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## **13.0 NOISE**

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This section includes a description of existing noise conditions at each of the project sites, a summary of applicable regulations, and an evaluation of the potential impacts of the proposed project on noise.

### 13.0 GENERAL ENVIRONMENTAL CONDITIONS AND REGULATIONS

#### 13.0.1 ENVIRONMENTAL SETTING

The following description of environmental conditions common to each site and applicable regulations, policies, and standards apply to each of the project sites.

##### **Fundamentals of Acoustics**

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second of hertz (Hz).

Noise is derived from a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected, or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals) as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels, but are expressed as dB, unless otherwise noted.

The decibel scale is logarithmic, not linear. In other words, two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70 dBA sound is half as loud as an 80 dBA sound, and twice as loud as a 60 dBA sound.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool is the average, or equivalent, sound level ( $L_{eq}$ ), which corresponds to a steady-state A weighted sound level containing the same total energy as a time-varying signal over a given time period (usually one hour). The  $L_{eq}$  is the foundation of the composite noise descriptor,  $L_{dn}$ , and shows very good correlation with community response to noise.

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The day/night average level ( $L_{dn}$ ) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because  $L_{dn}$  represents a 24-hour average, it tends to disguise short-term variations in the noise environment (J.C. Brennan & Associates 2016a).

**Table 13.0-1** lists several examples of the noise levels associated with common situations.

**TABLE 13.0-1  
TYPICAL NOISE LEVELS**

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft)	--100--	
Gas Lawn Mower at 1 m (3 ft)	--90--	
Diesel Truck at 15 m (50 ft), at 80 km/hr (50 mph)	--80--	Food Blender at 1 m (3 ft) Garbage Disposal at 1m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft)	--70--	Vacuum Cleaner at 3 m (10 ft)
Commercial Area Heavy Traffic at 90 m (300 ft)	--60--	Normal Speech at 1 m (3ft)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing

Source: J.C. Brennan & Associates 2016a

### Effects of Noise on People

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it.

With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived.
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected.
- A 10 dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

Stationary point sources of noise—including stationary mobile sources such as idling vehicles—attenuate (lessen) at a rate of approximately 6 dB per doubling of distance from the source, depending on environmental conditions (e.g., atmospheric conditions, vegetative or manufactured noise barriers). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate (J.C. Brennan & Associates 2016a).

## 13.0.2 REGULATORY FRAMEWORK

### **FEDERAL**

#### Federal Highway Administration

Proposed federal or federal-aid highway construction projects at a new location, or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment, or increases the number of through-traffic lanes, requires an assessment of noise and consideration of noise abatement per 23 Code of Federal Regulations Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise. The Federal Highway Administration has adopted noise abatement criteria (NAC) for sensitive receivers such as picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals when “worst-hour” noise levels approach or exceed 67 dBA  $L_{eq}$ . The California Department of Transportation (2011) has further defined approaching the NAC to be 1 dBA below the NAC for noise-sensitive receivers identified as Category B activity areas (e.g., 66 dBA  $L_{eq}$  is considered approaching the NAC).

#### Federal Transit Administration

The Federal Transit Administration (FTA) has identified vibration impact criteria for sensitive buildings, residences, and institutional land uses near rail transit and railroads. The thresholds for residences and buildings where people normally sleep (e.g., nearby residences) are 72 velocity decibels (VdB) for frequent events (more than 70 events of the same source per day); 75 VdB for occasional events (30 to 70 vibration events of the same source per day); and 85 VdB for infrequent events (less than 30 vibration events of the same source per day).

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### STATE

#### California Noise Insulation Standards

The state of California establishes minimum noise insulation performance standards for hotels, motels, dormitories, apartment houses, and dwellings other than detached single-family dwellings as set forth in the 2010 California Building Code (Chapter 12, Appendix Section 1207.11). The noise limit is a maximum interior noise level of 45 dBA  $L_{dn}$ . Where exterior noise levels exceed 60 dBA  $L_{dn}$ , a report must be submitted with the building plans describing the noise control measures that have been incorporated into the design of the project to meet the noise limit.

### LOCAL

#### Nevada County General Plan

The Nevada County General Plan Noise Element has standards that are identical to the Zoning Code shown below. However, the Noise Element also has policies for determining a significant impact. The following policies from the Noise Element apply to the proposed project:

Policy 9.1.2d      If the measured ambient level exceeds that permitted, then the allowable noise exposure standard shall be set at 5 dBA above the ambient.

Policy 9.1.2e      Because of the unique nature of sound, the County reserves the right to provide for a more restrictive standard than shown in the Exterior Noise Limits table contained in this policy. The maximum adjustment shall be limited to be not less than the current ambient noise levels and shall not exceed the standards of this policy or as they may be further adjusted by Policy 9.1.2.b. Imposition of a noise level adjustment shall only be considered if one or more of the following conditions are found to exist.

1. Unique characteristics of the noise source:
  - (a) The noise contains a very high or low frequency, is of a pure tone (a steady, audible tone such as a whine, screech, or hum), or contains a wide divergence in frequency spectra between the noise source and ambient level.
  - (b) The noise is impulsive in nature (such as hammering, riveting, or explosion), contains music or speech.
  - (c) The noise source is of a long duration.
2. Unique characteristics of the noise receptor when the ambient noise level is determined to be 5 dBA or more below the Policy 9.1.2 standard for those projects requiring a general Plan amendment, rezoning, and/or conditional use permit. In such instances, the new standard shall not exceed 10 dBA above the ambient or the Policy 9.1.2 standard, whichever is more restrictive.

The proposed projects would operate during the daytime hours of 7:00 a.m. to 7:00 p.m. The County would apply noise standards of 55 dB  $L_{eq}$  and 75 dB  $L_{max}$  to the proposed projects for activities occurring during the daytime hours of 7:00 a.m. to 7:00 p.m.

- Policy 9.1.3 The Nevada County Planning Department shall be the lead agency responsible for coordination of all local noise control activities and intergovernmental group activities and subsequent enforcement efforts.
- Policy 9.1.12 Limit future noise generating land use to those location of the County where their impacts on noise sensitive land uses will be minimized, consistent with the standards found in Program 9.1.
- Policy 9.1.13 Require the preparation of a comprehensive noise study for all land use projects determined to have a potential to create noise levels inconsistent with those standards found in Program 9.1, and in accordance with the methodology identified in the Noise Element Manual contained in General Plan Volume 2, Section 3 - Noise Analysis Appendix A.
- Policy 9.1.14 Provide for adequate design controls to assist in mitigating on-site the significant adverse impacts of future noise generating land uses through increased setbacks, landscaping, earthen berms, and solid fencing.

Nevada County Zoning Ordinance

Table L-II 4.1.7 (see **Table 13.0-2**) of the Nevada County Zoning Ordinance establishes the following noise standards that would apply to the proposed projects.

**TABLE 13.0-2  
EXTERIOR NOISE LIMITS NEVADA COUNTY ZONING REGULATIONS**

Land Use Category	Time Period	Noise Level, dBA	
		Leq	Lmax
Rural (AG, TPZ, AE, OS, FR, IDR Zoning Districts)	7am–7pm	55	75
	7pm–10pm	50	65
	10pm–7am	40	55
Residential and Public (RA, R1, R2, R3, P Zoning Districts)	7am–7pm	55	75
	7pm–10pm	50	65
	10pm–7am	45	60
Commercial and Recreation (C1, CH, CS, C2, C3, OP, REC Zoning Districts)	7am–7pm	70	90
	7pm–7am	65	75
Business Park (BP Zoning Districts)	7am–7pm	65	85
	7pm–7am	60	70
Industrial (M1, M2 Zoning Districts)	Anytime	80	90

Source: Nevada County 2012

The Nevada County Zoning Code Section L-II 4.1.7.D.4 states that “where 2 different zoning districts abut, the standard applicable to the lower, or more restrictive, district plus 5 dBA shall apply.” Construction activities are exempt from the County’s noise standards (Nevada County Land Use Development Code, Chapter 11, Zoning Regulations, Section L-II 4.1.7, Noise).

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### 13.0.3 IMPACT METHODOLOGY

#### Standards of Significance

The impact analyses below are based on the following California Environmental Quality Act (CEQA) Guidelines Appendix G thresholds of significance, which state that a project would have a significant noise impact if it would:

- 1) Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- 2) Expose persons to or generate excessive groundborne vibration or groundborne noise levels.
- 3) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- 4) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- 5) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.
- 6) For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

As noted above, construction activities are exempt from the County's noise standards. In the absence of applicable County noise standards, construction noise impacts would be considered significant if the proposed project results in increased levels of nuisance during the more noise-sensitive evening and nighttime hours. Noise-generating construction activities that would result in an increase in ambient noise levels between the hours of 7:00 p.m. and 7:00 a.m. would be considered to result in a potentially significant impact on sensitive receivers such as residential land uses. In addition, sustained construction-generated noise levels that would exceed the commonly applied interior noise threshold for speech communication (i.e., 60 dBA  $L_{eq}$ ) within nearby existing residential dwellings would also be considered to have a potentially significant impact.

#### Methodology

The following impact analyses are based on the environmental noise assessments prepared for the proposed development of each of the project sites (see **Appendix 13.0-A**), as well as a review of the Nevada County General Plan, General Plan Draft EIR, and Zoning Ordinance.

### 13.1 ALTA SIERRA SITE

An environmental noise assessment was prepared for the proposed development of the Alta Sierra project site by J.C. Brennan & Associates dated March 15, 2016. This report is provided as **Appendix 13.0-A** of this document and serves as the basis for the following discussion.

### 13.1.1 PROJECT-SPECIFIC SETTING

The existing noise environment in the project area is defined primarily by traffic on Alta Sierra Drive and Little Valley Road. In addition, some activities associated with the commercial development adjacent to the site contribute to the noise environment (J.C. Brennan & Associates 2016a).

#### Existing Ambient Noise Levels

To quantify the existing ambient noise environment in the project vicinity, short-term noise level measurements were conducted on March 18 and 19, 2015, at a location on the southeast portion of the project site (see Figure 1 of **Appendix 13.0-A**). The noise level measurement survey results are shown in **Table 13.0-3**.

The sound level meter was programmed to record the maximum and average noise levels at each site during the survey. The maximum value, denoted  $L_{max}$ , represents the highest noise level measured. The average value, denoted  $L_{eq}$ , represents the energy average of all of the noise received by the sound level meter microphone during the monitoring period.

**TABLE 13.0-3**  
**SUMMARY OF MEASURED AMBIENT NOISE LEVELS – ALTA SIERRA PROJECT SITE**

Site	Measured $L_{dn}$	Average Hourly Daytime (7:00 a.m. – 10:00 p.m.)			Average Hourly Nighttime (10:00 p.m. – 7:00 a.m.)		
		$L_{eq}$	$L_{50}$	$L_{max}$	$L_{eq}$	$L_{50}$	$L_{max}$
A	57.1 dB	55.2	50	72.5	49.1	45	64.5

Source: J.C. Brennan & Associates 2016a

### 13.1.2 REGULATORY FRAMEWORK

There are no additional regulations, policies, or standards that pertain to the Alta Sierra site other than those described in Section 13.0.2, above.

### 13.1.3 IMPACTS AND MITIGATION MEASURES

#### Expose Sensitive Receptors to New or Increased Operational Noise Sources (Standards of Significance 1 and 3)

**Impact 13.1.1(AS)** Development of the Alta Sierra project site as proposed could expose sensitive receptors to stationary source noise levels in excess of established standards.  
**(Less Than Significant With Mitigation Incorporated)**

Operation of the proposed project would generate new noise sources on the Alta Sierra project site resulting from truck deliveries, mechanical equipment, and parking lot traffic and activities.

#### Truck Delivery Noise

Based on the project application, it is assumed that the proposed project would have eight small truck/van deliveries per week, and one to two semi-truck deliveries per week. Typical truck activity for the store would consist of no more than one semi-truck delivery, and one step-side van per hour during the daytime hours (7 a.m. to 7 p.m.). Based on noise level data collected by J.C. Brennan & Associates (2016a) at a similar store, the predicted delivery truck hourly noise levels

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would be 48 dB Leq and 74 dB Lmax at the nearest residential use located approximately 100 feet east of the site. As shown on the proposed site plan (see **Figure 2.0-8a**), the project proposes to construct concrete block screen walls at a height of 6-feet along the eastern portion of the site between the project and Little Valley Road in order to shield truck and parking lot operations. A barrier analysis conducted to determine the shielding effects of the screen wall indicate that the screen wall would provide an approximately 5 dB reduction in truck loading noise levels (J.C. Brennan & Associates 2016a). Therefore, overall hourly truck noise levels are expected to be no more than 43 dB Leq and less than 70 dB Lmax at the nearest residence.

Therefore, the project's predicted truck delivery noise levels would comply with the County's daytime (7:00 a.m. to 7:00 p.m.) noise level standards of 55 dB Leq and 75 dB Lmax for the Residential and Public land use category (see **Table 13.0-2**). However, evening and nighttime deliveries are predicted to exceed the County's evening and nighttime noise level standards of 65 dB Lmax (evening) and 45 dB Leq and 60 dB Lmax (nighttime). This impact would be **potentially significant**.

Implementation of mitigation measure **MM AS-13.1.1** would reduce this impact to a **less than significant** level by restricting truck deliveries at the site to daytime hours, thus ensuring compliance with the County's noise standards.

Mechanical Equipment Noise

The project proposes to install four rooftop 7.5-ton heating, ventilation, and air conditioning (HVAC) systems. The proposed units have an outdoor sound power level (PWL) of 83 dBA. Assuming all four units have a PWL of 83 dBA, the overall PWL would be 89 dBA. This does not account for shielding from the pitched roof or parapet. Based upon the design, the roof line and pitched roof would block line-of-sight to each of the units from adjacent areas.

Based upon the proposed site plan, the nearest residential property lines are located approximately 125 feet from the location of the nearest HVAC unit. **Table 13.0-4** shows the calculated noise level from the HVAC units with and without shielding from the roof parapets and the roof lines, assuming noise sources would attenuate at a rate of 6 dB per doubling of distance.

**TABLE 13.0-4  
CALCULATED ROOFTOP HVAC NOISE LEVELS AT THE NEAREST WEST PROPERTY LINE – ALTA SIERRA PROJECT SITE**

Unit	Distance to Residential Property Line to the East	Calculated Individual HVAC Unit Noise Level	Calculated Cumulative Noise Levels
1-4	125 feet	41 dBA	
Without Shielding from the Roofline and Parapet			47 dBA
With Shielding from the Roofline and Parapet			< 42 dBA

Source: J.C. Brennan & Associates 2016a

Therefore, predicted HVAC noise levels would comply with the Nevada County Zoning Ordinance hourly daytime and evening noise level standards of 55 dB Leq and 75 dB Lmax (daytime) and 50 dB Leq and 65 dB Lmax (evenings). However, the HVAC noise would not comply with the nighttime 45 dB Leq noise level standard, assuming no noise attenuation due to the roofline and parapet. A barrier analysis to determine the minimum shielding expected at the nearest residence indicates a minimum shielding of 5 dBA due to the roofline and parapet. Therefore, the building as proposed would ensure HVAC noise levels are within the Nevada County Zoning Ordinance criteria and this impact would be **less than significant**.

### Parking Lot Noise

Parking lot noise typically includes periods of conversation, doors slamming, engines starting and stopping, and vehicle passage. The parking lot noise environment for the Alta Sierra project site was modeled based on available data for similar parking lot activities. An average sound exposure level (SEL) of 71 dB at a distance of 50 feet was used to represent parking lot arrivals and departures.

The proposed project would create a 34-space parking lot. The project is estimated to generate 31 arrivals and departures in a busy hour of use. Assuming a total of 62 vehicle movements could occur in a busy hour, the project's predicted parking lot noise level is 53 dB  $L_{eq}$  at a reference distance of 50 feet.

Parking lot circulation is predicted to occur within an average distance of 130 feet from the residential uses to the east. The parking lot noise level at the nearest property line to the east is predicted to be 45 dB  $L_{eq}$ . Therefore, predicted parking lot noise levels would comply with the Nevada County General Plan Noise Element hourly daytime and evening standards of 55 dB  $L_{eq}$  and 75 dB  $L_{max}$  (daytime), and 50 dB  $L_{eq}$  and 65 dB  $L_{max}$  (evening). Since the project would not be open during the nighttime period, it is not expected to exceed the nighttime standards. In addition, the project proposes to construct a 6-foot-tall concrete masonry unit (CMU) wall along the east property line, which would provide a minimum noise level reduction of 5 dB at the nearest residences to the east. Therefore, this impact would be **less than significant**.

### Mitigation Measures

**MM AS-13.1.1** To ensure project operational noise levels do not exceed the County's Noise Standards, the project shall be conditioned to limit all truck deliveries to the Alta Sierra project site to between the daytime hours of 7:00 a.m. and 7:00 p.m. Store management shall be educated regarding these restricted delivery hours and a small non-illuminated sign not to exceed 4 square feet shall be posted in the delivery loading and unloading area outlining these restrictions. Prior to issuance of final occupancy, the Planning Department shall perform a site visit to ensure this mitigation measure has been implemented.

*Timing/Implementation:* Throughout project operation

*Enforcement/Monitoring:* Nevada County Planning Department and Code Compliance Division

### **Exposure to Short-Term Construction Noise (Standard of Significance 4)**

**Impact 13.1.2(AS)** Project construction would result in a temporary increase in ambient noise levels in the vicinity of the Alta Sierra project site. **(Less Than Significant with Mitigation Incorporated)**

Construction noise impacts primarily result when: (1) construction activities occur during noise-sensitive times of the day (e.g., early morning, evening, or nighttime hours); (2) construction occurs in areas immediately adjoining noise-sensitive land uses; or (3) construction lasts over extended periods of time.

Activities involved in construction are estimated to generate noise levels ranging from 76 to 89 dB at a distance of 50 feet, as shown in **Table 13.0-5**. These noise levels would generally occur during

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site clearing, grading, paving, and building and utility construction. Noise would also be generated during the construction phase by increased truck traffic on area roadways. This noise increase would be temporary, of short duration, and occur primarily during daytime hours.

**TABLE 13.0-5  
CONSTRUCTION EQUIPMENT NOISE LEVELS**

Type of Equipment	Predicted Noise Levels, L <sub>max</sub> dB				Distances to Noise Contours (feet)	
	Noise Level at 50'	Noise Level at 100'	Noise Level at 200'	Noise level at 400'	70 dB L <sub>max</sub> contour	65 dB L <sub>max</sub> contour
Backhoe	78	72	66	60	126	223
Compactor	83	77	71	65	223	397
Compressor (air)	78	72	66	60	126	223
Dozer	82	76	70	64	199	354
Dump Truck	76	70	64	58	100	177
Excavator	81	75	69	63	177	315
Generator	81	75	69	63	177	315
Jackhammer	89	83	77	71	446	792
Pneumatic Tools	85	79	73	67	281	500

Source: J.C. Brennan & Associates 2016a

According to Nevada County Zoning Ordinance Section L-II 4.1.7 (Noise), construction activities are not subject to the noise standards shown in **Table 13.0-2**. Nonetheless, construction activities could result in a temporary increase in ambient noise levels in the vicinity and this impact would be **potentially significant**.

Implementation of mitigation measure **MM AS-13.1.2** would reduce this impact to a **less than significant** level by limiting construction activities to daytime hours and by requiring implementation of best management practices (BMPs) to reduce construction noise levels.

Mitigation Measures

**MM AS-13.1.2** The project applicant shall ensure through contract specifications that construction best management practices (BMPs) are implemented by contractors to reduce construction noise levels. Contract specifications shall be included in the construction document, which shall be reviewed by the County prior to issuance of a grading or building permit (whichever is issued first). The construction BMPs shall include the following:

- Construction shall be limited to the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday. No construction is permitted on Saturdays, Sundays, or legal holidays.
- Ensure that construction equipment is properly muffled according to industry standards and is in good working condition.

- Place noise-generating construction equipment and locate construction staging areas away from sensitive uses, where feasible.
- Implement noise attenuation measures to the extent feasible, which may include, but are not limited to, temporary noise barriers or noise blankets around stationary construction noise sources.
- Use electric air compressors and similar power tools rather than diesel equipment, where feasible.
- Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 5 minutes.
- Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow for surrounding owners and residents to contact the job superintendent. If the County or the job superintendent receives a complaint, the superintendent shall investigate, take appropriate corrective action, and report the action taken to the reporting party.

*Timing/Implementation:* Prior to approval of improvement plans

*Enforcement/Monitoring:* Nevada County Planning Department

**Expose Sensitive Receptors to Groundborne Vibration (Standard of Significance 2)**

**Impact 13.1.3(AS)** Groundborne vibration levels associated with short-term construction activities at the Alta Sierra project site could exceed the applicable groundborne vibration criterion at adjacent commercial uses. **(Less than Significant)**

Groundborne vibrations and noise can result from both grading and construction activities through the use of equipment such as tractors, jackhammers, drills, and haul trucks. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. The FTA standard vibration velocities for construction equipment operations are shown in **Table 13.0-6**.

**TABLE 13.0-6  
TYPICAL VIBRATION LEVELS FOR CONSTRUCTION EQUIPMENT**

<b>Equipment</b>	<b>Reference Peak Particle Velocity at 25 Feet (inches/second)</b>
Large bulldozer	0.089
Loaded trucks	0.076
Small bulldozer	0.003
Jackhammer	0.035
Vibratory compactor/roller	0.210

*Source: FTA 2006*

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A vibratory compactor is the only piece of equipment likely to be used during project construction that would be expected to exceed 0.1 inch per second peak particle velocity (ppv), which is the threshold for annoyance, and is well below the 1.0 inch per second ppv that is the threshold for structural damage. These levels are based on a reference distance of 25 feet.

The nearest residential structure to the project site is approximately 100 feet east of the project site and, therefore, would not be expected to experience any vibration impacts during project construction. The commercial uses north and south of the site are not considered sensitive receptors, so this would not be considered a significant effect. In addition, mitigation measure **MM AS-13.1.2** would further reduce potential annoyance caused by groundborne vibration and noise by requiring implementation of BMPs to reduce construction noise and vibration. Therefore, this impact would be less than significant.

### Mitigation Measures

None required.

### **Expose Sensitive Receptors to Excessive Aircraft Noise (Standards of Significance 5 and 6)**

**Impact 13.1.4(AS)** Implementation of the proposed project would not result in the exposure of sensitive receptors to excessive noise levels associated with airport operations.  
**(Less than Significant)**

There are no public airports within 2 miles of the Alta Sierra project site. Alta Sierra Airport, a private facility in Alta Sierra Estates, is located approximately 2 nautical miles southeast of the Alta Sierra site. As a small private airport with restricted access, the airport generates minimal air traffic and would not expose project employees or visitors to excessive noise levels. This impact would be **less than significant**.

### Mitigation Measures

None required.

## **13.2 PENN VALLEY SITE**

An environmental noise assessment was prepared for the proposed development of the Penn Valley project site by J.C. Brennan & Associates dated March 21, 2016. This report is provided as **Appendix 13.0-B** of this document and serves as the basis for the following discussion.

### 13.2.1 PROJECT-SPECIFIC SETTING

The existing noise environment in the project area is defined primarily by traffic on Penn Valley Drive, and some commercial activities associated with the self-storage and commercial uses to the east (J.C. Brennan & Associates 2016b).

### **Existing Ambient Noise Levels**

To quantify the existing ambient noise environment in the project vicinity, short-term noise level measurements were conducted on March 16 and March 17, 2016. The noise measurements were taken immediately east of the site at the driveway to the post office (see Figure 1 of **Appendix 13.0-A**). The noise level measurement survey results are provided in **Table 13.0-7**.

The sound level meter was programmed to record the maximum and average noise levels at the site during the survey. The maximum value, denoted  $L_{max}$ , represents the highest noise level measured. The average value, denoted  $L_{eq}$ , represents the energy average of all of the noise received by the sound level meter microphone during the monitoring period.

**TABLE 13.0-7**  
**SUMMARY OF MEASURED AMBIENT NOISE LEVELS – PENN VALLEY PROJECT SITE**

Site	Date	Time	Measured Noise Levels, dBA		
			$L_{eq}$	$L_{50}$	$L_{max}$
A	March 16, 2016	6:15 p.m.	54.6	50	67.8
	March 17, 2016	8:05 a.m.	57.9	54	69.0
	March 17, 2016	12:20 p.m.	54.0	52	63.5

Source: J.C. Brennan & Associates 2016b

### 13.2.2 REGULATORY FRAMEWORK

There are no additional regulations, policies, or standards that pertain to the Penn Valley site other than those described in Section 13.0.2, above.

### 13.2.3 IMPACTS AND MITIGATION MEASURES

#### **Expose Sensitive Receptors to New or Increased Operational Noise Sources (Standards of Significance 1 and 3)**

**Impact 13.2.1(PV)** The proposed project could expose sensitive receptors to stationary sources of noise in excess of established standards. **(Less Than Significant With Mitigation Incorporated)**

Operation of the proposed project would generate new noise sources on the Penn Valley project site resulting from truck deliveries, mechanical equipment, and parking lot traffic and activities.

#### Truck Delivery Noise

Based upon input from the project applicant, it is assumed that the proposed project would have eight small truck/van deliveries per week, and one to two semi-truck deliveries per week. Typical truck activity for the store would consist of no more than one semi-truck delivery, and one step-side van per hour during the daytime hours (7 a.m. to 7 p.m.). Based on noise level data collected by J.C. Brennan & Associates (2016b) at a similar store, the predicted delivery truck hourly noise levels would be 44 dB  $L_{eq}$ , and 70 dB  $L_{max}$  at the nearest residence located approximately 150 feet southwest of the project site. Therefore, the project would comply with the daytime (7:00 a.m. to 7:00 p.m.) noise level standards of 55 dB  $L_{eq}$  and 75 dB  $L_{max}$  for the Residential and Public land use category (see **Table 13.0-2**). However, evening and nighttime deliveries are predicted to exceed the County's evening and nighttime noise level standards of 65 dB  $L_{max}$  (evening) and 45 dB  $L_{eq}$  and 60 dB  $L_{max}$  (nighttime). This impact would be **potentially significant**.

Implementation of mitigation measure **MM PV-13.2.1** would reduce this impact to a **less than significant** level by restricting truck deliveries at the site to daytime hours, thus ensuring compliance with the County's noise standards.

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### Mechanical Equipment Noise

The project proposes to install four rooftop 7.5-ton HVAC systems. The proposed units have an outdoor PWL of 83 dBA. Assuming all four units have a PWL of 83 dBA, the overall PWL would be 89 dBA. This does not account for shielding from the pitched roof or parapet.

Based upon the proposed site plan, the nearest residential property lines are approximately 200 feet from the location of the nearest HVAC unit. Hemispherical stationary noise sources would attenuate at a rate of 6 dB per doubling of distance. This is a 20 log attenuation rate.

Based upon the attenuation over distance, the noise levels associated with each unit and the cumulative noise from four HVAC units can be calculated at the nearest property line. **Table 13.0-8** shows the calculated noise level from the HVAC units. This does not account for shielding from the roof parapets and the roof lines.

**TABLE 13.0-8  
CALCULATED ROOFTOP HVAC NOISE LEVELS AT THE NEAREST PROPERTY LINE – PENN VALLEY PROJECT SITE**

Unit	Distance to Residential Property Line to the Northwest	Calculated Individual HVAC Unit Noise Level	Calculated Cumulative Noise Levels
1-4	200 feet	37 dBA	
Without Shielding from the Roofline and Parapet			43 dBA

Source: J.C. Brennan & Associates 2016b

Therefore, predicted HVAC noise levels would comply with the Nevada County Zoning Ordinance hourly noise level standards of 55 dB  $L_{eq}$  and 75 dB  $L_{max}$  (daytime), 50 dB  $L_{eq}$  and 65 dB  $L_{max}$  (evening), and 45 dB  $L_{eq}$  (nighttime) and this impact would be **less than significant**.

### Parking Lot Noise

Parking lot noise typically includes periods of conversation, doors slamming, engines starting and stopping, and vehicle passage. The parking lot noise environment for the Penn Valley project site was modeled based on available data for similar parking lot activities. An average SEL of 71 dB at a distance of 50 feet was used to represent parking lot arrivals and departures.

The proposed project would create a 46-space parking lot. The project is estimated to generate 31 arrivals and departures in a busy hour of use. Therefore, a total of 62 vehicle movements could occur in a busy hour. The project's predicted noise level due to parking lot activities is 53 dB  $L_{eq}$  at a reference distance of 50 feet.

Parking lot circulation is predicted to occur within an average distance of 260 feet from the residential uses to the southwest. The parking lot noise level at the nearest property line to the east is predicted to be 39 dB  $L_{eq}$ . Therefore, predicted parking lot noise levels would comply with the Nevada County General Plan Noise Element hourly daytime and evening standards of 55 dB  $L_{eq}$  and 75 dB  $L_{max}$  (daytime), and 50 dB  $L_{eq}$  and 65 dB  $L_{max}$  (evening). Since the project would not be open during the nighttime period, it is not expected to exceed the nighttime standards. Therefore, this impact would be **less than significant**.

Mitigation Measures

**MM PV-13.2.1** To ensure project operational noise levels do not exceed the County's Noise Standards, the project shall be conditioned to limit all truck deliveries to the Penn Valley project site to between the daytime hours of 7:00 a.m. and 7:00 p.m. Store management shall be educated regarding these restricted delivery hours and a small non-illuminated sign not to exceed 4 square feet shall be posted in the delivery loading and unloading area outlining these restrictions. Prior to issuance of final occupancy, the Planning Department shall perform a site visit to ensure this mitigation measure has been implemented.

*Timing/Implementation:* Throughout project operation

*Enforcement/Monitoring:* Nevada County Planning Department and Code Compliance Division

**Exposure to Short-Term Construction Noise (Standard of Significance 4)**

**Impact 13.2.2(PV)** Project construction would result in a temporary increase in ambient noise levels in the vicinity of the Penn Valley project site. **(Less Than Significant with Mitigation Incorporated)**

Construction noise impacts primarily result when: 1) construction activities occur during noise-sensitive times of the day (e.g., early morning, evening, or nighttime hours); 2) the construction occurs in areas immediately adjoining noise-sensitive land uses; or 3) when construction lasts over extended periods of time.

Activities involved in construction are estimated to generate noise levels ranging from 76 to 89 dB at a distance of 50 feet as shown in **Table 13.0-5**. These noise levels would generally occur during site clearing, grading, paving, and building and utility construction. Noise would also be generated during the construction phase by increased truck traffic on area roadways. This noise increase would be temporary, of short duration, and would occur primarily during daytime hours.

According to Nevada County Zoning Ordinance Section L-II 4.1.7 (Noise), construction activities are not subject to the noise standards shown in **Table 13.0-2**. Construction activities would, however, result in a temporary increase in ambient noise levels in the vicinity and this impact would be **potentially significant**.

Implementation of mitigation measure **MM PV-13.2.2** would reduce this impact to a **less than significant** level by limiting construction activities to daytime hours and by requiring implementation of BMPs to reduce construction noise levels.

Mitigation Measures

**MM PV-13.2.2** The project applicant shall ensure through contract specifications that construction best management practices (BMPs) are implemented by contractors to reduce construction noise levels. Contract specifications shall be included in the construction document, which shall be reviewed by the County prior to issuance of a grading or building permit (whichever is issued first). The construction BMPs shall include the following:

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- Construction shall be limited to the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday. No construction is permitted on Saturdays, Sundays, or legal holidays.
- Ensure that construction equipment is properly muffled according to industry standards and is in good working condition.
- Place noise-generating construction equipment and locate construction staging areas away from sensitive uses, where feasible.
- Implement noise attenuation measures to the extent feasible, which may include, but are not limited to, temporary noise barriers or noise blankets around stationary construction noise sources.
- Use electric air compressors and similar power tools rather than diesel equipment, where feasible.
- Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 5 minutes.
- Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow for surrounding owners and residents to contact the job superintendent. If the County or the job superintendent receives a complaint, the superintendent shall investigate, take appropriate corrective action, and report the action taken to the reporting party.

*Timing/Implementation: Prior to approval of improvement plans*

*Enforcement/Monitoring: Nevada County Planning Department*

**Expose Sensitive Receptors to Groundborne Vibration (Standard of Significance 2)**

**Impact 13.2.3(PV)** Groundborne vibration levels associated with short-term construction activities at the Penn Valley project site would not exceed the applicable groundborne vibration criterion at adjacent land uses. **(Less than Significant)**

Groundborne vibrations and noise can result from both grading and construction activities through the use of equipment such as tractors, jackhammers, drills, and haul trucks. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. The FTA standard vibration velocities for construction equipment operations are shown in **Table 13.0-5**.

A vibratory compactor is the only piece of equipment likely to be used during project construction that would be expected to exceed 0.1 inch per second ppv, which is the threshold for annoyance, and is well below the 1.0 inch per second ppv which is the threshold for structural damage. These levels are based on a reference distance of 25 feet.

The nearest residential structure to the project site is approximately 150 feet southwest of the project site and would not experience any groundborne noise or vibration during project construction. Similarly, the commercial uses west and east of the project site are 60 or more feet from the project site and would not be expected to experience excessive groundborne noise or vibration. This impact would be **less than significant**.

Mitigation Measures

None required.

**Expose Sensitive Receptors to Excessive Aircraft Noise (Standards of Significance 5 and 6)**

**Impact 13.2.4(PV)** Implementation of the proposed project would not result in the exposure of sensitive receptors to excessive noise levels associated with airport operations. **(Less than Significant)**

There are no public airports within 2 miles of the Penn Valley project site. Limberlost Ranch Airport, a private facility, is located approximately 2.5 nautical miles northwest of the Penn Valley site. As a small private airport with restricted access, the airport generates minimal air traffic and would not expose project employees or visitors to excessive noise levels. This impact would be **less than significant**.

Mitigation Measures

None required.

**13.3 ROUGH AND READY HIGHWAY SITE**

An environmental noise assessment was prepared for the proposed development of the Rough and Ready Highway project site by J.C. Brennan & Associates dated March 16, 2016. This report is provided as **Appendix 13.0-C** of this document and serves as the basis for the following discussion.

13.3.1 PROJECT-SPECIFIC SETTING

The existing noise environment in the project area is defined primarily by traffic on the Rough and Ready Highway, and to a lesser extent on West Drive.

**Existing Ambient Noise Levels**

To quantify the existing ambient noise environment in the project vicinity, short-term noise level measurements were conducted on April 22 and 23, 2015. The noise measurements were taken on the west side of West Drive, approximately 70 feet from Rough and Ready Highway (see Figure 1 of **Appendix 13.0-C**). The noise level measurement survey results are shown in **Table 13.0-9**.

The sound level meter was programmed to record the maximum and average noise levels at each site during the survey. The maximum value, denoted  $L_{max}$ , represents the highest noise level measured. The average value, denoted  $L_{eq}$ , represents the energy average of all of the noise received by the sound level meter microphone during the monitoring period.

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**TABLE 13.0-9  
SUMMARY OF MEASURED AMBIENT NOISE LEVELS – ROUGH AND READY HIGHWAY PROJECT SITE**

Site	Date	Time	Measured Noise Levels, dBA		
			Leq	L50	Lmax
A	April 22, 2015	7:35 a.m.	56.5	52	78
	April 22, 2015	3:30 p.m.	54.3	51	76
	April 23, 2015	10:00 a.m.	55.0	52	77

Source: J.C. Brennan & Associates 2016c

**13.3.2 REGULATORY FRAMEWORK**

There are no additional regulations, policies, or standards that pertain to the Rough and Ready Highway site other than those described in Section 13.0.2, above.

**13.3.3 IMPACTS AND MITIGATION MEASURES**

**Expose Sensitive Receptors to New or Increased Operational Noise Sources (Standards of Significance 1 and 3)**

**Impact 13.3.1(RR)** The proposed project could expose sensitive receptors to stationary sources of noise in excess of established standards. **(Less Than Significant With Mitigation Incorporated)**

Operation of the proposed project would generate new noise sources on the Rough and Ready Highway project site resulting from truck deliveries, mechanical equipment, and parking lot traffic and activities.

Truck Delivery Noise

Based upon input from the project applicant, it is assumed that the proposed project would have eight small truck/van deliveries per week, and one to two semi-truck deliveries per week. Typical truck activity for the store would consist of no more than one semi-truck delivery, and one step-side van per hour during the daytime hours (7 a.m. to 7 p.m.). Based on noise level data collected by J.C. Brennan & Associates (2016c) at a similar store, the predicted delivery truck hourly noise levels would be 59 dB Leq and 85 dB Lmax at the nearest residence located 30 feet west of the site. Therefore, the project would require construction of a wall to shield truck operations and ensure compliance with the County’s noise standards. As shown on the proposed site plan (see **Figure 2.0-10**) the project proposes to construct a “solid privacy fence” along the western and southern site boundaries. A privacy fence would not be adequate to shield truck noise. According to J.C. Brennan & Associates, a 6-foot-tall CMU wall would reduce delivery truck hourly noise levels to 54 dB Leq and 75 dB Lmax, which would comply with the Nevada County daytime noise level standards. Mitigation measure **MM RR-13.3.1a** would reduce this impact by requiring the proposed privacy fence to be a minimum of 6 feet in height and be constructed of CMU or similar material.

Evening delivery noise is predicted to exceed the County's evening (7 p.m. to 10 p.m.) noise level standard of 65 dB Lmax and the County's nighttime (10 p.m. to 7 a.m.) noise level standard of 45 dB Leq and 60 dB Lmax. This impact would be **potentially significant**.

Implementation of mitigation measure **MM RR-13.3.1b** would further reduce this impact to a **less than significant** level by restricting truck deliveries at the site to daytime hours, thus ensuring compliance with the County’s noise standards.

Mechanical Equipment Noise

The project proposes to install four rooftop 7.5-ton HVAC systems. The proposed units have an outdoor PWL of 83 dBA. Assuming all four units have a PWL of 83 dBA, the overall PWL would be 89 dBA. This does not account for shielding from the roof parapets and the roof lines.

Based upon the proposed site plan (**Figure 2.0-10**), the nearest residential property lines are approximately 60 feet from the location of the nearest HVAC unit. Hemispherical stationary noise sources would attenuate at a rate of 6 dB per doubling of distance. This is a 20 log attenuation rate.

Based upon the attenuation over distance, the noise levels associated with each unit and the cumulative noise from four HVAC units can be calculated at the nearest property line. **Table 13.0-10** shows the calculated noise level from the HVAC units both without and with shielding from the roof parapets and the roof lines.

**TABLE 13.0-10  
CALCULATED ROOFTOP HVAC NOISE LEVELS AT THE NEAREST PROPERTY LINE – ROUGH AND READY PROJECT SITE**

Unit	Distance to Residential Property Line to the Northwest	Calculated Individual HVAC Unit Noise Level	Calculated Cumulative Noise Levels
1-4	60 feet	47 dBA	
Without Shielding from the Roofline and Parapet			53 dBA
With Shielding from the Roofline and Parapet			40 dBA

Source: J.C. Brennan & Associates 2016c

As shown in the table, predicted HVAC noise levels would comply with the Nevada County Zoning Ordinance hourly daytime noise level standards of 55 dB Leq and 75 dB Lmax. However, the HVAC noise would not comply with either the evening (50 dB Leq and 65 dB Lmax) or nighttime (45 dB Leq) hourly noise level standards, assuming no noise attenuation due to the roofline and parapet. A barrier analysis indicated that the parapet and roofline would reduce the HVAC noise levels to 40 dBA. Therefore, the building design would reduce HVAC noise levels to within the Nevada County Zoning Ordinance criteria and this impact would be **less than significant**.

Parking Lot Noise

Parking lot noise typically includes periods of conversation, doors slamming, engines starting and stopping, and vehicle passage. The parking lot noise environment for the Rough and Ready project site was modeled based on available data for similar parking lot activities. An average SEL of 71 dB at a distance of 50 feet was used to represent parking lot arrivals and departures.

The proposed project would create a 28-space parking lot. The project is estimated to generate 31 arrivals and departures in a busy hour of use. Therefore, a total of 62 vehicle movements could occur in a busy hour. The project’s parking lot noise level at the nearest property line to the east is predicted to be 47 dB Leq. Therefore, predicted parking lot noise levels would comply with the Nevada County General Plan Noise Element hourly noise level standards of 55 dB Leq and 75 dB Lmax (daytime) and 50 dB Leq and 65 dB Lmax (evening). Since the project would not be open during

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the nighttime period, it is not expected to exceed the nighttime standards. Therefore, this impact would be **less than significant**.

### Mitigation Measures

**MM RR-13.3.1a** Prior to approval of improvement plans, the project design shall be revised to replace the solid privacy fence along the western and southern site boundaries with a 6-foot-high wall constructed of CMU or similar material.

*Timing/Implementation:* Prior to improvement plans approval

*Enforcement/Monitoring:* Nevada County Planning Department and Code Compliance Division

**MM RR-13.3.1b** To ensure project operational noise levels do not exceed the County's Noise Standards, the project shall be conditioned to limit all truck deliveries to the Rough and Ready Highway project site to between the daytime hours of 7:00 a.m. and 7:00 p.m. Store management shall be educated regarding these restricted delivery hours and a small non-illuminated sign not to exceed 4 square feet shall be posted in the delivery loading and unloading area outlining these restrictions. Prior to issuance of final occupancy, the Planning Department shall perform a site visit to ensure this mitigation measure has been implemented.

*Timing/Implementation:* Throughout project operation

*Enforcement/Monitoring:* Nevada County Planning Department and Code Compliance Division

### **Exposure to Short-Term Construction Noise (Standard of Significance 4)**

**Impact 13.3.2(RR)** Project construction would result in a temporary increase in ambient noise levels in the vicinity of the Rough and Ready Highway project site. **(Less Than Significant with Mitigation Incorporated)**

Construction noise impacts primarily result when: 1) construction activities occur during noise-sensitive times of the day (e.g., early morning, evening, or nighttime hours); 2) the construction occurs in areas immediately adjoining noise-sensitive land uses; or 3) when construction lasts over extended periods of time.

Activities involved in construction are estimated to generate noise levels ranging from 76 to 89 dB at a distance of 50 feet as shown in **Table 13.0-5**. These noise levels would generally occur during site clearing, grading, paving, and building and utility construction. Noise would also be generated during the construction phase by increased truck traffic on area roadways. This noise increase would be temporary, of short duration, and would occur primarily during daytime hours.

According to Nevada County Zoning Ordinance Section L-II 4.1.7 (Noise), construction activities are not subject to the noise standards shown in **Table 13.0-2**. Construction activities would, however, result in a temporary increase in ambient noise levels in the vicinity and this impact would be **potentially significant**.

Implementation of mitigation measure **MM RR-13.2.2** would reduce this impact to a **less than significant** level by limiting construction activities to the less sensitive daytime hours and by requiring all equipment to be fitted with proper mufflers and in good working order.

#### Mitigation Measures

**MM RR-13.3.2** The project applicant shall ensure through contract specifications that construction best management practices (BMPs) are implemented by contractors to reduce construction noise levels. Contract specifications shall be included in the construction document, which shall be reviewed by the County prior to issuance of a grading or building permit (whichever is issued first). The construction BMPs shall include the following:

- Construction shall be limited to the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday. No construction is permitted on Saturdays, Sundays, or legal holidays.
- Ensure that construction equipment is properly muffled according to industry standards and is in good working condition.
- Place noise-generating construction equipment and locate construction staging areas away from sensitive uses, where feasible.
- Implement noise attenuation measures to the extent feasible, which may include, but are not limited to, temporary noise barriers or noise blankets around stationary construction noise sources.
- Use electric air compressors and similar power tools rather than diesel equipment, where feasible.
- Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 5 minutes.
- Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow for surrounding owners and residents to contact the job superintendent. If the County or the job superintendent receives a complaint, the superintendent shall investigate, take appropriate corrective action, and report the action taken to the reporting party.

*Timing/Implementation: Prior to approval of improvement plans*

*Enforcement/Monitoring: Nevada County Planning Department*

#### **Expose Sensitive Receptors to Groundborne Vibration (Standard of Significance 2)**

**Impact 13.3.3(RR)** Groundborne vibration levels associated with short-term construction activities at the Rough and Ready Highway project site would not exceed the applicable groundborne vibration criterion at adjacent land uses. **(Less than Significant)**

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Groundborne vibrations and noise can result from both grading and construction activities through the use of equipment such as tractors, jackhammers, drills, and haul trucks. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. The FTA standard vibration velocities for construction equipment operations are shown in **Table 13.0-5**.

A vibratory compactor is the only piece of equipment likely to be used during project construction that would be expected to exceed 0.1 inch per second ppv, which is the threshold for annoyance, and is well below the 1.0 inch per second ppv, which is the threshold for structural damage. These levels are based on a reference distance of 25 feet.

The nearest residential structures to the project site are fewer than 25 feet west and south of the project site and could be exposed to excessive groundborne noise and vibration, potentially resulting in annoyance to occupants. Therefore, this impact would be **potentially significant**.

Implementation of mitigation measure **MM RR-13.3.2** would reduce vibration impacts to neighboring residents by limiting construction activities to daytime hours and by requiring implementation of BMPs which would reduce construction noise and vibration levels. Therefore, with mitigation, this impact would be **less than significant**.

### Mitigation Measures

None required.

### **Expose Sensitive Receptors to Excessive Aircraft Noise (Standards of Significance 5 and 6)**

**Impact 13.3.4(RR)** Implementation of the proposed project would not result in the exposure of sensitive receptors to excessive noise levels associated with airport operations. **(Less than Significant)**

There are no public airports within 2 miles of the Rough and Ready Highway project site. Limberlost Ranch Airport, a private facility, is located approximately 5 nautical miles west-southwest of the Rough and Ready Highway site. Given its distance from the project site and low level of air traffic, operation of this airport would not expose project employees or visitors to excessive noise levels. This impact would be **less than significant**.

### Mitigation Measures

None required.

## **13.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES**

### CUMULATIVE SETTING

The geographic extent of the cumulative setting for noise consists of the project sites and surrounding areas. Based on the noise measurement surveys conducted, ambient noise levels in the cumulative setting area are primarily affected by vehicle traffic on nearby area roadways and, to a lesser extent, operation of nearby commercial businesses. No major stationary sources of noise were identified in the vicinity of the project sites. As a result, the primary factor for

cumulative noise impact analysis is the consideration of future traffic noise levels along area roadways from reasonably foreseeable development in nearby areas of Nevada County.

#### CUMULATIVE IMPACTS AND MITIGATION MEASURES

##### Cumulative Noise Impacts

**Impact 13.4.1** Implementation of the proposed project, in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas of Nevada County, would result in a cumulative increase in noise. However, compliance with the policies contained in the Noise Element would ensure that noise levels do not exceed applicable County noise standards. **(Less than Cumulatively Considerable)**

Cumulative noise impacts would occur primarily as a result of increased traffic on local roadways due to the proposed project and other projects in the vicinity. The Nevada County General Plan EIR (Impact #38) concluded that with implementation of the policies provided in the Noise Element (as revised in the EIR), noise increases along roadways resulting from General Plan buildout would not exceed applicable County noise standards and would result in a less than significant cumulative impact. The proposed developments would be consistent with the existing General Plan land use designations for each respective project site. Thus, construction and operation of the proposed developments on the project sites would not increase traffic or associated noise levels beyond that previously considered in the General Plan EIR. This cumulative impact would be **less than cumulatively considerable**. Given the distance between the project sites, they would not combine to change any noise levels in the vicinity of the sites or elsewhere in the county.

##### Mitigation Measures

None required.

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### REFERENCES

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Nevada County. 2012. *Nevada County Code Title 3 Land Use and Development Code*. <http://qcode.us/codes/nevadacounty/view.php?topic=3-ii&frames=on>.