

# 12. NOISE

## 12.1 INTRODUCTION

The Noise chapter of the EIR describes the existing noise environment in the project vicinity, and identifies potential impacts and mitigation measures related to noise and vibration associated with construction and operation of the proposed project. The method by which the potential impacts are analyzed is discussed, followed by the identification of potential impacts and the recommended mitigation measures designed to reduce significant noise and vibration impacts to less-than-significant levels, if required. The Noise chapter is primarily based on the Technical Noise Analysis prepared for the proposed project by RCH Group. (see Appendix J),<sup>1</sup> the Placer County General Plan,<sup>2</sup> the Placer County General Plan EIR,<sup>3</sup> and the City of Roseville General Plan.<sup>4</sup>

## 12.2 EXISTING ENVIRONMENTAL SETTING

The Existing Environmental Setting section provides background information on noise and vibration, a discussion of acoustical terminology and the effects of noise on people, existing sensitive receptors in the project vicinity, existing sources and noise levels in the project vicinity, and groundborne vibration.

### Fundamentals of Acoustics

Decibels (dB) are logarithmic units that conveniently compare the wide range of sound intensities to which the human ear is sensitive. To describe noise environments and to assess impacts on noise-sensitive areas, a frequency weighting measure, which simulates human perception, is commonly used. A-weighting of sound levels has been found to best reflect the human ear's reduced sensitivity to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. Table 12-1 identifies decibel levels for common sounds heard in the environment.

Several time-averaged scales represent noise environments and consequences of human activities. The most commonly used noise descriptors are the equivalent A-weighted sound level over a given time period ( $L_{eq}$ ); average day-night 24-hour average sound level ( $L_{dn}$ ) with a nighttime increase of 10 dB to account for sensitivity to noise during the nighttime; and community noise equivalent level (CNEL), also a 24-hour average that includes both an evening and a nighttime sensitivity weighting.

<sup>1</sup> RCH Group. *Technical Noise Analysis, Brady Vineyard Subdivision, Brady Lane and Vineyard Road, Placer County, California*. June 2019.

<sup>2</sup> Placer County. *Countywide General Plan Policy Document*. August 1994 (updated May 2013).

<sup>3</sup> Placer County. *Countywide General Plan EIR*. July 1994.

<sup>4</sup> City of Roseville. *General Plan 2035*. Amended August 17, 2016.



**Table 12-1  
 Typical Noise Levels**

Noise Level (dB)	Outdoor Activity	Indoor Activity
90+	Gas lawn mower at three feet, jet flyover at 1,000 feet	Rock band
80 to 90	Diesel truck at 50 feet	Loud television at three feet
70 to 80	Gas lawn mower at 100 feet, noisy urban area	Garbage disposal at three feet, vacuum cleaner at 10 feet
60 to 70	Commercial area	Normal speech at three feet
40 to 60	Quiet urban daytime, traffic at 300 feet	Large business office, dishwasher next room
20 to 40	Quiet rural, suburban nighttime	Concert hall (background), library, bedroom at night
10 to 20		Broadcast/recording studio
0	Lowest threshold of human hearing	Lowest threshold of human hearing
<i>Source: RCH Group, 2019.</i>		

Stationary sources of noise, including construction equipment, lessen at a rate of 6.0 to 7.5 dB per doubling of distance from the source depending on ground absorption. Soft sites attenuate at 7.5 dB per doubling, as such sites have an absorptive ground surface such as soft dirt, grass, or scattered bushes and trees. Hard sites have reflective surfaces (e.g., parking lots or smooth bodies of water) and therefore have less attenuation (6.0 dB per doubling).

A street or roadway with moving vehicles (known as a “line” source), would typically attenuate at a lower rate, approximately 3.0 to 4.5 dB each time the distance doubles from the source, which also depends on ground absorption. Physical barriers located between a noise source and the noise receptor, such as berms or sound walls, will increase the attenuation that occurs by distance alone.

**Existing Sensitive Receptors**

Certain land uses are more sensitive to ambient noise levels than others due to the amount of noise exposure (in terms of both exposure time and shielding from noise sources) and the type of activities typically involved. Noise sensitive land uses typically include residences, schools, child care centers, hospitals, long-term health care facilities, convalescent centers, retirement homes, and recreation areas.

Sensitive receptors in the project vicinity primarily consist of the Father’s House church located immediately north of the site, a single-family residential subdivision located east of the site across Brady Lane, and four single-family residences located south of the site across Vineyard Road. The subdivision includes a sound barrier and landscape screening along the Brady Lane frontage. In addition, a two-acre rectangular-shaped parcel fronting Vineyard Road extends approximately 700 feet north (roughly halfway) into the project site. Currently, the parcel is developed with a house and associated outbuilding, located approximately 25 feet from the parcel’s northern property line and 15 feet from its eastern property line.

**Existing Noise Sources and Ambient Noise Levels**

To quantify existing ambient noise levels in the immediate project vicinity, RCH Group conducted short-term (10-minute) noise measurements at six locations and two long-term (72-hour) measurements of existing noise levels at the project site. RCH Group also conducted one short-



term noise measurement east of the project site at the northwest corner of Vineyard Road and Riesling Drive, near the proposed off-site sewer improvements alignment. The locations of the noise measurement sites are shown in Figure 12-1. The results of the noise measurements are summarized in Table 12-2 below and included in the appendix to the Technical Noise Analysis (see Appendix J to this EIR).

The short-term noise measurements were conducted near Brady Lane and Vineyard Road to measure peak-hour morning traffic noise and at other locations on the project site to measure ambient noise levels farther from roadways. The long-term noise measurement locations were selected as close as possible to the locations of future building envelopes nearest to Brady Lane and Vineyard Road to capture the existing noise levels that would affect the proposed residences. As shown in the table, the dominant source of noise during the measurements was traffic from Brady Lane and Vineyard Road. Other noise sources included birds, as well as distant train movements and train horns from the Roseville Rail Yard.

The average noise level for the 5-minute periods measured near Brady Lane during peak-hour morning traffic was 60 dB  $L_{eq}$  approximately 50 feet from the centerline (Site 3). The average noise level for the 5-minute periods measured near Vineyard Road during peak-hour morning traffic was 54 to 56 dB  $L_{eq}$  approximately 55 feet from the centerline (Site 5) and 54-55 dB  $L_{eq}$  approximately 60 feet from the centerline (Site 6). The 24-hour noise level was 57-60 dB  $L_{dn}/CNEL$  at Site 1 and 59-60 dB  $L_{dn}/CNEL$  at Site 2.

### **Existing Traffic Noise Levels**

To predict existing noise levels due to traffic, RCH conducted traffic noise modeling using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA RD-77-108). Traffic volumes for existing conditions were obtained from the traffic study prepared for the proposed project by KD Anderson & Associates. For the roadway segments located along the project frontage, noise levels are modeled at the future backyards of the proposed single-family residences located nearest to the roadway segments. In addition, noise levels are modeled at the outdoor activity areas of the existing residential uses located nearest to other roadway segments in the project area. The results of the modeling are shown in Table 12-3 below.

As shown in the table, modeled noise levels at the project site are between 59.2 and 62.0 dB  $L_{dn}/CNEL$ . Modeled noise levels at existing residences along local roadway segments range from 54.7 to 67.5 dB  $L_{dn}/CNEL$ .

### **Vibration**

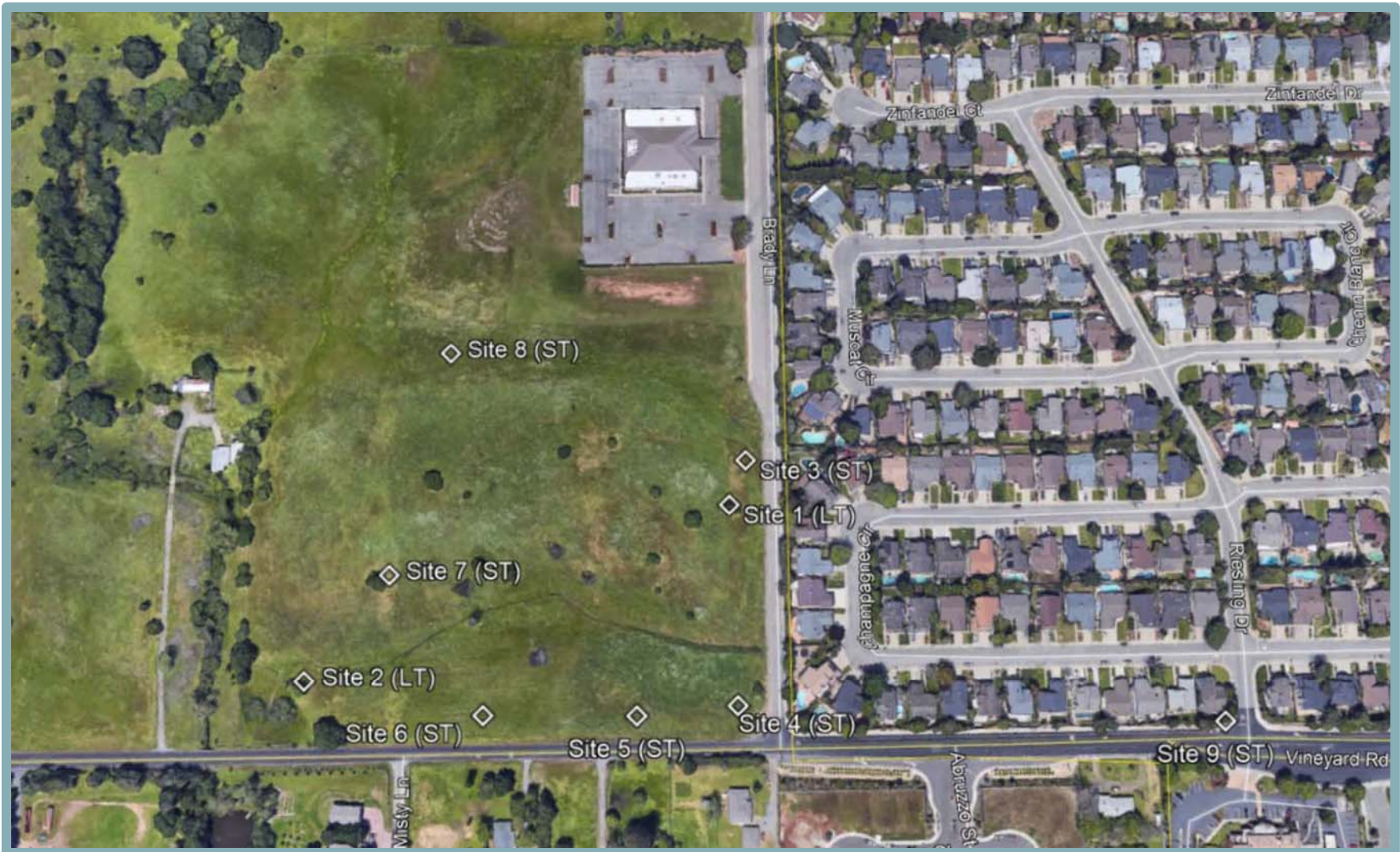
While vibration is similar to noise, both involving a source, a transmission path, and a receiver, vibration differs from noise because noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency.

A person's perception to the vibration depends on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating. Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration levels in terms of peak particle velocities in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of peak particle velocities.





**Figure 12-1**  
**Noise Measurement Locations**



Source: RCH Group, 2019.



**Table 12-2  
 Existing Noise Measurements**

Location	Time Period	Noise Level (dB)	Noise Sources
Site 1: Eastern edge of project site, 75 feet west of the centerline of Brady Lane.	Friday, March 29, 12:00 AM through Sunday, March 31, 11:59 PM, 2019 72-hour measurement	24-hour L <sub>dn</sub> : 60, 58, 57 Hourly L <sub>eq</sub> ranged from: 47-63	Unattended noise measurements do not specifically identify noise sources.
Site 2: Southern edge of project site, 120 feet north of the centerline of Vineyard Road.	Friday March 29, 2019 7:48 to 7:58 AM	24-hour L <sub>dn</sub> : 60, 59, 60 Hourly L <sub>eq</sub> ranged from: 46-61	Unattended noise measurements do not specifically identify noise sources.
Site 3: 50 feet west of the centerline of Brady Lane.	Friday March 29, 2019 7:48 to 7:58 AM	5-Min L <sub>eq</sub> : 60, 60 5-Min L <sub>max</sub> : 74, 69	Cars on Brady Lane 74, 67, 68, 68, 69, 64, & 68 dB. Train noise (no horn) ~60 dB. Train horn ~67 dB and ~53 dB.
Site 4: Northwest corner of Brady Lane and Vineyard Road. 70 feet west of Brady Lane centerline and 70 feet north of Vineyard Road centerline.	Friday March 29, 2019 8:04 to 8:14 AM	5-Min L <sub>eq</sub> : 54, 55 5-Min L <sub>max</sub> : 64, 66	Bird noise ~48 dB, lots of bird noise, constant bird noise. Cars generally 55-66 dB approaching stop sign. Sirens (below ambient noise level). Plane overhead ~56 dB.
Site 5: Southern edge of project site, 55 feet north of Vineyard Road.	Friday March 29, 2019 8:18 to 8:28 AM	5-Min L <sub>eq</sub> : 54, 56 5-Min L <sub>max</sub> : 64, 69	Cars generally 56-65 dB. Bird noise ~48 dB. Train horn noise 49-54 dB. Leaf blower noise ~50 dB. Plane flyover ~55 dB.
Site 6: Southern edge of project site, 60 feet north of Vineyard Road.	Friday March 29, 2019 8:30 to 8:40 AM	5-Min L <sub>eq</sub> : 55, 54 5-Min L <sub>max</sub> : 63, 64	Cars generally 55-64 dB. Rooster noise ~50-52 dB. Leaf blower noise ~49-53 dB. Garbage truck on Misty Lane 62 dB. Birds chirping ~52 dB. Background noise is affected by constant bird noise.
Site 7: South central portion of project site, 300 feet north of Vineyard Road centerline.	Friday March 29, 2019 8:44 to 8:54 AM	5-Min L <sub>eq</sub> : 49, 47 5-Min L <sub>max</sub> : 57, 63	Garbage truck noise on Vineyard 52-56 dB. Dog barking ~47 dB. Birds chirping, ambient down to 43-44 dB with no bird noise. Train horns < 50 dB. Cars on Vineyard generally 45-50 dB.
Site 8: Middle of project site, 700 feet north of Vineyard Road centerline and 550 feet west of Brady Lane centerline.	Friday March 29, 2019 8:58 to 9:08 AM	5-Min L <sub>max</sub> : 48, 55	Cars generally 55-64 dB. Rooster noise ~50-52 dB. Leaf blower noise ~49-53 dB. Garbage truck on Misty Lane 62 dB. Birds chirping ~52 dB. Background noise is affected by constant bird noise.
Site 9: Northwest corner of Vineyard Road and Riesling Drive.	Friday March 29, 2019 9:34 to 9:44 AM	5-Min L <sub>eq</sub> : 63, 66 5-Min L <sub>max</sub> : 76, 76	Cars and trucks 67-76 dB. Backup beeper at AMPM. Garbage noise at Vineyard Gate Apartments ~60 dB.

Source: RCH Group, 2019.



<b>Table 12-3 Existing Traffic Noise at Outdoor Activity Areas</b>	
<b>Roadway Segment</b>	<b>Existing Noise Levels (dB L<sub>dn</sub>/CNEL)</b>
<b>Existing On-Site<sup>1</sup></b>	
Brady Lane South (project access to Vineyard)	59.2
Brady Lane North (project access to Baseline)	59.2
Vineyard Road (at project site)	62.0
<b>Existing Off-Site Residences<sup>2</sup></b>	
PFE Road (Walerga to Cook Riolo)	65.9
PFE Road (Cook Riolo to Antelope)	66.9
Cook-Riolo Road (Baseline to Vineyard)	61.8
Cook-Riolo Road (Vineyard to Creekview School)	60.0
Cook-Riolo Road (Creekview School to PFE)	62.6
Antelope Road (PFE to Great Valley)	67.5
Vineyard Road (Crowder to Cook-Riolo)	57.3
Vineyard Road (Cook-Riolo to Brady)	62.0
Vineyard Road (Brady to Foothills)	54.7
Brady Lane (Baseline to project site)	59.2
Brady Lane (project site to PFE)	59.2
<sup>1</sup> For the segments located along the project frontage, noise levels are modeled at the future backyards of the proposed single-family residences located nearest to the roadway segments. <sup>2</sup> Noise levels are modeled at the outdoor activity areas of the existing residential uses located nearest to the roadway segments.	
<b>Source: RCH Group, 2019.</b>	

### 12.3 REGULATORY CONTEXT

In order to limit exposure to physically and/or psychologically damaging noise levels, the State of California, various county governments, and most municipalities in the State have established standards and ordinances to control noise. The following provides a general overview of the existing State and local regulations that are relevant to the proposed project.

#### State Regulations

The following are the State environmental laws and policies relevant to noise.

#### **California State Building Codes**

The State Building Code, Title 24, Part 2 of the State of California Code of Regulations, establishes uniform minimum noise insulation performance standards to protect persons within new buildings which house people, including hotels, motels, dormitories, apartment houses, and dwellings other than single-family dwellings.

Title 24 mandates that interior noise levels attributable to exterior sources shall not exceed 45 dB L<sub>dn</sub> or CNEL in any habitable room. Title 24 also mandates that for structures containing noise-sensitive uses to be located where the L<sub>dn</sub> or CNEL exceeds 60 dB, an acoustical analysis must be prepared to identify mechanisms for limiting exterior noise to the prescribed allowable interior levels. If the interior allowable noise levels are met by requiring that windows be kept closed, the design for the structure must also specify a ventilation or air conditioning system to provide a habitable interior environment.

#### Local Regulations

The following are the local environmental goals and policies relevant to noise.





## Placer County General Plan

The relevant goals and policies from the Placer County General Plan related to noise are presented below.

- Goal 9.A To protect County residents from the harmful and annoying effects of exposure to excessive noise.
- Policy 9.A.1 The County shall not allow development of new noise-sensitive uses where the noise level due to non-transportation noise sources will exceed the noise level standards of Table 9-1 (see Table 12-4) as measured immediately within the property line of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in Table 9-1 (see Table 12-4).
- Policy 9.A.2 Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table 9-1 (see Table 12-4) as measured immediately within the property line of lands designated for noise-sensitive uses: provided, however, the noise created by occasional events occurring within a stadium on land zoned for university purposes may temporarily exceed these standards as provided in an approved Specific Plan.
- Policy 9.A.6 The feasibility of proposed projects with respect to existing and future transportation noise levels shall be evaluated by comparison to Table 9-3 (see Table 12-5).
- Policy 9.A.8 New development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources, including airports, which exceed the levels specified in Table 9-3 (see Table 12-5), unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table 9-3 (see Table 12-5).
- Policy 9.A.9 Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table 9-3 (see Table 12-5) or the performance standards in Table 9-3 (see Table 12-5) at outdoor activity areas or interior spaces of existing noise sensitive land uses.



<b>Table 12-4</b>		
<b>Allowable L<sub>dn</sub> Noise Levels within Specified Zone Districts</b>		
<b>Applicable to New Projects Affected by or Including Non-Transportation Noise Sources<sup>1</sup></b>		
<b>Zone District of Receptor</b>	<b>Property Line of Receiving Use (L<sub>dn</sub>, dB)</b>	<b>Interior Spaces<sup>2</sup></b>
Residential Adjacent to Industrial <sup>3</sup>	60	45
Other Residential <sup>4</sup>	50	45
Office/Professional	70	45
Transient Lodging	65	45
Neighborhood Commercial	70	45
General Commercial	70	45
Heavy Commercial	75	45
Limited Industrial	75	45
Highway Service	75	45
Shopping Center	70	45
Industrial	---	45
Industrial Park	75	45
Industrial Reserve	---	---
Airport	---	45
Unclassified	---	---
Farm	--- <sup>6</sup>	---
Agriculture Exclusive	--- <sup>6</sup>	---
Forestry	---	---
Timberland Preserve	---	---
Recreation & Forestry	70	---
Open Space	---	---
Mineral Reserve	---	---

- Notes:
- Except where noted otherwise, noise exposures will be those which occur at the property line of the receiving use.
  - Where existing transportation noise levels exceed the standards of this table, the allowable L<sub>dn</sub> shall be raised to the same level as that of the ambient level.
  - If the noise source generated by, or affecting, the uses shown above consists primarily of speech or music, or if the noise source is impulsive in nature, the noise standards shown above shall be decreased by 5 dB.
  - Where a use permit has established noise level standards for an existing use, those standards shall supersede the levels specified in Table 9-1 and Table 9-3 (see Table 12-4 and see Table 12-5). Similarly, where an existing use which is not subject to a use permit causes noise in excess of the allowable levels in Tables 9-1 and 9-3 (see Table 12-4 and see Table 12-5), said excess noise shall be considered the allowable level. If a new development is proposed which will be affected by noise from such an existing use, it will ordinarily be assumed that the noise levels already existing or those levels allowed by the existing use permit, whichever are greater, are those levels actually produced by the existing use.
  - Existing industry located in industrial zones will be given the benefit of the doubt in being allowed to emit increased noise consistent with the state of the art<sup>5</sup> at the time of expansion. In no case will expansion of an existing industrial operation because to decrease allowable noise emission limits. Increased emissions above those normally allowable should be limited to a one-time 5 dB increase at the discretion of the decision-making body.
  - The noise level standards applicable to land uses containing incidental residential uses, such as caretaker dwellings at industrial facilities and homes on agriculturally zoned land, shall be the standards applicable to the zone district, not those applicable to residential uses.
  - Where no noise level standards have been provided for a specific zone district, it is assumed that the interior and/or exterior spaces of these uses are effectively insensitive to noise.

<sup>1</sup> Overriding policy on interpretation of allowable noise levels: Industrial-zoned properties are confined to unique areas of the County, and are irreplaceable. Industries which provide primary wage-earner jobs in the County, if

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forced to relocate, will likely be forced to leave the County. For this reason, industries operating upon industrial zoned properties must be afforded reasonable opportunity to exercise the rights/privileges conferred upon them by their zoning. Whenever the allowable noise levels herein fall subject to interpretation relative to industrial activities, the benefit of the doubt shall be afforded to the industrial use.

Where an industrial use is subject to infrequent and unplanned upset or breakdown of operations resulting in increased noise emissions, where such upsets and breakdowns are reasonable considering the type of industry, and where the industrial use exercises due diligence in preventing as well as correcting such upsets and breakdowns, noise generated during such upsets and breakdowns shall not be included in calculations to determine conformance with allowable noise levels.

- 2 Interior spaces are defined as any locations where some degree of noise-sensitivity exists. Examples include all habitable rooms of residences, and areas where communication and speech intelligibility are essential, such as classrooms and offices.
- 3 Noise from industrial operations may be difficult to mitigate in a cost-effective manner. In recognition of this fact, the exterior noise standards for residential zone districts immediately adjacent to industrial, limited industrial, industrial park, and industrial reserve zone districts have been increased by 10 dB as compared to residential districts adjacent to other land uses.

For purposes of the Noise Element, residential zone districts are defined to include the following zoning classifications: AR, R-1, R-2, R-3, FR, RP, TR-1, TR-2, TR-3, and TR-4.

- 4 Where a residential zone district is located within an -SP combining district, the exterior noise level standards are applied at the outer boundary of the -SP district. If an existing industrial operation within an -SP district is expanded or modified, the noise level standards at the outer boundary of the -SP district may be increased as described above in these standards.

Where a new residential use is proposed in an -SP zone, an Administrative Review Permit is required, which may require mitigation measures at the residence for noise levels existing and/or allowed by use permit as described under "NOTES," above, in these standards.

- 5 State of the art should include the use of modern equipment with lower noise emissions, site design, and plant orientation to mitigate offsite noise impacts, and similar methodology.
- 6 Normally, agricultural uses are noise insensitive and will be treated in this way. However, conflicts with agricultural noise emissions can occur where single-family residences exist within agricultural zone districts. Therefore, where effects of agricultural noise upon residences located in these agricultural zones is a concern, an  $L_{dn}$  of 70 dBA will be considered acceptable outdoor exposure at a residence.

**Source: Placer County General Plan, 2013.**



**Table 12-5  
 Maximum Allowable Noise Exposure for Transportation Noise  
 Sources**

Noise Sensitive Land Uses	Outdoor Activity Area <sup>1</sup>	Interior Spaces	
	L <sub>dn</sub> , dB	L <sub>dn</sub> /CNEL, dB	L <sub>eq</sub> , dB <sup>2</sup>
Residential	60 <sup>3</sup>	45	--
Transient Lodging	60 <sup>3</sup>	45	--
Hospitals, Nursing Homes	60 <sup>3</sup>	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	60 <sup>3</sup>	--	40
Office Buildings	--	--	45
Schools, Libraries, Museums	--	--	45
Playgrounds, Neighborhood Parks	70	--	--

<sup>1</sup> Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use.  
<sup>2</sup> As determined for a typical worst-case hour during periods of use.  
<sup>3</sup> Where it is not possible to reduce noise in outdoor activity areas to 60 dB L<sub>dn</sub>/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L<sub>dn</sub>/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

**Source: Placer County General Plan, 2013.**

Policy 9.A.11      The County shall require one or more of the following mitigation measures where existing noise levels significantly impact existing noise-sensitive land uses, or where the cumulative increase in noise levels resulting from new development significantly impacts noise-sensitive land uses:

- a. Rerouting traffic onto streets that have available traffic capacity and that do not adjoin noise-sensitive land uses;
- b. Lowering speed limits, if feasible and practical;
- c. Programs to pay for noise mitigation such as low cost loans to owners of noise-impacted property or establishment of developer fees;
- d. Acoustical treatment of buildings; or,
- e. Construction of noise barriers.

Policy 9.A.12      Where noise mitigation measures are required to achieve the standards of Tables 9-1 and 9-3 (see Table 12-4 and Table 12-5), the emphasis of such measure shall be placed upon site planning and project design. The use of noise barriers shall be considered as a means of achieving the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project.



## **DCWPCP**

The relevant goals and policies from the DCWPCP related to noise are presented below.

### Land Use

Goal 4 To locate noise sensitive land uses within areas of acceptable noise levels.

### Community Design Element

Goal 2 It is a goal of the Plan to encourage and support projects which exemplify good design characteristics when judged against the goals and policies of this Plan as well as other applicable design and landscape guidelines.

Policy 15 In place of sound wall construction, require, wherever possible, the use of greater setbacks to provide a scenic corridor for all parcels fronting on all the major circulation routes (2, 4, or 6 lanes of traffic). Long expanses of sound walls are not consistent with the desired character of the Plan area and the use of open space setbacks and landscaping instead, will be a major difference between this area and surrounding areas to the north and south.

### Noise Element

Goal 1 To protect the health, safety, and welfare of the Dry Creek-West Placer Area residents by providing a livable environment free from excessive noise.

Goal 2 Locate noise-sensitive land uses within areas of acceptable community noise equivalent levels (CNEL).

Goal 3 Correlate noise concerns with community design, land use, and circulation and open space.

Policy 1 Encourage the use of green belts or natural areas along roadways as a design feature of any development in order to mitigate noise impacts.

Policy 3 Avoid the interface of noise-producing and noise-sensitive land uses.

Policy 4 Require implementation of noise abatement techniques within new projects where warranted.

Policy 8 Where noise levels have a potential to be in excess of normally acceptable CNEL levels, landscaped setbacks should be considered versus sound walls for noise mitigation.

Policy 11 Protect existing residential areas from excessive noise levels generated by the development of the Plan Area.



Policy 13                      The location and design of transportation facilities shall be developed in a manner which minimizes the effects of noise on adjacent land uses.

**Placer County Noise Ordinance**

Section 9.36.060 of the Placer County Code establishes non-transportation noise level standards for noise-sensitive receptors. The purpose of the Noise Ordinance is to implement the noise level standards identified in the *Placer County General Plan*. The specific language of Section 9.36.060 is provided below:

- A. It is unlawful for any person at any location to create any sound, or to allow the creation of any sound, on property owned, leased, occupied or otherwise controlled by such person that:
  - 1. Causes the exterior sound levels when measured at the property line of any affected sensitive receptor to exceed the ambient sound level by five (5) dBA or
  - 2. Exceeds the sound level standards as set forth in Table 1 (see Table 12-6), whichever is the greater.

<b>Table 12-6</b>		
<b>Noise Level Standards for Non-Transportation Noise Sources</b>		
Sound Level Descriptor	Daytime (7 AM to 10 PM)	Nighttime (10 PM to 7 AM)
Hourly $L_{eq}$ , dB	55	45
$L_{max}$ , dB	70	65
<b>Source: Placer County Noise Ordinance.</b>		

- B. Each of the sound level standards specified in Table 1 (see Table 12-6) shall be reduced by five (5) dB for simple tone noises, consisting of speech and music. However, in no case shall the sound level standard be lower than the ambient sound level plus five (5) dB.
- C. If the intruding sound source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient sound level can be measured, the sound level measured while the source is in operation shall be compared directly to the sound level standards of Table 1 (see Table 12-6).

Per Section 9.36.030 of the Placer County Code (Exemptions), sound or noise emanating from construction activities between the hours of 6:00 AM and 8:00 PM Monday through Friday, and between the hours of 8:00 AM and 8:00 PM Saturday and Sunday, is exempt from Section 9.36.060 of the Placer County Code Noise Ordinance, provided that all construction equipment is fitted with factory installed muffling devices and that all construction equipment is maintained in good working order. However, the hours of construction were modified in the Planning Commission revisions to the Placer County Board of Supervisors Minute Order 90-08 and, thus, the following standards are applicable to the proposed project:

Construction noise emanating from any construction activities for which a Grading or Building Permit is required is prohibited on Sundays and Federal Holidays, and shall only





occur: a) Monday through Friday, 6:00 a.m. to 8:00 p.m. (during daylight savings) b) Monday through Friday, 7:00 a.m. to 8:00 p.m. (during standard time) c) Saturdays, 8:00 a.m. to 6:00 p.m.

In addition, temporary signs shall be located throughout the project, as determined by the Development Review Committee, at key intersections depicting the above construction hour limitations.

### **City of Roseville Noise Ordinance**

Roseville Municipal Code Section 9.24.030 (G) states that construction, alteration or repair activities shall not be permitted at any time other than between the hours of 7:00 AM and 7:00 PM, Monday through Friday, and 8:00 AM and 8:00 PM on Saturdays, Sundays, and state and federal legal holidays. Construction equipment must be fitted with factory installed muffling devices and all construction equipment must be maintained in good working order.

## **12.4 IMPACTS AND MITIGATION MEASURES**

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to noise and vibration. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Impacts of the environment on a project (as opposed to impacts of a project on the environment) are beyond the scope of required California Environmental Quality Act (CEQA) review. "[T]he purpose of an EIR is to identify the significant effects of a project on the environment, not the significant effects of the environment on the project." (*Ballona Wetlands Land Trust v. City of Los Angeles*, (2011) 201 Cal.App.4th 455, 473 (*Ballona*)). The impacts discussed in this section of the EIR relate both to noise that may be caused by the proposed project (e.g. construction noise and operational traffic added to surrounding streets) as well as effects of existing environmental noise sources on future residents of the project (e.g. background traffic on surrounding streets). The California Supreme Court recently held that "CEQA does not generally require an agency to consider the effects of existing environmental conditions on a proposed project's future users or residents. What CEQA does mandate... is an analysis of how a project might exacerbate existing environmental hazards." (*California Building Industry Assn. v. Bay Area Air Quality Management Dist.* (2015) 62 Cal.4th 369, 392; see also *Mission Bay Alliance v. Office of Community Investment & Infrastructure* (2016) 6 Cal.App.5th 160, 197 ["identifying the effects on the project and its users of locating the project in a particular environmental setting is neither consistent with CEQA's legislative purpose nor required by the CEQA statutes"], quoting *Ballona, supra*, 201 Cal.App.4th at p. 474.) Therefore, for the purposes of the CEQA analysis, the relevant inquiry is not whether the proposed project's future residents will be exposed to preexisting environmental noise-related hazards, but instead whether project-generated noise will exacerbate the pre-existing conditions. Nonetheless, for informational purposes, this chapter considers both the proposed project's contribution to on- and off-site noise levels, as well as exposure of future residents of the proposed project to potential hazards associated with the preexisting noise environment, in order to demonstrate General Plan compliance.

### **Standards of Significance**

Consistent with Appendix G of the CEQA Guidelines, the effects of a project are evaluated to determine if they would result in a significant adverse impact on the environment. For the



purposes of this EIR, an impact is considered significant if the proposed project would result in any of the following:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generation of excessive groundborne vibration or groundborne noise levels; or
- For a project located within the vicinity of a private airstrip or 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, would the project expose people residing or working in the project area to excessive noise levels (see Chapter 16, Effects Not Found to be Significant).

As noted above, impacts related to exposure of people to airport noise levels are discussed in Chapter 16, Effects Not Found to be Significant, of this EIR.

### **Summary of Applicable Noise Standards**

Applicable noise level standards from the Placer County General Plan and the Placer County Code are summarized below.

### **Transportation Noise**

The Placer County General Plan Noise Element applies 60 dB  $L_{dn}$ /CNEL exterior and 45 dB  $L_{dn}$ /CNEL interior noise level standards for residential uses affected by transportation noise sources. The County may conditionally allow exterior noise levels between 60 and 65 dB  $L_{dn}$  for residential uses, provided that practical noise reduction measures have been implemented and interior noise levels remain in compliance with the 45 dB  $L_{dn}$  interior standard.

It is noted that the Placer County standards for transportation noise sources are similar to those in the City of Roseville Noise Element. Each jurisdiction utilizes the 60 dB  $L_{dn}$  exterior noise level standard for residential uses (e.g., see Table IX-1 of the Roseville General Plan Noise Element). Both jurisdictions allow a conditionally acceptable standard (up to 65 dB  $L_{dn}$  for Placer County and up to 75 dB  $L_{dn}$  for City of Roseville), provided that exterior reduction measures are included in the subject project.

### **Substantial Increase Criteria**

Generally, a project may have a significant effect on the environment if it will substantially increase the ambient noise levels for adjoining areas or expose people to measurably severe noise levels. In practice, a noise impact may be considered significant if it would generate noise that would conflict with local project criteria or ordinances, or substantially increase noise levels at noise sensitive land uses. The potential increase in transportation noise associated with the proposed project is a factor in determining significance.

Placer County, like many jurisdictions, does not have an adopted policy regarding significant increases in ambient noise. A common practice in many jurisdictions is to use a 3.0 to 5.0 dB increase as a threshold of significance. However, a limitation of using a single noise level increase value to evaluate noise impacts is that it fails to account for pre-project noise conditions.

The following table was developed by the Federal Interagency Committee on Noise (FICON) as a means of developing thresholds for identifying project-related noise level increases. The rationale for the graduated scales is that test subject's reactions to increases in noise levels varied



depending on the starting level of noise. Specifically, with lower ambient noise environments, such as those below 60 dB  $L_{dn}$ , a larger increase in noise levels was required to achieve a negative reaction than was necessary in environments where noise levels were already elevated. Therefore, because the County does not have defined thresholds for what would be considered a substantial increase in traffic noise levels, information from Table 12-7 is used. The approach to assessing the significance of increases in off-site traffic noise is also consistent with other recent Placer County EIRs and the industry-standard approach in general.

<b>Table 12-7</b>	
<b>Significance of Changes in Cumulative Noise Exposure</b>	
<b>Ambient Noise Level Without Project, dB</b>	<b>Increase Required for Significant Impact</b>
<60	+5.0 dB or more
60-65	+3.0 dB or more
>65	+1.5 dB or more

**Vibration**

Placer County does not have specific policies or standards pertaining to vibration levels. However, vibration levels associated with construction activities and project operations are addressed as potential vibration impacts associated with project implementation. Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events.

Construction operations have the potential to result in varying degrees of temporary ground vibration depending on the specific construction equipment used and operations involved. Table 12-8 indicates that per California Department of Transportation (Caltrans) standards, the threshold for architectural damage to structures is 0.2 peak particle velocity in inches per second (in/sec PPV) and continuous vibrations of 0.1 in/sec PPV, or greater, would likely cause annoyance to sensitive receptors.

Per the Technical Noise Analysis, vibrational effects from typical construction activities are only a concern within 25 feet of existing structures.

**Method of Analysis**

Below are descriptions of the methodologies utilized to measure background and ambient noise and estimate future traffic noise, construction noise, and vibration associated with the project. Further modeling details and calculations are provided in Appendix J to this EIR. The results of the noise and vibration impact analyses were compared to the standards of significance discussed above in order to determine the associated level of impact.

The FHWA model was used in conjunction with traffic volumes provided by KD Anderson & Associates to analyze the potential impact on proposed residences from existing plus project traffic and future cumulative traffic scenarios. The FHWA model is based upon the noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly  $L_{eq}$  values for free-flowing traffic conditions. To predict  $L_{dn}$ /CNEL values, determination of the day/night distribution of traffic and adjustment of the traffic volume input data is necessary to yield an equivalent hourly traffic volume.



**Table 12-8  
Effects of Vibration on People and Buildings**

PPV		Human Reaction	Effect on Buildings
mm/sec	in/sec		
0.15 - 0.30	0.006 - 0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of “architectural” damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of “architectural” damage to normal dwelling - houses with plastered walls and ceilings. Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize “architectural” damage
10 - 15	0.4 - 0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause “architectural” damage and possibly minor structural damage

**Source: California Department of Transportation, 2002.**

The existing plus project traffic and future cumulative traffic predicted noise levels were based on a conservative estimate of 10 percent of all average daily traffic (ADT) in the peak hour. The peak hour was then used as an estimate of the 24-hour future  $L_{dn}/CNEL$ . Typically,  $L_{dn}/CNEL$  is approximately equal to the peak hour  $L_{eq}$ .<sup>5</sup> Per RCH Group,  $L_{dn}$  or CNEL is usually assumed to be within +/- 2 dB of the peak hour  $L_{eq}$  under normal conditions. For the two weekday long-term measurements conducted at Sites 1 and 2, the calculated  $L_{dn}/CNEL$  was equal to the peak hour  $L_{eq}$  at Site 1 and the  $L_{dn}/CNEL$  was +1 dB from the peak hour  $L_{eq}$  at Site 2. Therefore, this analysis assumes the modelled peak hour  $L_{eq}$  is equal to the estimated future cumulative  $L_{dn}$  or CNEL at the project site.

Construction noise and vibration was analyzed using data compiled for various pieces of construction equipment at a representative distance of 50 feet. Construction noise is discussed relative to the applicable Placer County noise policies and standards.

It should be noted that in addition to the 119 single-family residential units included in the proposed project, the Project Description chapter of this EIR recognizes the potential for up to 12 additional on-site residential units (Accessory Dwelling Units) to be included in the project in order to meet the County’s affordable housing requirements. However, the total number of lots would remain unchanged, as would the overall disturbance area associated with the project. Per RCH Group, inclusion of the 12 Accessory Dwelling Units would not result in any substantial noise effects related to traffic noise.<sup>6</sup> The increase in total project trips would result in less than a 0.1-dB increase to cumulative traffic noise on all roadway segments. Therefore, the potential inclusion

<sup>5</sup> California Department of Transportation. *Technical Noise Supplement*. October 1998.

<sup>6</sup> Dan Jones, RCH Group. Personal communication [email] with Angela DaRosa, Assistant Division Manager, Raney Planning & Management, Inc. August 21, 2019.





of an additional 12 units on-site would not result in new impacts or substantially more severe impacts beyond the analysis presented herein.

**Project-Specific Impacts and Mitigation Measures**

The following discussion of impacts is based on implementation of the proposed project in comparison with the baseline and standards of significance identified above.

**12-1 Generation of a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.**

Construction activities associated with the proposed project, including off-site improvements, would require the use of numerous pieces of noise-generating equipment, such as excavating machinery (e.g., backhoes, bulldozers, excavators, front loaders) and other construction equipment (e.g., compactors, scrapers, graders). Construction worker traffic and construction-related material haul trips would raise ambient noise levels along local haul routes, depending on the number of haul trips made and types of vehicles used.

The noise levels generated by construction equipment would vary greatly depending upon factors such as the type and specific model of the equipment, the operation being performed, the condition of the equipment and the prevailing wind direction. As shown in Table 12-9 below, maximum noise levels generated by various types of construction equipment can range from 76 to 89 dB L<sub>max</sub> at 50 feet. As shown in Table 12-10 below, the highest noise levels associated with construction activities typically occur during ground excavation and finishing.

<b>Table 12-9</b>	
<b>Typical Construction Equipment Noise</b>	
<b>Type of Equipment</b>	<b>Noise Level at 50 feet (dB L<sub>max</sub>)</b>
Dump Truck	76
Air Compressor	78
Concrete Mixer (Truck)	79
Jackhammers	89
Scraper	84
Dozer	82
Paver	77
Generator	81
Auger Drill Rig	84
Front End Loader	79
Grader	85
Backhoe	78
<b>Source: RCH Group, 2019.</b>	



<b>Table 12-10</b>	
<b>Typical Construction Activity Noise Levels</b>	
<b>Construction Phase</b>	<b>Noise Level at 50 feet (dB L<sub>eq</sub>)</b>
Ground Clearing	83
Excavation	88
Foundations	81
Erection	81
Finishing	88
<b>Source: RCH Group, 2019.</b>	

Given that construction equipment would operate at various portions of the project site at any one time and construction activity would occur farther than 50 feet from the nearest sensitive receptors, project construction noise at nearby sensitive receptors would typically be lower than the reference levels in Table 12-9 and Table 12-10. In addition, noise levels from project construction at sensitive receptors to the north, east and south of the site would be generally in the same range as measured existing ambient noise levels. While construction noise levels at the adjacent two-acre parcel could exceed ambient noise levels when construction activities are occurring on the western portion of the project site, such exceedances would be temporary and would occur only during daytime hours.

On-site construction activities would be temporary in nature and the Placer County Code would limit construction activity to the following time periods: a) Monday through Friday, 6:00 AM to 8:00 PM (during daylight savings); b) Monday through Friday, 7:00 AM to 8:00 PM (during standard time); and c) Saturdays, 8:00 AM to 6:00 PM. Per Section 9.36.030 of the Placer County Code, sound or noise emanating from construction activities occurring during such hours is exempt from the noise level standards included in the County's Noise Ordinance, provided that all construction equipment is fitted with factory installed muffling devices and that all construction equipment is maintained in good working order.

Construction activities associated with the proposed off-site sewer construction would be typical of other minor roadway linear construction projects. The existing sensitive receptors to the north (single-family residential subdivision) of the proposed off-site sewer improvements are shielded by a noise barrier, and the sensitive receptors to the south are located approximately 100 feet south of the centerline of Vineyard Road. Noise levels from off-site sewer construction along Vineyard Road would be generally in the same range as measured existing ambient noise levels, and would only occur during daytime hours. In addition, the City of Roseville Noise Ordinance would limit off-site construction activity within the city limits to the following time periods: 7:00 AM and 7:00 PM Monday through Friday and between 8:00 AM and 8:00 PM on weekends and State and federal holidays.

However, if such requirements are not met, construction of the proposed project could conflict with the Placer County Code and/or the City of Roseville Noise Ordinance, and the project could result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. Thus, a **significant** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.



12-1

The following criteria shall be included in the Improvement Plans. Exceptions to allow expanded construction activities shall be reviewed on a case-by-case basis as determined by the Community Development Resource Agency Director.

- Noise-generating construction activities (e.g. construction, alteration or repair activities), including truck traffic coming to and from the project site for any purpose, shall be limited to the hours outlined in Placer County Board of Supervisors Minute Order 90-08; specifically, a) Monday through Friday, 6:00 AM to 8:00 PM (during daylight savings); b) Monday through Friday, 7:00 AM to 8:00 PM (during standard time); and c) Saturdays, 8:00 AM to 6:00 PM.
- Off-site construction activities occurring within the City of Roseville shall be limited to the following time periods: a) Monday through Friday, 7:00 AM to 7:00 PM; and b) weekends/State and federal holidays, 8:00 AM to 8:00 PM.
- Project construction activities should be limited to daytime hours unless conditions warrant that certain construction activities occur during evening or early morning hours (i.e., extreme heat).
- All noise-producing project equipment and vehicles using internal-combustion engines shall be equipped with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specifications. Mobile or fixed “package” equipment (e.g., arc welders, air compressors) shall be equipped with shrouds and noise-control features that are readily available for that type of equipment.
- All mobile or fixed noise-producing equipment used on the project site that are regulated for noise output by a federal, State, or local agency shall comply with such regulations while in the course of project activity.
- Electrically powered equipment shall be used instead of pneumatic or internal combustion-powered equipment, where feasible.
- Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.
- Construction site and access road speed limits shall be established and enforced during the construction period.
- The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.
- Project-related public address or music systems shall not be audible at any adjacent receptor.
- As a means of avoiding the potential for annoyance, haul trucks shall be restricted along the local roadways to the same hours as construction activities are allowed unless a request is made for the County to allow greater flexibility in order to minimize potential AM peak hour traffic conflicts.



**12-2 Generation of a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Based on the analysis below, the impact is *less than significant*.**

The primary source of noise associated with the proposed residential development would be traffic noise associated with traffic on local roadways. It should be noted that CEQA does not require an analysis of the environment’s impact on the project; however, impacts to future residents of the proposed project due to traffic noise along local roadways is evaluated for the purposes of considering the project’s consistency with policies in the County’s General Plan.

Traffic Noise at the Project Site

The closest proposed outdoor activity areas to roadways would be the backyards of the closest proposed homes to Vineyard Road and Brady Lane (approximately 60 feet from the centerline of Vineyard Road and 75 feet from the centerline of Brady Lane). See Table 12-2 above for existing 24-hour noise levels at the project site.

Traffic noise occurring under the Existing Plus Project condition was modeled with the FHWA model using the assumptions discussed under the Method of Analysis section above. The results of the modeling are shown in Table 12-11 below.

<b>Table 12-11</b>			
<b>Estimated Traffic Noise at Project Outdoor Activity Areas</b>			
<b>Roadway Segment</b>	<b>Noise Levels (dB L<sub>dn</sub>/CNEL)</b>		
	<b>Existing</b>	<b>Existing Plus Project</b>	<b>Change</b>
Brady Lane South (project access to Vineyard)	59.2	61.5	+2.3
Brady Lane North (project access to Baseline)	59.2	60.6	+1.4
Vineyard Road (at project site)	62.0	62.1	+0.1
Note: Noise levels are modeled at the future backyards of the proposed single-family residences located nearest to the roadway segments.			
<b>Source: RCH Group, 2019.</b>			

As shown in Table 12-11, predicted exterior noise levels at the outdoor activity areas of the proposed residences would not comply with the Placer County 60 dB L<sub>dn</sub> exterior noise level standard without additional noise control measures. However, such an effect would constitute the existing environment’s effect on the project, which is not considered an impact under CEQA. In order to address this, the County would require the following conditions of project approval to ensure consistency with the County’s noise standards at the proposed outdoor activity areas:

- Prior to building permit issuance for proposed residential lots adjacent to Brady Lane and/or Vineyard Road, the Improvement Plans shall show proposed berms along the project frontages at both roadways, which may incorporate masonry





base walls along some length of the berms. The top of the berms and/or base walls shall be five feet minimum above the crown of adjacent roadway (Vineyard Road or Brady Lane). The locations of berms and/or base walls shall be consistent with alignments shown in Figure 12-2 of this EIR.

It should be noted that cumulative noise levels represent the worst-case future noise environment at the proposed project site. Any design for sound walls would need to be based on the worse-case condition. Accordingly, in order to evaluate the impacts of traffic noise on the proposed residential development, the required sound walls would be designed based on the noise levels that would occur under the Cumulative Plus Project conditions discussed under Impact 12-4 below. With construction of the berms/masonry stem walls discussed above, future Cumulative Plus Project traffic noise levels would be reduced to between 62 and 63 dB  $L_{dn}$  at the outdoor activity areas of the proposed residences nearest Brady Lane and 62 dB  $L_{dn}$  at the outdoor activity areas of the proposed residences nearest to Vineyard Road.

With regard to interior noise levels, modern construction typically provides a 25 dB exterior-to-interior noise level reduction with windows closed. Accordingly, sensitive receptors exposed to exterior noise levels of 70 dB  $L_{dn}$ , or less, would typically comply with the County's 45 dB  $L_{dn}$  interior noise level standard. As shown in the table, exterior traffic noise levels at the outdoor activity areas of the proposed residences would be 62.1 dB  $L_{dn}$  or less; traffic noise levels both first and second floor building facades would be similar or slightly reduced. Therefore, interior noise control measures would not be required in order to reduce traffic noise exposure.

As noted previously, the County conditionally allows exterior noise levels between 60 and 65 dB  $L_{dn}$  for residential uses, provided that practical noise reduction measures have been implemented and interior noise levels remain in compliance with the 45 dB  $L_{dn}$  interior standard. Therefore, with the required condition of approval noted above, project traffic noise at the proposed single-family residences under Existing Plus Project conditions would not conflict with the County's applicable interior or exterior noise thresholds. Overall, project traffic noise at the proposed sensitive receptors under Existing Plus Project conditions would be less-than-significant.

#### Traffic Noise at Existing Sensitive Receptors

Table 12-12 displays the predicted noise level estimates at the outdoor activity areas of the closest existing residents for modelled project scenarios.

Noise levels at existing sensitive receptors would continue to exceed the County's 60 dB exterior noise level threshold along a majority of the study roadway segments. However, the existing residences would experience a 0.1 dB increase or less on all traffic segments modeled except for Vineyard Road (from Brady Lane to Foothills Boulevard) and along Brady Lane (from Vineyard Road to Project and from Project to PFE Road). For the Vineyard Road segment (Brady Lane to Foothills Boulevard), the project would increase traffic noise by approximately 0.4 dB above existing levels, and the closest residences (north of Vineyard Road) are shielded by an existing sound barrier. For the Brady Lane segments, residences fronting Brady Lane would experience a 1.4 to 2.3 dB increase from project traffic above existing levels and the closest residences (east of Brady Lane) are shielded by an existing sound barrier.





**Table 12-12  
 Estimated Traffic Noise at Existing Sensitive Receptors**

Roadway Segment	Noise Levels (dB L <sub>dn</sub> /CNEL)		
	Existing	Existing Plus Project	Change
PFE Road (Walerga to Cook Riolo)	65.9	65.9	0.0
PFE Road (Cook Riolo to Antelope)	66.9	66.9	0.0
Cook-Riolo Road (Baseline to Vineyard)	61.8	61.8	0.0
Cook-Riolo Road (Vineyard to Creekview School)	60.0	60.1	+0.1
Cook-Riolo Road (Creekview School to PFE)	62.6	62.7	+0.1
Antelope Road (PFE to Great Valley)	67.5	67.6	+0.1
Vineyard Road (Crowder to Cook-Riolo)	57.3	57.4	+0.1
Vineyard Road (Cook-Riolo to Brady)	62.0	62.1	+0.1
Vineyard Road (Brady to Foothills)	54.7	55.1	+0.4
Brady Lane (Baseline to project site)	59.2	60.6	+1.4
Brady Lane (project site to PFE)	59.2	61.5	+2.3

Note: Noise levels are modeled at the outdoor activity areas of the existing residential uses located nearest to the roadway segments.

**Source: RCH Group, 2019.**

All project-related traffic noise increases at existing sensitive receptors would be below the applicable FICON threshold for substantial noise level increase (see Table 12-7). The proposed project's contribution to traffic noise increases would be primarily less than 1 dB L<sub>dn</sub>, which is the threshold at which noise level increases are perceptible to the human ear. Furthermore, residences located along the segments of Brady Lane and Vineyard Road that would experience the greatest traffic noise level increases already include noise barriers that would attenuate traffic noise.

As noted previously, sensitive receptors exposed to exterior noise levels of 70 dB L<sub>dn</sub>, or less, will typically comply with the County's 45 dB L<sub>dn</sub> interior noise level standard. As shown in the table, exterior traffic noise levels at the outdoor activity areas of the existing residences would be 66.9 dB L<sub>dn</sub> or less; traffic noise levels both first and second floor building facades would likely be similar or slightly reduced. Therefore, the proposed project would not result in conflicts with the County's 45 dB L<sub>dn</sub> at existing residences under Existing Plus Project conditions.

Based on the above, project traffic noise at existing sensitive receptors under the Existing Plus Project condition would be less than significant.

**Operational Noise at Existing Residence on Adjacent Two-Acre Parcel**

The existing single-family home (and associated outbuilding) within the adjacent two-acre parcel is located over 500 feet north of the centerline of Vineyard Road. As shown in Table 12-12, under Existing Plus Project conditions, traffic noise on the Vineyard Road segment adjacent to the adjacent two-acre parcel (Segment 8. Vineyard Rd. [Cook-Riolo to Brady]) would increase by approximately 0.1 dB. Thus, the traffic noise increase attributable to the project would not be perceptible at the existing residence, and traffic noise impacts on the existing single-family home within the adjacent two-acre parcel would be less than significant.



In general, residential land uses are considered to be relatively quiet, and non-transportation noise from the proposed residences would be considered compatible with the adjacent residence within the adjacent two-acre parcel. Operation of the proposed project would result in noise associated with use of the proposed the tot lot within the linear park area on the western portion of the development area, to the east of the two-acre parcel. However, small neighborhood parks such as the proposed tot-lot park are generally very quiet and are only used during daylight hours. Thus, the proposed tot-lot park would be considered compatible with the adjacent residence within the adjacent two-acre parcel. Any permanent increase in ambient noise levels from operation of the project would not be substantially greater than existing noise levels without the project. Therefore, operational non-transportation noise impacts associated with the proposed residences and parks would be less than significant at the adjacent two-acre parcel.

### Conclusion

Based on the above, traffic noise at a number of the proposed single-family homes could exceed the County's 60 dB  $L_{dn}$  exterior noise level. However, such an effect would not be considered an impact under CEQA, and the project would include construction of noise-attenuating features, as required by a condition of approval, to reduce traffic noise at the outdoor activity areas of the affected residences. Neither existing nor proposed residences would experience interior noise levels in excess of the County's 45 dB  $L_{dn}$  noise level standard. The proposed project would not result in the generation of a substantial permanent increase in ambient noise levels at existing sensitive receptors located along local roadways.

Therefore, a ***less-than-significant*** impact would occur related to generation of a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

### Mitigation Measure(s)

*None required.*

## **12-3 Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. Based on the analysis below, the impact is *less than significant*.**

Construction activity associated with the proposed project would have the potential to result in varying degrees of temporary ground vibration depending on the specific construction equipment used and operations involved. Project construction would utilize typical construction equipment and would not require significant sources of vibration such as pile driving or blasting. Table 12-13 below shows the typical vibration levels produced by construction equipment.

As shown in Table 12-13, construction vibration levels anticipated for the proposed project are less than the 0.2 in/sec PPV threshold of damage to buildings and less than the 0.1 in/sec threshold of annoyance criteria at distances of 50 feet. On-site construction activities would occur at a distance of 75 feet or greater from the nearest existing structures. Therefore, construction vibrations are not predicted to cause damage to existing buildings or cause annoyance to sensitive receptors.





Type of Equipment	PPV at 25 feet (in/sec)	PPV at 50 feet (in/sec)
Large Bulldozer	0.089	0.029
Loaded Trucks	0.076	0.025
Small Bulldozer	0.003	0.000
Auger/drill Rigs	0.089	0.029
Jackhammer	0.035	0.011
Vibratory Hammer	0.070	0.023
Vibratory Compactor/roller	0.210	0.070

*Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidelines, May 2006.*

Based on the construction equipment to be used and the distance from construction activities to the nearest structures, vibration from the project would not be a concern. Additionally, construction activities would be temporary in nature. Therefore, the proposed project would not result in the generation of excessive groundborne vibration or groundborne noise levels, and a **less-than-significant** impact would occur.

Mitigation Measure(s)  
 None required.

**Cumulative Impacts and Mitigation Measures**

As defined in Section 15355 of the CEQA Guidelines, “cumulative impacts” refers to two or more individual effects which, when considered together, are considerable, compound, or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

For further detail related to the cumulative setting of the proposed project, refer to Chapter 17, Statutorily Required Sections of this EIR.

**12-4 Generation of a substantial permanent increase in ambient noise levels associated with cumulative development of the proposed project in combination with future buildout of the DCWPCP. Based on the analysis below, the project’s incremental contribution to this significant cumulative impact is *less than cumulatively considerable*.**

Future development projects within the DCWPCP area, including the proposed project, would incrementally affect the future cumulative ambient noise environment. To assess noise impacts due to project-related traffic increases on the existing local roadway network, noise levels have been calculated for the Cumulative Plus Project Condition at the proposed residences and at existing sensitive receptors located along area roadways.

Cumulative Traffic Noise at the Project Site

Traffic noise occurring under the Cumulative Plus Project condition was modeled with the FHWA model using the assumptions discussed under the Method of Analysis section





above. The results of the modeling are shown in Table 12-14 below. As shown in Table 12-14, predicted exterior noise levels at the outdoor activity areas of the proposed residences closest to Brady Lane and Vineyard Road would exceed the Placer County 60 dB L<sub>dn</sub> exterior noise level standard in the absence of additional noise control measures.

<b>Table 12-14 Estimated Cumulative Traffic Noise at Project Outdoor Activity Areas</b>			
<b>Roadway Segment</b>	<b>Noise Levels (dB L<sub>dn</sub>/CNEL)</b>		
	<b>Cumulative No Project</b>	<b>Cumulative Plus Project</b>	<b>Change</b>
Brady Lane South (project access to Vineyard)	67.8	68.2	+0.4
Brady Lane North (project access to Baseline)	66.8	67.1	+0.3
Vineyard Road (at project site)	66.4	66.5	+0.1
Note: Noise levels are modeled at the future backyards of the proposed single-family residences located nearest to the roadway segments.			
<b>Source: RCH Group, 2019.</b>			

However, as discussed under Impact 12-2 above, the County would require installation of noise-attenuating features as a condition of approval to reduce traffic noise levels at such residences. With construction of the proposed berms along the project frontages, which may incorporate masonry base walls along some length of the berms, future Cumulative Plus Project traffic noise levels would be reduced to below 65 dB L<sub>dn</sub>, which is considered conditionally acceptable by the County considering that practical noise reduction measures would be implemented and, as noted in further detail below, interior noise levels would remain in compliance with the 45 dB L<sub>dn</sub> interior standard.

Table 12-15 below summarizes the predicted noise levels at the outdoor activity areas of the proposed residences with construction of noise barriers of varying heights. As shown in the table, the required five-foot-tall noise barriers would be sufficient to reduce noise levels to below 65 dB L<sub>dn</sub>.

As noted previously, sensitive receptors exposed to exterior noise levels of 70 dB L<sub>dn</sub>, or less, would typically comply with the County’s 45 dB L<sub>dn</sub> interior noise level standard. As shown in the table, exterior traffic noise levels at the outdoor activity areas of the proposed residences would be 68.2 dB L<sub>dn</sub> or less; traffic noise levels both first and second floor building facades would likely be similar or slightly reduced. Therefore, interior noise control measures would not be required in order to reduce traffic noise exposure.

With the required condition of approval noted above, project traffic noise at the proposed single-family residences under Cumulative Plus Project conditions would not conflict with the County’s applicable interior or exterior noise thresholds. Overall, the project’s incremental contribution to cumulative traffic noise at the proposed sensitive receptors would be less than significant under Cumulative Plus Project conditions.



Roadway Segment	Cumulative with Project (dB L <sub>dn</sub> /CNEL)	Noise Levels (dB L <sub>dn</sub> /CNEL)			
		5-Foot Barrier	6-Foot Barrier	7-Foot Barrier	8-Foot Barrier
Brady Lane South (project access to Vineyard)	68	63	62	61	60
Brady Lane North (project access to Baseline)	67	62	61	60	59
Vineyard Road (at project site)	67	62	60	59	58

Note: Noise levels are modeled at the future backyards of the proposed single-family residences located nearest to the roadway segments.

Source: RCH Group, 2019.

Traffic Noise at Existing Sensitive Receptors

Table 12-16 displays the predicted noise level estimates at the outdoor activity areas of the closest existing residents for Cumulative No Project and Cumulative Plus Project conditions.

Roadway Segment	Noise Levels (dB L <sub>dn</sub> /CNEL)		
	Cumulative No Project	Cumulative Plus Project	Change
PFE Road (Walerga to Cook Riolo)	67.6	67.6	0.0
PFE Road (Cook Riolo to Antelope)	71.3	71.3	0.0
Cook-Riolo Road (Baseline to Vineyard)	65.9	65.9	0.0
Cook-Riolo Road (Vineyard to Creekview School)	64.3	64.3	0.0
Cook-Riolo Road (Creekview School to PFE)	66.9	67.0	+0.1
Antelope Road (PFE to Great Valley)	73.8	73.8	0.0
Vineyard Road (Crowder to Cook-Riolo)	62.6	62.6	0.0
Vineyard Road (Cook-Riolo to Brady)	66.4	66.5	+0.1
Vineyard Road (Brady to Foothills)	59.8	59.9	+0.1
Brady Lane (Baseline to project site)	66.8	67.1	+0.3
Brady Lane (project site to PFE)	67.8	68.2	+0.4

Note: Noise levels are modeled at the outdoor activity areas of the existing residential uses located nearest to the roadway segments.

Source: RCH Group, 2019.

Noise levels at existing sensitive receptors would continue to exceed the County's 60 dB exterior noise level threshold along a majority of the study roadway segments. However, the existing residences would experience a 0.4 dB increase or less on all traffic segments. The cumulative noise increases at the existing residence on the two-acre parcel adjacent to the project site would be approximately 0.1 dB. Based on the FICON noise level



increase criteria shown in Table 12-7, none of the study roadway segments would experience a significant cumulative noise level increase as a result of project traffic. Furthermore, existing residences located along the segments of Brady Lane and Vineyard Road that would experience the greatest traffic noise level increases already include noise barriers that would attenuate traffic noise. Therefore, the project's incremental contribution to cumulative traffic noise at existing sensitive receptors would be less-than-significant under Cumulative Plus Project conditions.

Sensitive receptors exposed to exterior noise levels of 70 dB  $L_{dn}$ , or less, will typically comply with the County's 45 dB  $L_{dn}$  interior noise level standard. As shown in the table, exterior traffic noise levels at the outdoor activity areas of the existing residences would be 70 dB  $L_{dn}$  or less for the roadway segments analyzed, with the exception of two segments: PFE Road between Cook Riolo and Antelope, and Vineyard Road between PFE and Great Valley. As shown in the table, the proposed project would not increase traffic noise levels at the two impacted segments. Traffic noise levels both first and second floor building facades of existing segments would likely be similar or slightly reduced.

Therefore, the proposed project would not result in conflicts with the County's 45 dB  $L_{dn}$  at existing residences under Cumulative Plus Project conditions.

### Conclusion

Based on the above, with inclusion of the proposed berms along the project frontage at Brady Lane and Vineyard Road, which may incorporate masonry base walls along some length of the berms, Cumulative Plus Project traffic noise levels at the proposed single-family homes would not conflict with the County's applicable exterior noise level standards. Both existing and proposed residences would not experience interior noise levels in excess of the County's 45 dB  $L_{dn}$  noise level standard. In addition, the proposed project would not result in the generation of a substantial permanent increase relative to Cumulative No Project noise levels at the existing sensitive receptors located along local roadways.

Therefore, under Cumulative Plus Project Conditions, the proposed project would not result in a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The project's incremental contribution to cumulative traffic noise impacts would be ***less than cumulatively considerable***.

### Mitigation Measure(s)

*None required.*

