction**

Project construction is anticipated to commence in the fall of 2017 and continue for approximately 19 months. Demolition, site preparation, grading and trenching would occur over approximately three months. Paving would last approximately one month at the end of the Project construction. These phases would generate the highest levels of noise. Building construction architectural coating phases would last approximately 15 months.

Construction noise represents a short-term impact on ambient noise levels. High levels of noise can be generated by construction equipment, including trucks, graders, bulldozers, concrete mixers and portable generators. Construction activities would include site preparation including trenching for utilities/services, grading and
foundation work, paving, new building framing and finishing. The noise decreases with distance and intervening structures and terrain.

Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day, the construction occurs in areas immediately adjoining noise-sensitive land uses or when construction lasts over extended periods of time. Construction activities for individual projects are typically carried out in stages. A different mix of equipment would operate during each stage and noise levels would vary based on the amount of equipment in operation and the location at which the equipment is operating. Typical construction noise levels at a distance of 50 feet are shown in Table 5.10-5 and Table 5.10-6. Table 5.10-5 shows the average noise level ranges, by construction phase, and Table 5.10-6 shows the maximum noise level ranges for different construction equipment.

Table 5.10-5  Typical Ranges of Construction Noise Levels at 50 Feet, Leq (dBA)

<table>
<thead>
<tr>
<th></th>
<th>Domestic Housing</th>
<th>Office Building, Hotel, Hospital, School, Public Works</th>
<th>Industrial Parking Garage, Religious Amusement &amp; Recreations, Store, Service Station</th>
<th>Public Works Roads &amp; Highways, Sewers, and Trenches</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
<td>I</td>
<td>II</td>
</tr>
<tr>
<td>Ground Clearing</td>
<td>83</td>
<td>83</td>
<td>84</td>
<td>84</td>
</tr>
<tr>
<td>Excavation</td>
<td>88</td>
<td>75</td>
<td>89</td>
<td>79</td>
</tr>
<tr>
<td>Foundations</td>
<td>81</td>
<td>81</td>
<td>78</td>
<td>78</td>
</tr>
<tr>
<td>Erection</td>
<td>81</td>
<td>65</td>
<td>87</td>
<td>75</td>
</tr>
<tr>
<td>Finishing</td>
<td>88</td>
<td>72</td>
<td>89</td>
<td>75</td>
</tr>
</tbody>
</table>

I - All pertinent equipment present at site.
II - Minimum required equipment present at site.


Table 5.10-6  Construction Equipment 50-foot Noise Emission Limits

<table>
<thead>
<tr>
<th>Equipment Category</th>
<th>L_{max} Level (dBA)1,2</th>
<th>Impact/Continuous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arc Welder</td>
<td>73</td>
<td>Continuous</td>
</tr>
<tr>
<td>Auger Drill Rig</td>
<td>85</td>
<td>Continuous</td>
</tr>
<tr>
<td>Backhoe</td>
<td>80</td>
<td>Continuous</td>
</tr>
<tr>
<td>Bar Bender</td>
<td>80</td>
<td>Continuous</td>
</tr>
<tr>
<td>Boring Jack Power Unit</td>
<td>80</td>
<td>Continuous</td>
</tr>
<tr>
<td>Chain Saw</td>
<td>85</td>
<td>Continuous</td>
</tr>
<tr>
<td>Compressor(^3)</td>
<td>70</td>
<td>Continuous</td>
</tr>
<tr>
<td>Compressor (other)</td>
<td>80</td>
<td>Continuous</td>
</tr>
<tr>
<td>Concrete Mixer</td>
<td>85</td>
<td>Continuous</td>
</tr>
<tr>
<td>Concrete Pump</td>
<td>82</td>
<td>Continuous</td>
</tr>
<tr>
<td>Concrete Saw</td>
<td>90</td>
<td>Continuous</td>
</tr>
<tr>
<td>Concrete Vibrator</td>
<td>80</td>
<td>Continuous</td>
</tr>
<tr>
<td>Crane</td>
<td>85</td>
<td>Continuous</td>
</tr>
<tr>
<td>Dozer</td>
<td>85</td>
<td>Continuous</td>
</tr>
<tr>
<td>Excavator</td>
<td>85</td>
<td>Continuous</td>
</tr>
<tr>
<td>Front End Loader</td>
<td>80</td>
<td>Continuous</td>
</tr>
<tr>
<td>Generator</td>
<td>82</td>
<td>Continuous</td>
</tr>
<tr>
<td>Generator (25 KVA or less)</td>
<td>70</td>
<td>Continuous</td>
</tr>
<tr>
<td>Gradall</td>
<td>85</td>
<td>Continuous</td>
</tr>
<tr>
<td>Grader</td>
<td>85</td>
<td>Continuous</td>
</tr>
</tbody>
</table>
### Equipment Category

<table>
<thead>
<tr>
<th>Equipment Category</th>
<th>$L_{\text{max}}$ Level (dBA) $^{1,2}$</th>
<th>Impact/Continuous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grinder Saw</td>
<td>85</td>
<td>Continuous</td>
</tr>
<tr>
<td>Horizontal Boring Hydro Jack</td>
<td>80</td>
<td>Continuous</td>
</tr>
<tr>
<td>Hydra Break Ram</td>
<td>90</td>
<td>Impact</td>
</tr>
<tr>
<td>Impact Pile Driver</td>
<td>105</td>
<td>Impact</td>
</tr>
<tr>
<td>Insitu Soil Sampling Rig</td>
<td>84</td>
<td>Continuous</td>
</tr>
<tr>
<td>Jackhammer</td>
<td>85</td>
<td>Impact</td>
</tr>
<tr>
<td>Mounted Impact Hammer (hoe ram)</td>
<td>90</td>
<td>Impact</td>
</tr>
<tr>
<td>Paver</td>
<td>85</td>
<td>Continuous</td>
</tr>
<tr>
<td>Pneumatic Tools</td>
<td>85</td>
<td>Continuous</td>
</tr>
<tr>
<td>Pumps</td>
<td>77</td>
<td>Continuous</td>
</tr>
<tr>
<td>Rock Drill</td>
<td>85</td>
<td>Continuous</td>
</tr>
<tr>
<td>Scraper</td>
<td>85</td>
<td>Continuous</td>
</tr>
<tr>
<td>Slurry Trenching Machine</td>
<td>82</td>
<td>Continuous</td>
</tr>
<tr>
<td>Soil Mix Drill Rig</td>
<td>80</td>
<td>Continuous</td>
</tr>
<tr>
<td>Street Sweeper</td>
<td>80</td>
<td>Continuous</td>
</tr>
<tr>
<td>Tractor</td>
<td>84</td>
<td>Continuous</td>
</tr>
<tr>
<td>Truck (dump, delivery)</td>
<td>84</td>
<td>Continuous</td>
</tr>
<tr>
<td>Vacuum Excavator Truck (vac-truck)</td>
<td>85</td>
<td>Continuous</td>
</tr>
<tr>
<td>Vibratory Compactor</td>
<td>80</td>
<td>Continuous</td>
</tr>
<tr>
<td>Vibratory Pile Driver</td>
<td>95</td>
<td>Continuous</td>
</tr>
<tr>
<td>All other equipment with engines larger than 5 HP</td>
<td>85</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

**Notes:**

1. Measured at 50 feet from the construction equipment, with a “slow” (1 sec.) time constant.
2. Noise limits apply to total noise emitted from equipment and associated components operating at full power while engaged in its intended operation.
3. Portable Air Compressor rated at 75 cfm or greater and that operates at greater than 50 psi.


As shown, hourly average noise levels due to construction activities would range from about 75 to 89 dBA $L_{\text{eq}}$ at a distance of 50 feet. Maximum instantaneous noise levels typically range from about 80 to 90 dBA $L_{\text{max}}$ at a distance of 50 feet. Construction-generated noise levels drop off at a rate of about 6 dBA per doubling of the distance between the source and receptor.

Assuming that all construction activities for the proposed Project are conducted in accordance with Section 8.08.025 of the Napa Municipal Code, noise generated by construction activities would not be in excess of the established standards. The standards require the following:

- All construction activities to be limited to the hours of 7:00 a.m. to 7:00 p.m. Monday through Friday.
- Equipment start up cannot occur before 8:00 a.m.
- No delivery of materials or equipment can occur prior to 7:30 a.m. or past 5:00 p.m.
- No cleaning of machines or equipment can occur past 6:00 p.m.
- No servicing of equipment can occur past 6:45 p.m.
- Construction on weekends or legal holidays is limited to the hours of 8:00 a.m. to 4:00 p.m. unless a permit is secured from the City Manager.
Compliance with the City's Municipal Code Section 8.08.025 will be required as mitigation herein.

Vibration Impacts

Vibration impacts due to construction activities may be perceptible when heavy equipment or impact tools are used. Construction activities such as drilling, use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (e.g., tracked vehicles, compactors) may generate substantial vibration in the immediate vicinity. The proposed Project is not expected to require pile driving, which can cause excessive vibration.

The California Department of Transportation recommends a vibration limit of 0.5 in/sec PPV for buildings structurally sound and designed to modern engineering standards, 0.3 in/sec PPV for buildings that are found to be structurally sound but where structural damage is a major concern and a conservative limit of 0.08 in/sec PPV for ancient buildings or buildings that are documented to be structurally weakened. All existing buildings in the immediate vicinity of the Project site were designed to modern engineering standards and, therefore, groundborne vibration levels exceeding 0.5 in/sec PPV would have the potential to result in a significant vibration impact. Table 5.10-7 depicts typical vibration levels that could be anticipated at a reference distance of 25 feet, 30 feet and 55 feet. These distances represent the locations of the nearest off-site industrial buildings from the Project property line.

<table>
<thead>
<tr>
<th>Equipment</th>
<th>PPV at 25 ft. (inches per second)</th>
<th>PPV at 30 ft. (inches per second)</th>
<th>PPV at 55 ft. (inches per second)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pile Driver (Impact)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>upper range</td>
<td>1.158</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>typical</td>
<td>0.644</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Pile Driver (Sonic)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>upper range</td>
<td>0.734</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>typical</td>
<td>0.170</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Clam shovel drop</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.202</td>
<td>0.165</td>
<td>0.085</td>
<td></td>
</tr>
<tr>
<td>Hydromill (slurry wall)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in soil</td>
<td>0.008</td>
<td>0.007</td>
<td>0.003</td>
</tr>
<tr>
<td>in rock</td>
<td>0.017</td>
<td>0.014</td>
<td>0.007</td>
</tr>
<tr>
<td>Vibratory Roller</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.210</td>
<td>0.172</td>
<td>0.088</td>
<td></td>
</tr>
<tr>
<td>Hoe Ram</td>
<td>0.089</td>
<td>0.073</td>
<td>0.037</td>
</tr>
<tr>
<td>Large bulldozer</td>
<td>0.089</td>
<td>0.073</td>
<td>0.037</td>
</tr>
<tr>
<td>Caisson drilling</td>
<td>0.089</td>
<td>0.073</td>
<td>0.037</td>
</tr>
<tr>
<td>Loaded trucks</td>
<td>0.076</td>
<td>0.062</td>
<td>0.032</td>
</tr>
<tr>
<td>Jackhammer</td>
<td>0.035</td>
<td>0.029</td>
<td>0.015</td>
</tr>
<tr>
<td>Small bulldozer</td>
<td>0.003</td>
<td>0.002</td>
<td>0.001</td>
</tr>
</tbody>
</table>


The nearest industrial buildings to the Project site are approximately 30 feet from the proposed hotel location. At this distance, vibration levels from activities having the highest potential for vibration (e.g. vibratory roller) would be up to 0.172 in/sec PPV, which would be below the 0.5 in/sec PPV threshold. Other industrial buildings near the site are located
approximately 55 feet from the office location. At a distance of 55 feet, vibration levels could be expected to reach up to 0.088 in/sec PPV, which is also below the 0.5 in/sec PPV threshold.

While Project construction is not expected to cause damage to nearby industrial buildings, vibration levels may be perceptible at times. However, due to the intermittent and short duration of such construction activities, impacts are not considered significant. Mitigation measures included herein will result in a less than significant impact due to vibration levels.

3. **Long-Term (Operational) Noise Impacts**

The proposed Project consists of three components - a dual-brand hotel, a winery and an office building. Each component will produce operational impacts related to noise. In addition, the Noise Assessment considered the noise impact from the additional traffic generated by the Project. The Noise Assessment identified that existing ambient noise conditions at the proposed hotel, winery, and office locations resulted in a 70 dBA CNEL during daytime hours, mainly due to existing traffic. The following analysis of the individual components is based on consistency with the City’s General Plan thresholds and includes the Project-generated traffic.

**Hotel**

The hotel component proposes a common outdoor use area that includes a pool, spa, cabanas, barbeque area and seating area with fire pit. The center of the pool would be set back approximately 265 feet from the centerline of SR 221. Future exterior noise levels due to traffic are calculated to reach 68 dBA CNEL at the center of the outdoor use area, exceeding the City’s “normally acceptable” exterior noise level limit of 65 dBA CNEL by 3 dBA.

Exterior noise levels at the facade of the hotel facing Napa Valley Corporate Way and SR 221 are calculated to range from 65 to 69 dBA CNEL. Building design and construction materials and methods will impact the interior noise levels. Standard hotel construction with windows and doors closed provides approximately 20 to 25 dBA of interior noise reduction. In addition, the inclusion of adequate forced air mechanical ventilation can reduce interior noise levels to acceptable levels with windows closed. Where noise levels exceed 65 dBA CNEL, forced-air mechanical ventilation systems and sound-rated construction methods are normally required. The proposed Project interior noise levels are anticipated to range from 45 to 49 dBA CNEL with windows and doors closed. This would exceed the City’s 45 dBA CNEL threshold for interior noise by up to 4 dBA CNEL.

**Winery**

The winery component of the Project includes an outdoor event lawn approximately 480 feet from the centerline of SR 221. Future exterior noise levels at the event lawn are calculated to range from 60 to 64 dBA CNEL, assuming partial shielding due to the intervening winery and hotel buildings. Future exterior noise levels at the outdoor event lawn would not exceed the City of Napa’s “normally acceptable” exterior noise
level limit of 75 dBA CNEL. The 5,500-square-foot lawn area will be used for small events and wine tastings for approximately 150 people. However, events that include amplified music or public address system equipment could result in an exceedance of outdoor noise thresholds. The City’s Municipal Code requires a conditional use permit to ensure all amplified music and public address systems are operated consistent with the applicable Municipal Code provisions. The Project will comply with the City’s Municipal Code related to noise.

Office

Exterior noise levels at the office building location would range from 60 dBA CNEL at the easternmost façade to 68 dBA CNEL at the westernmost façade adjacent to Napa Valley Corporate Drive. Future exterior noise levels would not exceed the City’s “normally acceptable” exterior noise level limit of 70 dBA CNEL. However, the proposed office building would be exposed to exterior noise levels exceeding 65 dBA CNEL, triggering the mandatory exterior sound transmission controls as established by the CALGreen Building Code.

The noise level goal for inside offices varies depending on the type of office space. The CalGreen Code requires interior noise levels to be maintained at 50 dBA $L_{eq}$ (1 hour) or less during hours of operation. Standard office construction normally provides 30 dBA of noise reduction in interior spaces. Assuming standard office construction methods, predicted interior noise levels would be about 38 dBA $L_{eq}$ which would meet the 50 dBA noise limit established in CALGreen Code §5.507.4.2. Interior noise levels would be compatible with the proposed use and below the CALGreen Code interior noise limit.

For consistency with the General Plan, the Noise Assessment recommended Conditions of Approval for the hotel component of the Project. The Conditions of Approval are included herein in Section 5.10.5, Mitigation Measures.

Operational Noise at Industrial Land Uses

Neither the City of Napa General Plan nor the City of Napa Municipal Code regulates noise from industrial operations on other industrial operations. The Napa General Plan establishes 75 dBA CNEL as the “normally acceptable” noise exposure level with siting new industrial land uses. Assuming 24-hour per day operations, mechanical equipment producing hourly average noise levels of 68 dBA $L_{eq}$ would result in a noise level of 75 dBA CNEL. Therefore, to not exceed the threshold, mechanical equipment should not produce noise levels exceeding 68 dBA $L_{eq}$ at adjoining industrial property lines.

Mechanical equipment (heating, ventilation and air conditioning systems) will be included in the Project and would likely be installed on the rooftops of the hotel and office buildings, shielded by roof screens or parapets. The winery would likely include similar equipment as well as other mechanical equipment located within the winery back-of-house area used during the winemaking process (e.g., chillers, condensing units, compressors) As shown on the site plan, a winery water treatment area southwest of the building is immediately adjacent to existing industrial land uses. While specific information regarding the number, type and size of the mechanical units
was not available at the time the Noise Assessment was prepared, typical noise levels produced by similar mechanical equipment would range from approximately 50 to 65 dBA $L_{eq}$ at a distance of 50 feet. Assuming 24-hour per day operations, mechanical equipment could produce noise levels ranging from approximately 57 to 72 dBA CNEL at 50 feet. There is a potential that mechanical equipment noise levels would exceed the 75 dBA CNEL “normally acceptable” threshold given the proximity of the winery back-of-house area and winery water treatment area. This is a potentially significant impact.

Seasonal crushing and bottling operations at the winery would also produce operational noise from the operation of presses, hoppers, de-stemmers, separators, crushers, air compressors, forklifts, conveyors, etc. Average noise levels from the crush are typically constant on an hourly basis. Noise levels from individual specific pieces of equipment are generally around 50 dBA $L_{eq}$ at 50 feet. However, the composite crush activities at a winery typically generate noise levels of about 67 dBA $L_{eq}$ at a distance of 50 feet from center of operations. During the crush, discrete maximum noise events such as truck circulation or the setting of empty bins may reach 70 to 80 dBA at 50 feet from the center of operations.

While bottling operations would be constant on an hourly basis, and occur only a few weeks during the year, it is anticipated bottling operations could produce $L_{eq}$ sound levels of 67 dBA at 50 feet in an open air, non-acoustically shielded environment. Seasonal crushing and bottling operations could produce a noise level of 66 dBA CNEL at a distance of 50 feet, which is below the 75 dBA CNEL “normally acceptable” noise threshold, resulting in a less than significant impact.

**Operational Noise at Noise-Sensitive Land Uses**

Section 8.08.020 of the Napa Municipal Code regulates noise from commercial activity. Operational noise levels for mechanical equipment associated with the winery are calculated to be 36 dBA $L_{eq}$ or less at the nearest existing sensitive receptor located approximately 1,400 feet from the winery back-of-house area. The projected noise levels are less than the ambient noise levels due to traffic noise in the Project vicinity.

The Napa Pipe Project, located over 1,100 feet from the winery back-of-house area and partially shielded by intervening buildings, would be exposed to projected operational levels of 38 dBA $L_{eq}$ or less. Mechanical equipment associated with the Project is not anticipated to produce noise levels that would be audible above ambient conditions day or night; therefore, the impact at the nearest sensitive receptors would be less than significant.

Seasonal operations due to crushing or bottling operations would produce noise levels of about 38 to 40 dBA $L_{eq}$ at the nearest sensitive receptors. The noise levels would be less than the ambient noise levels attributable to traffic noise sources in the Project vicinity. Seasonal winery operational noise levels are not anticipated to produce noise levels that would be audible above ambient conditions at the nearest sensitive receptors, resulting in a less than significant impact.
The event lawn area south of the winery building will potentially be used for promotional events, corporate events and weddings. The Noise Assessment considered that the highest noise levels attributable to such events would likely result from amplified music played outdoors. Such events would be anticipated to produce noise levels of approximately 72 dBA Leq at a distance of 50 feet assuming free-field conditions. Operational noise associated with such events is calculated to be 43 dBA Leq or less at the nearest existing sensitive receptors located approximately 1,400 feet from the event lawn. Noise levels at the Napa Pipe project are calculated to be 45 dBA Leq. Noise levels may be audible at existing or proposed noise-sensitive receptors, conflicting with provisions of Section 8.08.020 of the Napa Municipal Code and impacts are, therefore, potentially significant.

Noise from sound amplification systems or public address systems are regulated by City Municipal Code Section 8.08.010 - Outdoor sound systems. It is reasonable to assume that a public address system or amplified music will be operated from time to time on the event lawn. However, such operation will be required to comply with the Project’s use permit conditions in compliance with Section 8.08.010. Mitigation Measure N-4 is included herein to ensure compliance resulting in a less than significant impact.

4. **Traffic Noise**

Long-term off-site impacts from traffic noise are measured against two criteria. A substantial increase would occur if: a) the noise level increase is 5 dBA CNEL or greater, with a future noise level of less than 60 dBA CNEL, or b) the noise level increase is 3 dBA CNEL or greater, with a future noise level of 60 dBA CNEL or greater. In community noise assessment, changes in noise levels greater than 3 dB are often identified as significant while changes less than 1 dB are generally not discernible to local residents. It should be noted that there is no scientific evidence to support the use of 3 dB as the significance threshold. Community noise exposures occur over a long-time period and changes in noise levels occur over years. Therefore, the level at which changes in ambient community noise levels become discernible is likely to be some value greater than 1 dB and 3 dB appears to be appropriate for most people. For reference, traffic volumes would have to double for noise levels to increase by 3 dBA CNEL and triple for noise levels to increase by 5 dBA CNEL.

Traffic noise from SR 221 dominates the noise environment in the immediate vicinity. Kimley Horn traffic consultants provided a Traffic Impact Study which analyzed peak hour traffic volumes for 16 intersections in the Project and greater Napa area. The Traffic Study in its entirety can be found as Appendix O in this DEIR and the traffic analysis is included as Section 5.13 of this DEIR.

The Noise Assessment analysis examines noise impacts from the proposed Project on surrounding land uses and the compatibility of the proposed Project with the noise environment. Increased traffic resulting from the Project will increase traffic noise levels along the roadways in the vicinity of the Project site. However, a comparison of the Existing and Existing Plus Project traffic data shows that the Project would increase traffic noise levels by 0 dBA along SR 221, and by 0 to 1 dBA along Napa Valley Corporate Drive and Napa Valley
Corporate Way. Project-generated traffic noise level increases would be less than 1 dBA along all other roadways serving the site.

An increase in peak-hour traffic volumes would correlate to an increase in the CNEL noise level. Therefore, traffic noise level increases along the roadways serving the Project site would be less than 1 dBA CNEL and less than the 3 dBA CNEL significance threshold. Therefore, the proposed Project would not cause a substantial permanent increase in noise levels due to traffic and the impact is less than significant.

5. Aircraft Noise

As noted, the Project site is not within the Napa County Airport Master Plan 55 dBA CNEL noise contour as shown on Exhibit 5.10-1, Napa County Airport Noise Contours (page 5.10-12). While aircraft flyovers occur at the Project site, and noise from individual aircraft events is clearly audible, the noise levels are not excessive. Therefore, aircraft noise impacts are insignificant.

5.10.5 Mitigation Measures

1. Standard Mitigation Measures

None required. The City of Napa Policy Resolution 27 does not include mitigation measures in the area of Noise.

2. Special Mitigation Measures

The following Special Mitigation Measures are provided herein based on the recommendations in the Noise Assessment as detailed above.

| MM N-1 | During the construction phase, the Project Applicant shall ensure that all construction activities shall comply with all requirements in Section 8.08.025 of the Napa Municipal Code, including limiting hours of construction to 7:00 a.m. to 7:00 p.m. Monday through Friday on weekdays and 8:00 a.m. to 4:00 p.m. on weekends or legal holidays unless a permit shall first have been secured from the City Manager. |
| MM N-2 | Prior to issuance of building permits, Project Applicant shall ensure that mechanical equipment associated with the winery component of the Project shall be selected and designed to reduce impacts on surrounding uses to meet the City’s General Plan noise level thresholds for industrial land uses. A qualified acoustical consultant shall be retained to review mechanical noise as these systems are selected to determine specific noise reduction measures necessary to reduce noise to comply with the noise performance standard. Noise reduction measures could include but are not limited to, selection of equipment that emits low noise levels and installation of noise barriers such as enclosures to block the line of sight between the noise source and the nearest receptors. |
Prior to commencement of construction activities, Project Applicant shall notify adjacent building occupants of scheduled construction activities and schedule such activities during hours with the least potential to affect nearby occupants to the extent feasible.

During special events, the Project Applicant shall ensure all public address or sound amplification systems are operated consistent with the provisions of Sections 17.52.310 and Section 8.08.010 of the Municipal Code including the conditions of the Project use permit.

3. **Best Management Practices**

In addition to the recommended special mitigation measures, the Noise Assessment included the following best management practices to ensure further reduction in noise impacts specifically due to construction:

- **BMP-4** Equip all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- **BMP-5** Unnecessary idling of internal combustion engines should be prohibited.
- **BMP-6** Utilize “quiet” air compressors and other “quiet” equipment where technology exists.
- **BMP-7** Notify all adjacent businesses, residences and other noise-sensitive land uses of the construction schedule and provide a written schedule of “noisy” construction activities.
- **BMP-8** Temporary plywood noise barriers or noise control blanket barriers should be erected if scheduling conflicts occur related to timing of construction activities to minimize impacts from noisy construction.
- **BMP-9** Identify a contact name/number for a coordinator who would be responsible for responding to any complaints about construction noise. The coordinator will investigate the complaint and require that reasonable measures be implemented to correct the problem. The name/number should be posted at the construction site.

4. **Conditions of Approval**

For consistency with the General Plan, the following Conditions of Approval are recommended in the Noise Analysis related to the hotel component of the Project. These Conditions of Approval are not mitigation but rather address the environment into which the Project will be constructed. Hourly average existing noise levels at the southeast corner of the Project site range from 65 to 67 dBA during the day. The Project’s contribution to traffic noise along the roadways serving the Project site will be less than 1 dBA, less than the 3 dBA increase threshold. However, the recommendations below will reduce the existing and future
exterior noise impacts at the proposed hotel to the City's “normally acceptable” levels and ensure consistency with the City's General Plan policies.

COA-1 A minimum 6-foot noise barrier shall be constructed to shield the hotel’s outdoor use area. A 6-foot noise barrier would provide at least 5 dBA of noise reduction and would maintain exterior noise levels below the City of Napa’s “normally acceptable” exterior noise level limit of 65 dBA CNEL.

COA-2 A qualified acoustical engineer shall prepare a detailed analysis of interior noise levels resulting from all exterior sources during the design phase of the Project. The study will review the final site plan, building elevations and floor plans prior to construction and recommend building treatments to reduce interior noise levels to 45 dBA CNEL or lower. Treatments could include, but are not limited to, sound-rated windows and doors, acoustical caulking, protected ventilation openings, etc. The specific determination of what noise insulation treatments are necessary shall be conducted on a unit-by-unit basis during final design of the Project. Results of the analysis, including the description of the necessary noise control treatments, shall be submitted to the City, along with the building plans and approved design, prior to issuance of a building permit.

COA-3 Provide sound rated windows to maintain interior noise levels at acceptable levels. Preliminary calculations show that sound-rated windows with minimum STC ratings of 26 to 30 would be satisfactory for rooms adjoining Napa Valley Corporate Way and SR 221 to achieve acceptable interior noise levels.

COA-4 Provide a suitable form of forced-air mechanical ventilation, as determined by the local building official, for all hotel rooms so that windows can be kept closed to control noise.

5.10.6 Level of Significance after Mitigation

Thresholds of significance identified in the CEQA Guidelines, Appendix G, state that a project would have a significant impact if it would:

- a) Expose persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance,
- b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels,
- c) A substantial permanent increase in ambient noise levels,
- d) A substantial temporary or periodic increase in ambient noise levels,
- e) Exposure of persons residing or working in the project area located within an airport land use plan or within two miles of a public airport,
- f) Exposure of persons residing or working in the project area to excessive noise levels within the vicinity of a private airstrip.

1. Short-Term Construction Impacts

Analysis shows that short-term construction activities could generate noise levels above the City’s thresholds. Mitigation Measure MM N-1 will ensure that the Project is consistent with
the City’s Municipal Code Section 8.08.025 which regulates when day and time of day construction activities are permitted. Therefore, Project construction will not result in exposure of persons to or generation of noise levels in excess of standards established in the City General Plan or Municipal Code or applicable standards of other agencies. Construction related vibration impacts have been determined to be perceptible, but below the 0.5 inches per second PPV threshold. A temporary increase in ambient noise levels will result from Project construction; however, adherence to City’s noise impact standards is required by Mitigation Measures MM N-1 to reduce impacts.

2. Long-Term Operational Impacts

Analysis in the Noise Assessment shows that the Project will not result in significant long-term off-site traffic noise impacts and no mitigation is required. A review of the traffic analysis data shows that the Project traffic volumes would result in an increase of less than 1 dBA CNEL, less than the 3 dBA CNEL significance threshold.

The Noise Assessment analyzed individual components of the Project in terms of noise impacts. The hotel component could experience exterior noise levels up to 68 dBA CNEL. A Condition of Approval requiring construction of a noise barrier along the hotel’s outdoor use area would reduce noise levels below the City’s “normally acceptable” limit of 65 dBA CNEL.

The Assessment noted that with application of standard hotel construction materials and methods, the interior noise levels can be reduced by approximately 20 to 25 dBA. The Noise Assessment provided Conditions of Approval related to noise attenuation to ensure consistency with the City’s General Plan thresholds. Application of the Conditions of Approval will result in a less than significant impact to the interior noise levels of the hotel component. Implementation of the Mitigation Measures provided herein will reduce impacts due to short-term construction equipment noise and long-term operational and traffic noise to less than significant.

In response to the CEQA Guidelines Appendix G Checklist, analysis has shown:

a) The proposed Project will not expose persons to or generate noise levels that would exceed applicable noise standards presented in the General Plan or Municipal Code with application of the Mitigation Measures included herein.

b) The proposed Project will not expose persons to excessive vibration levels exceeding the established threshold levels and the impact is less than significant.

c) Traffic generated by the proposed Project will be less than the 1 dBA CNEL and less than the 3 dBA CNEL significance threshold. The Project will not cause a substantial permanent noise level increase at noise-sensitive receptor locations and the impact is, therefore, less than significant due to traffic noise.

d) Construction noise levels could result in periodic increases in noise that exceed significance thresholds. However, compliance with the City’s regulations for construction activity hours and days of operation will ensure that the impact is less than significant. There will be no permanent increase in noise levels in the vicinity that exceed established thresholds either due to traffic or Project component operations.

e) The Project site is located outside the Napa County Airport Master Plan 55 dBA CNEL noise contour. Hotel guests and office/winery employees will not be exposed to
excessive noise levels due to aircraft operations. The Project is not located in the vicinity of a private airstrip.

The proposed Project will not result in short-term or long-term noise impacts that cannot be reduced to less than significant levels through implementation of the Mitigation Measures, conditions of approval and best management practices identified herein.

5.10.7 Cumulative Impacts

Cumulative proposed projects within the vicinity of the proposed Project include the Napa Pipe project and the Meritage Commons development which, like the proposed Project, is located in the Napa Valley Commons corporate park. Both projects have been analyzed for environmental impacts and mitigation measures were adopted to reduce impacts individually and cumulatively. Construction noise from the three projects, which will not occur concurrently, is regulated by the City's Municipal Code and is exempt during specific days and times. With mitigation, the Meritage Commons project and the Napa Pipe project operational noise impacts are less than significant.

With respect to traffic, a significant cumulative impact would occur if two criteria are met: 1) if the cumulative traffic noise level increase at noise-sensitive receptors was 3 dBA CNEL or greater where noise levels would exceed 60 dBA CNEL, or if the cumulative traffic noise level increase at noise-sensitive receptors was 5 dBA CNEL where noise levels would remain below 60 dBA CNEL; and 2) if the project would make a “cumulatively considerable” contribution to the overall traffic noise increase. A “cumulatively considerable” contribution would be defined as an increase of 1 dBA CNEL or more attributable solely to the proposed project.

Cumulative traffic noise level increases were calculated by comparing the Cumulative traffic volumes and the Cumulative Plus Project volumes to Existing traffic volumes. The Hillside Christian Church is the nearest noise-sensitive receptor site to the east, opposite SR 221. A traffic noise increase of 3 dBA CNEL or greater was calculated under both Cumulative scenarios (year 2035 with and without the project) along SR 221, both north and south of Napa Valley Corporate Way. However, these noise increases were calculated with and without the proposed Project, with a maximum project contribution of 0.1 dBA to the Cumulative Plus Project (year 2035 existing noise plus Project) noise level increase. Therefore, the Project would not make a cumulatively considerable contribution to increased noise levels anticipated under cumulative conditions, and the impact is less-than-significant.

Therefore, with mitigation, the Project’s individual contribution when combined with other area projects would not be considerable. The proposed Project would not result in a cumulative impact.

5.10.8 Unavoidable Adverse Impacts

Implementation of the Mitigation Measures, conditions of approval and best management practices included herein will reduce all significant impacts due to noise to a level of less than significant. The Project will not result in an unavoidable significant noise impact.