

This section discusses the existing noise setting, identifies potential noise impacts resulting from the proposed project, and recommends mitigation measures to address potential impacts. Specifically, this section analyzes potential noise impacts due to development of the project site relative to the existing ambient noise environment and applicable noise criteria. Additionally, this section recommends practical noise mitigation measures in cases where the predicted noise levels would exceed the applicable City of Anderson exterior noise level standards. The evaluation is based upon a noise analysis conducted by AMBIENT Air Quality & Noise Consulting. The noise modeling output files used in the analysis are included as **Appendix 4.5-1**.

### 4.5.1 EXISTING SETTING

#### NOISE BACKGROUND

Noise is generally defined as sound that is loud, disagreeable, or unexpected. Sound, as described in more detail below, is mechanical energy transmitted in the form of a wave because of a disturbance or vibration.

#### **Amplitude**

Amplitude is the difference between ambient air pressure and the peak pressure of the sound wave. Amplitude is measured in decibels (dB) on a logarithmic scale. For example, a 65 dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). Amplitude is interpreted by the ear as corresponding to different degrees of loudness. Laboratory measurements correlate a 10 dB increase in amplitude with a perceived doubling of loudness and establish a 3 dB change in amplitude as the minimum audible difference perceptible to the average person (US EPA 1971).

#### **Frequency**

Frequency is the number of fluctuations of the pressure wave per second. The unit of frequency is the Hertz (Hz). One Hz equals one cycle per second. The human ear is not equally sensitive to sound of different frequencies. Sound waves below 16 Hz or above 20,000 Hz cannot be heard at all, and the ear is more sensitive to sound in the higher portion of this range than in the lower. To approximate this sensitivity, environmental sound is usually measured in A-weighted decibels (dBA). On this scale, the normal range of human hearing extends from about 10 dBA to about 140 dBA (US EPA 1971).

#### **Characteristics of Sound Propagation and Attenuation**

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Noise generated by mobile sources typically attenuates at a rate between 3.0 to 4.5 dBA per doubling of distance. The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Mobile transportation sources such as highways with hard, flat surfaces of concrete or asphalt, have an attenuation rate of 3.0 dBA per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of about 4.5 dBA per doubling of distance from the source. Noise generated by stationary sources typically attenuates at a rate of approximately 6.0 to 7.5 dBA per doubling of distance from the source (US EPA 1971).

Sound levels can be reduced by placing barriers between the noise source and the receiver. In general, barriers contribute to decreasing noise levels only when the structure breaks what

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amounts to the "line of sight" between the source and the receiver. Buildings, concrete walls, and berms can all act as effective noise barriers. Wooden fences or broad areas of dense foliage can also reduce noise, but are less effective than solid barriers.

### Noise Descriptors

The selection of a proper noise descriptor for a specific source is dependent upon the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include the average-hourly noise level (in  $L_{eq}$ ) and the average-daily noise levels (in  $L_{dn}$ /CNEL). Common acoustical terms and descriptors are summarized in **Table 4.5-1**.

**TABLE 4.5-1  
COMMON ACOUSTICAL TERMS AND DESCRIPTORS**

Descriptor	Definition
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise or sound at a given location, typically defined by the $L_{eq}$ level.
Noise	Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
Decibel (dB)	A unit-less measure of sound on a logarithmic scale, which indicates the squared ratio of sound pressure amplitude to referenced sound pressure amplitude. The reference pressure is 20 micro-pascals.
A-Weighted Decibel (dBA)	An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
Energy Equivalent Noise Level ( $L_{eq}$ )	The energy mean (average) noise level. The instantaneous noise levels during a specific period of time in dBA are converted to relative energy values. From the sum of the relative energy values, an average energy value (in dBA) is calculated.
Minimum Noise Level ( $L_{min}$ )	The minimum instantaneous noise level during a specific period of time.
Maximum Noise Level ( $L_{max}$ )	The maximum instantaneous noise level during a specific period of time.
Day-Night Average Noise Level (DNL or $L_{dn}$ )	The 24-hour $L_{eq}$ with a 10 dBA "penalty" for noise events that occur during the noise-sensitive hours between 10:00 p.m. and 7:00 a.m. In other words, 10 dBA is "added" to noise events that occur in the nighttime hours to account for increases sensitivity to noise during these hours.
Community Noise Equivalent Level (CNEL)	The CNEL is similar to the $L_{dn}$ described above, but with an additional 5 dBA "penalty" added to noise events that occur between the hours of 7:00 p.m. to 10:00 p.m. The calculated CNEL is typically approximately 0.5 dBA higher than the calculated $L_{dn}$ .
Single Event Level (SEL)	The level of sound accumulated over a given time interval or event. Technically, the sound exposure level is the level of the time-integrated mean square A-weighted sound for a stated time interval or event, with a reference time of one second. Often also referred to as the Single Event Noise Exposure Level (SENEL).

### Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not so much in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases. The acceptability of noise and the threat to public well-being are the basis for land use planning policies preventing exposure to excessive community noise levels. Typical community noise levels are depicted in **Table 4.5-2**. However, hearing loss can occur at the highest noise intensity levels.

Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise, including the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and habituation to noise over differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted: the so-called "ambient" environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged. Regarding increases in A-weighted noise levels, knowledge of the following relationships will be helpful in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived by humans.
- Outside of the laboratory, a 3-dB change is considered a just-perceivable difference.
- A change in level of at least 5 dB is required before any noticeable change in community response would be expected. An increase of 5 dB is typically considered substantial.
- A 10-dB change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

When evaluating noise impacts, based on the above relationships, it is generally recognized that an increase of greater than 3 dBA is considered potentially significant. However, increases in ambient noise levels need to also take into account the existing noise environment. Consequently, increases in cumulative noise exposure (in CNEL/Ldn) of 5 dBA are generally considered significant in areas where the ambient noise environment is less than 60 dBA. In areas where the ambient noise environment is between 60 and 65 dBA, increases of 3.0 dBA, or greater, would be considered significant. In areas where the ambient noise environment exceeds 65 dBA, a predicted increase of 1.5 dBA, or greater, would be considered significant. These thresholds were initially recommended by the Federal Interagency Committee on Noise (FICON) in 1972, based on noise levels at which people typically become increasingly annoyed. These recommendations have since been recognized by various local, state and federal agencies and are the criteria typically used for the analysis of increases in ambient noise levels (FAA, 2000).

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**TABLE 4.5-2  
TYPICAL COMMUNITY NOISE LEVELS**

INDOORS	<i>A-Weighted Decibels</i>	<i>Perceived Loudness Relative to 60 dBA</i>	OUTDOORS	
	140	Threshold of Pain	x256	
		Deafening	Military Jet Takeoff with Afterburner (at 50 feet)	
	130		x128	
	120		x64	Jet Takeoff at 200 Feet
Rock Band	110	Uncomfortably Loud	x32	
Inside Subway Train, New York	100		x16	747-100 Takeoff (4 Miles From Start of Roll) Power Lawnmower (at 50 Feet) Ambulance Siren (at 100 Feet)
Noisy Cocktail Bar	90	Very Loud	x8	727-200 Takeoff (4 Miles From Start of Roll)
Jet Aircraft Cabin, at Cruise Shouting (at 3 Feet)	80		x4	Diesel Truck, 40 mph (at 50 Feet) Automobile, 65 mph (at 50 Feet)
Noisy Restaurant	70	Moderately Loud	x2	Busy Street (at 50 Feet) 757-200 Takeoff (4 Miles From Start of Roll)
Vacuum Cleaner at 3 Feet	60		x1	Automobile, 30 mph (at 50 Feet) Cessna 172 Landing (3,300 Feet From Rwy End)
Large Business Office	50	Moderately Quite	x1/2	
Normal Conversation (at 3 Feet)	40		x1/4	Quiet Urban Area, Nighttime Quiet Suburban Area, Nighttime
Quiet Office	30	Very Quiet	x1/8	Quiet Rural Area, Nighttime
Quiet Library	20		x1/16	
Concert Hall, Background	10	Barely Audible	x1/32	
Recording Studio	0		x1/64	Leaves Rustling
		Threshold of Hearing		

Sources: Caltrans 2002; M. David Egan, 1972

## PROJECT AREA SETTING

The project area is currently designated as a Special Planning Area (SPA) in the City of Anderson General Plan, and has primarily been used for cattle grazing. The project area noise environment is defined primarily by natural sources and intermittent traffic along West Anderson Road. No other regular transportation (aircraft and railroad) noise sources were identified in the immediate project area. There is some commercial activity near the northeast corner of the project site. Commercial uses include a Wal-Mart Supercenter and other small retail businesses located within the Anderson Marketplace shopping center. Nearby noise-sensitive land uses consist predominantly of large-lot residential properties to the south. Single-family uses are also located to the north and east of the project site within the City of Anderson.

In general, existing ambient noise levels in the project vicinity vary, depending on proximity to roadways and commercial uses. To quantify existing ambient noise levels in the project vicinity, short-term ambient noise measurements were conducted at six locations on and in the vicinity of the project site using a Larson Davis Laboratories Model 820 precision sound-level meter. The meter was calibrated before use and is certified to be in compliance with ANSI specifications.

Ambient noise levels in the project area are primarily influenced by vehicular traffic on area roadways. Based on the measurements conducted, average-hourly daytime noise levels within the project area range from the upper 40's to the lower 60's. Maximum intermittent noise levels ranged from the lower 40's to the upper 70's. During the nighttime hours, average-hourly noise levels typically decrease by approximately 15 dBA due to decreases in vehicular traffic volumes on area roadways (City of Anderson 2006). The project site is not located within the projected 60 dBA CNEL noise contours of Interstate 5 (I-5). Measured ambient noise levels are summarized in **Table 4.5-3**. Corresponding measurement locations, measured noise levels, and projected I-5 traffic noise contours are depicted in **Figure 4.5-1**.

**TABLE 4.5-3**  
**SUMMARY OF MEASURED AMBIENT NOISE LEVELS**

Site <sup>1</sup>		Monitoring Period	Primary Noise Sources	Noise Levels (dBA) <sup>2</sup>		
				Leq	Lmin	Lmax
1	Lynn Hart Dr at Sandy Bottom Lane	8:50-9:00 am	Vehicle traffic	48.3	47.1	49.7
2	Pleasant Hill Dr at Northeast Plan Boundary	12:25-12:35 pm	Vehicle traffic	48.9	46.4	52.7
3	West Anderson Dr at Shooting Star Way	9:30-9:40 am	Vehicle traffic	60.1	38.4	79.8
4	West Anderson Drive	9:55-10:05 am	Vehicle traffic	60.8	34.2	79.2
5	West Anderson Dr at PG&E Easement	10:25-10:35 am	Vehicle traffic	61.9	39.2	77.8
6	Olinda Rd at Peter Pan Gulch Rd	11:35-11:45 am	Vehicle traffic	61.4	38.6	76.0
1. Noise monitoring locations correspond to those depicted in Figure 4.5-1, Ambient Noise Environment. 2. Noise measurements were conducted on January 3, 2007 using a Larson Davis Model 820 Type I sound level meter placed at a distance of approximately 25 feet from near travel-lane centerline.						

Source: Ambient Air Quality and Noise Consulting, 2007.



### Existing Traffic Noise Levels

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA RD77-108) was employed to describe existing noise levels due to traffic. The FHWA model is based upon the Calveno reference 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. Traffic volumes for existing conditions were obtained from the Transportation Section of this EIR. Truck usage on the area roadways were estimated from field observations, file data, and published Caltrans truck classification counts.

**Table 4.5-4** depicts the results of the FHWA predicted existing traffic noise levels in terms of the Day/Night Average Level descriptor ( $L_{dn}$ ) at a distance of 50 feet from the near travel-lane centerline for project-area roadways, as well as distances to predicted 60, 65, and 70 dBA CNEL traffic noise contours. The extent by which existing land uses in the vicinity of the Specific Plan area are affected by existing traffic noise depends on their respective proximity to the roadways and their individual sensitivity to noise.

### 4.5.2 REGULATORY FRAMEWORK

#### STATE

The State of California regulates vehicular and freeway noise affecting classrooms, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land-use compatibility criteria. The *State of California General Plan Guidelines* (State of California 1998), published by the Governor's Office of Planning and Research (OPR), also provides guidance for the acceptability of projects within specific CNEL contours. The guidelines also present adjustment factors that may be used in order to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution. **Table 4.5-5** summarizes the acceptable and unacceptable community noise exposure limits for various land use categories, as currently defined by the State of California. (Note: The City of Anderson has adopted its own noise standards that are more restrictive than the State standards. See **Table 4.5-7**.)

Title 24 of the California Code of Regulations establishes standards governing interior noise levels that apply to all new multifamily residential units (hotels, motels, apartments, condominiums, and other attached dwellings) in California. These standards require that acoustical studies be performed prior to construction at residential building locations where the existing exterior  $L_{dn}$  exceeds 60 dBA. Such acoustical studies are required to establish mitigation measures that will limit maximum  $L_{dn}$  noise levels to 45 dBA in any habitable room.


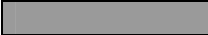


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**TABLE 4.5-4  
EXISTING TRAFFIC DATA, NOISE LEVELS AND DISTANCES TO CONTOURS  
CITY OF ANDERSON AND SHASTA COUNTY**

Roadway	Segment	Existing ADT	CNEL/L <sub>dn</sub> at 50'	Distance to Noise Level Contours (feet)		
				60 dB L <sub>dn</sub>	65 dB L <sub>dn</sub>	70 dB L <sub>dn</sub>
Pleasant Hill Drive	West of SR 273	1,341	55.47	WR	WR	WR
Rhonda Road	Site Access to Gas Point Rd.	2,706	58.52	WR	WR	WR
W. Anderson Road	Site Access to Olinda Rd.	761	53.01	WR	WR	WR
Olinda Road	West of W. Anderson Dr.	3,574	59.72	53.7	WR	WR
South Street	W. Anderson Dr. to SR 273	5,886	61.89	74.7	WR	WR
SR 273	Balls Ferry Rd. to North St.	11,767	67.67	213.4	100.3	WR
North Street	SR 273 to I-5	10,511	62.80	85.8	WR	WR
SR 273	North St to Ox Yoke St.	11,217	67.46	206.8	97.3	WR
SR 273	Ox Yoke St. to S. Bonneyview Rd.	14,628	68.61	246.5	115.5	56.0
North Street	I-5 to Riverside	7,161	62.74	85.0	WR	WR
Ox Yoke St./Riverside Ave.	SR 273 to I-5	9,786	66.79	157.9	73.5	WR
Riverside Avenue	I-5 to Airport Rd.	7,424	64.32	108.2	50.5	WR
Airport Road	Riverside Ave. to Dersch Rd.	9,977	63.11	107.2	WR	WR
Airport Road	Dersch Rd. to Knighton Rd.	9,145	63.80	100.0	WR	WR

Source: Ambient Air Quality and Noise Consulting, 2007.  
WR = Within Roadway Right-of-way

**TABLE 4.5-5  
LAND USE COMPATIBILITY FOR COMMUNITY NOISE**

Land Use Category	Community Noise Exposure (Ldn or CNEL, dBA)						Interpretation
	55	60	65	70	75	80	
Residential – Low Density Single Family, Duplex, Mobile Homes	[Noise exposure chart for Residential – Low Density]						<p> <b>Normally Acceptable</b> Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.</p> <p> <b>Conditionally Acceptable</b> New construction or development should be undertaken only after a detailed analysis of noise reduction requirements and needed noise insulation features included in the design. Conventional construction with closed windows and fresh air supply systems or air conditioning will normally suffice.</p> <p> <b>Normally Unacceptable</b> New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.</p> <p> <b>Clearly Unacceptable</b> New construction or development should generally not be undertaken</p>
Residential – Multiple Family	[Noise exposure chart for Residential – Multiple Family]						
Transient Lodging – Motels, Hotels	[Noise exposure chart for Transient Lodging – Motels, Hotels]						
Schools, Libraries, Churches, Hospitals, Nursing Homes	[Noise exposure chart for Schools, Libraries, Churches, Hospitals, Nursing Homes]						
Auditoriums, Concert Halls, Amphitheaters	[Noise exposure chart for Auditoriums, Concert Halls, Amphitheaters]						
Sports Arena, Outdoor Spectator Sports	[Noise exposure chart for Sports Arena, Outdoor Spectator Sports]						
Playgrounds, Neighborhood Parks	[Noise exposure chart for Playgrounds, Neighborhood Parks]						
Golf Courses, Riding Stables, Water Recreation, Cemeteries	[Noise exposure chart for Golf Courses, Riding Stables, Water Recreation, Cemeteries]						
Office Buildings, Business Commercial and Professional	[Noise exposure chart for Office Buildings, Business Commercial and Professional]						
Industrial, Manufacturing, Utilities, Agriculture	[Noise exposure chart for Industrial, Manufacturing, Utilities, Agriculture]						

*Source: State of California General Plan Guidelines 2003*

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### LOCAL

#### City of Anderson General Plan

The main objective of the City of Anderson General Plan Noise Element is “to mitigate noise, maintaining a livable environment in the City of Anderson.” The City’s noise policies are established for guidance of efforts to implement the Anderson General Plan Noise Element. **Table 4.5-6** identifies the City of Anderson General Plan noise policies that are directly applicable to the proposed project, and presents an evaluation of the consistency of the Specific Plan with these statements as required by CEQA Section 15125(d). The final authority for interpretation of these policy statements and determination of the Specific Plan’s consistency rests with the City of Anderson City Council.

**TABLE 4.5-6  
SPECIFIC PLAN CONSISTENCY WITH CITY OF ANDERSON GENERAL PLAN POLICIES  
NOISE**

City of Anderson General Plan Policies	Consistency with General Plan	Analysis
<p><u>Policy NP-1</u>: Ensure that noise is kept within acceptable levels in all residential and mixed-use neighborhoods.</p> <p><u>Implementation NI-6</u>: Require appropriate noise barriers or design features for projects which significantly increase noise levels.</p> <p><u>Implementation NP-7</u>: Consider and mitigate noise impacts in the development permitting process.</p> <p><u>Implementation NI-9</u>: Mitigate short-term construction noise by limiting hours of operation or appropriate mitigation strategies.</p>	Yes	<p>Predicted noise levels at proposed on-site land uses could potentially exceed applicable noise standards. Mitigation has been included to reduce stationary-source noise levels associated with temporary construction and long-term operation of the proposed land uses. Additional noise analyses would be required, as part of the development permitting process, to ensure that predicted noise levels associated with proposed stationary and transportation noise sources would not exceed applicable noise standards at nearby noise-sensitive land uses.</p>
<p><u>Policy NP-2</u>: Avoid placing high noise-generating land uses adjacent to residential development, schools, hospitals or similar noise-sensitive receptors.</p> <p><u>Implementation Ni-3</u>: Plan circulation routes and adjoining land uses to avoid truck and high-volume traffic near noise-sensitive receptors such as residential neighborhoods, schools and hospitals.</p> <p><u>Implementation NI-5</u>: A noise study shall be done by a qualified noise professional for noise-generating development and noise mitigation measures developed to the Municipal Code.</p>	Yes	<p>As currently designed, on-site commercial uses would not be located in close proximity of proposed or existing noise-sensitive land uses. Proposed commercial uses would be largely located near West Anderson Drive, away from existing and/or planned residential development. Additional noise analyses would be required, as part of the development permitting process, to ensure that predicted noise levels associated with proposed stationary and transportation noise sources would not exceed applicable noise standards at nearby noise-sensitive land uses.</p>
<p><u>Policy NP-3</u>: Avoid placing noise-sensitive receptors near high noise-generating land uses.</p> <p><u>Implementation NI-4</u>: A noise study shall be done by a qualified noise professional for sensitive development within the 60dB noise contour and noise impacts shall be mitigated to the Municipal Code.</p> <p><u>Implementation NI-10</u>: Use the 2025 Noise Contours to plan for noise-sensitive receptors.</p>	Yes	<p>Refer to analysis of General Plan Policy NP-2 above.</p>

### City of Anderson Municipal Code

The City of Anderson Noise Control Ordinance sets limits for exterior and interior stationary-source noise levels. The City's noise ordinance standards are summarized in **Table 4.5-7**. The purpose of the noise ordinance is to control unnecessary, excessive and annoying noise. The noise ordinance established maximum allowable exterior noise levels for various land uses located in rural, suburban, and urban environments. The noise ordinance also establishes maximum allowable interior noise levels for multifamily residential dwellings. The noise levels depicted in **Table 4.5-7** are based on hourly-average noise levels, though adjustment factors can be applied to account for shorter periods of exposure. Activities conditionally exempt from the noise standards include motor vehicles operating on public right-of-ways, agricultural operations, and emergency warning devices. Noise-generating construction activities are generally prohibited between the hours of 10:00 p.m. and 7:00 a.m., and prohibited on Sundays or holidays.

**TABLE 4.5-7**  
**COMMUNITY EXTERIOR NOISE EXPOSURE STANDARDS FOR CITY OF ANDERSON**

Land Use Category	Stationary-Source Noise Level dBA <sup>1</sup>			
	Time Period	Rural Suburban	Suburban	Urban
One and Two Family Residential	10 pm – 7 am	40	45	50
	7 am – 10 pm	50	55	60
Multiple Dwelling Residential Public Space	10 pm – 7 am	45	50	55
	7 am – 10 pm	50	55	60
Limited Commercial Some Multiple Dwellings	10 pm – 7 am	—	55	—
	7 am – 10 pm	—	60	—
Commercial	10 pm – 7 am	—	60	—
	7 am – 10 pm	—	65	—

Source: City of Anderson Municipal Code, Chapter 8.30, Noise Control

This table presents a summary of the noise ordinance standards that are considered to be most applicable to the proposed project. Refer to the City of Anderson Municipal Code – Chapter 8.30 Noise Control, for additional noise control standards and limitations pertaining to noise-generating operations.

1. Cumulative duration of intrusive sound: It is unlawful for any person within the City to create any noise which causes the noise level on the affected property, when measured in the designated noise area, to exceed for the duration of time set forth following, the specified exterior noise standards in any one hour by (noise limits shall be reduced by 5 dBA for impulsive or simple tone noise, or noise consisting of speech or music):

- A. 30 minute: +0 dBA
- B. 15 minutes: +5 dBA
- C. 5 minutes: +10 dBA
- D. 1 minute: +15 dBA
- E. Level not to be exceed for any time: +20 dBA

### The Vineyards at Anderson Specific Plan

While certain policies within the Vineyards at Anderson Specific Plan would result in a reduction of noise impacts associated with the project, the Specific Plan does not include policies that specifically address and regulate noise in addition to the standards that are already adopted by the City of Anderson. As such, no evaluation of Phase 2 with regard to Specific Plan policies is necessary.

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### 4.5.3 IMPACTS AND MITIGATION MEASURES

#### STANDARDS OF SIGNIFICANCE

The City of Anderson has determined that the effects of a project concerning noise will be significant if it will have the following impacts:

- a) Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or of applicable standards of other agencies.
- b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
- c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project expose people residing or working in the project area to excessive noise levels.
- f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

Conditions without and with the project have been compared to identify significant impacts according to the following criteria specific to the project area.

#### Significance of Changes in Ambient Noise Levels

**Table 4.5-8** is based upon recommendations made in August 1992 by the Federal Interagency Committee on Noise (FICON) to provide guidance in the assessment of changes in ambient noise levels resulting from aircraft operations. The recommendations are based upon studies that relate aircraft noise levels to the percentage of persons highly annoyed by the noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, it has been asserted that they are applicable to all sources of noise described in terms of cumulative noise exposure metrics such as the  $L_{dn}$ .

For purposes of this analysis, an increase in the traffic noise level of 1.5 dB or more would be significant where the ambient noise level exceeds 65 dB  $L_{dn}$ . The rationale for the **Table 4.5-8** criteria is that, as ambient noise levels increase, a smaller increase in noise resulting from a project is sufficient to cause significant annoyance. For substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project, an increase of 3 dB was utilized. These criteria were utilized to evaluate threshold of significance (c) above.

**TABLE 4.5-8  
SIGNIFICANCE OF CHANGES IN NOISE EXPOSURE**

Ambient Noise Level Without Project, $L_{dn}$	Increase Required for Significant Impact
< 60 dB	+ 5.0 dB or more
60-65 dB	+ 3.0 dB or more
> 65 dB	+ 1.5 dB or more

Source: Federal Interagency Committee on Noise (FICON)

### Significance of Community Noise Exposure in City of Anderson

The City of Anderson relies upon the Land Use Compatibility for Community Noise Environments chart from the Office of Noise Control's Noise Element Guidelines. These criteria, as presented in **Table 4.5-5**, identify acceptable noise exposure levels for various land use categories. Predicted noise levels at land uses that would exceed the "normally acceptable" noise level criteria would be considered significant. Increases in stationary-source noise levels that would exceed the City's noise ordinance standards (**Table 4.5-7**) would also be considered to have a significant impact.

### METHODOLOGY

A combination of existing literature, noise level measurements, and application of accepted noise prediction and sound propagation algorithms were used to predict changes in ambient noise levels resulting from project-related development. Specific noise sources evaluated in this section include traffic and future noise sources, which will result from development of the project area. Noise impacts of each of these major noise sources are described below.

### Transportation Sources

The proposed project is not located in the vicinity of local airports or railroad corridors. As a result, potential noise impacts associated with the proposed project would be limited to potential increases in vehicular traffic noise along area roadways. To assess traffic noise impacts, traffic noise levels are predicted at a representative distance for both existing and future, project, and no-project conditions. Noise impacts are identified at existing noise-sensitive areas if the noise level increases that result from the project exceed the significance thresholds identified in **Table 4.5-8**. The compatibility of proposed land uses were evaluated based on a comparison of projected future traffic noise levels at proposed land use locations with the land use compatibility noise standards (**Table 4.5-5**).

### Non-Transportation Sources

The nearest non-transportation noise sources in the vicinity of the project site include truck loading/unloading activities at the Wal-Mart Supercenter, which is located approximately 400 feet northeast of the project site, at the southwest corner of Pleasant Hill Boulevard and Rhonda Road. The proposed project includes a mix of land uses, including residential, commercial, recreational and institutional land uses. These land uses would also result in new stationary noise sources. Temporary construction activities associated with the development of these land uses would also result in temporary increases in non-transportation source noise levels.

Non-transportation sources of noise associated with the temporary construction and long-term operation of the proposed land uses were evaluated based on noise levels typically associated

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with these uses. Predicted noise levels at nearby noise-sensitive land uses were calculated assuming an average noise-attenuation rate of 6 dB per doubling of distance from the source. The significance of non-transportation source noise impacts was evaluated based on predicted increases in predicted ambient noise levels, measured at the nearest noise-sensitive land use.

### PROGRAM LEVEL (PROJECT BUILDOUT) IMPACTS AND MITIGATION MEASURES

#### Exposure to Construction Noise

**Impact 4.5.1** Construction-generated noise levels could result in a substantial increase in ambient noise levels at nearby noise-sensitive land uses, including proposed residential uses that are constructed and inhabited before other portions of the project are complete. This impact is considered **potentially significant**.

Construction noise in any one particular area would be temporary and would include noise from activities such as excavations, site preparation, truck hauling of material, pouring of concrete, and use of power hand tools. Construction noise typically occurs intermittently and varies depending on the nature of the construction activities being performed. Noise generated by construction equipment including excavation equipment, material handlers, and portable generators, can reach high levels for brief periods.

When noise levels generated by construction operations are being evaluated, activities occurring during the more noise-sensitive evening and nighttime hours are of increased concern. Because exterior ambient noise levels typically decrease during the late evening and nighttime hours as community activities (e.g., commercial activities, vehicle traffic) decrease, construction activities performed during these more noise-sensitive periods of the day can result in increased annoyance and potential sleep disruption for occupants of nearby residential dwellings.

The United States Environmental Protection Agency (US EPA) has found that the average noise levels associated with construction activities typically range from approximately 76 dBA to 84 dBA  $L_{eq}$ , with intermittent individual equipment noise levels ranging from approximately 74 dBA to more than 88 dBA for brief periods. **Table 4.5-9** lists typical uncontrolled noise levels generated by individual pieces of construction equipment at a distance of 50 feet.

Noise from localized point sources (such as construction sites) typically decreases by approximately 6 dBA with each doubling of distance from source to receptor. Given this noise attenuation rate and assuming no noise shielding from either natural or human-made features (e.g., trees, buildings, fences), outdoor receptors within approximately 800 feet of construction sites could experience average-hourly noise levels of greater than 60 dBA when on-site construction-related noise levels exceed approximately 85 dBA at the boundary of the construction site. During development of the proposed project, construction activities occurring during the more noise-sensitive late evening and nighttime hours (i.e., 7 p.m. to 7 a.m.) could result in increased levels of annoyance and potential sleep disruption for occupants of nearby noise-sensitive land uses. As a result, noise-generating construction activities would be considered to have a **potentially significant** impact.

**TABLE 4.5-9  
TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS**

Equipment	Typical Noise Level (dBA L <sub>max</sub> ) 50 feet from Source
Backhoe	80
Compactor	82
Dozer	85
Grader	85
Loader	85
Truck	88
Air Compressor	81
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Mobile	83
Generator	81
Impact Wrench	85
Jack Hammer	88
Paver	89
Pneumatic Tool	85
Pump	76
Roller	74
Saw	76
<i>Sources: Federal Transit Administration 2006</i>	

#### Mitigation Measures

**MM 4.5.1** The following measures shall be implemented:

- Construction activities (excluding activities that would result in a safety concern to the public or construction workers) shall be limited to between the daytime hours of 7 a.m. and 10 p.m., Monday through Saturday, and prohibited on Sundays and Holidays, in accordance with the City's municipal code.
- Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in

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accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

*Timing/Implementation:* Prior to and during construction.

*Enforcement/Monitoring:* City of Anderson Public Works Department.

Implementation of the above mitigation measure would reduce impacts from construction activities to a level that is considered **less than significant**.

### **Increases in Long-term Operational Traffic Noise**

**Impact 4.5.2** Implementation of the proposed project would not result in substantial increases in near-term traffic noise levels along area roadways that would exceed applicable noise standards at nearby land uses. This impact is considered **less than significant**.

Implementation of the proposed land uses would result in increased traffic volumes on some area roadways. The increase in traffic volumes resulting from implementation of the proposed project would, therefore, contribute to predicted increases in traffic noise levels. The FHWA roadway noise prediction model was used to predict traffic noise levels along affected roadways for existing traffic conditions, with and without implementation of the proposed project. Modeling was conducted for roadways anticipated to be primarily affected by the proposed project, based on predicted traffic volumes obtained from the traffic analysis prepared for this project. The project's contribution to traffic noise levels along area roadways was determined by comparing the predicted noise levels with and without project-generated traffic under existing conditions. Predicted traffic noise levels are summarized in **Table 4.5-10**.

In comparison to existing traffic volumes, significant increases in predicted traffic noise levels would occur along segments of Pleasant Hill Drive, West Anderson Road and South Street. Located adjacent to these roadway segments are predominantly commercial land uses, within which the predicted noise levels would not exceed the applicable "normally acceptable" noise standards of 70 dBA CNEL. No existing noise-sensitive land uses are located within the projected "normally acceptable" 60 dBA noise contour of these roadways. Because implementation of the proposed project would not result in a substantial increase in traffic noise levels that would exceed the City's "normally acceptable" noise levels at nearby land uses, this impact is considered **less than significant**.

### Mitigation Measures

None required.

**TABLE 4.5-10**  
**PREDICTED TRAFFIC NOISE LEVELS – EXISTING CONDITIONS WITH PROJECT BUILDOUT**  
**CITY OF ANDERSON AND SHASTA COUNTY**

Roadway	Segment	Predicted CNEL, 50 Feet from Roadway Centerline		Predicted Increase	Substantial? <sup>2</sup>	Distance to 60 dBA CNEL Contour w/Project (feet)	Exceeds Normally Acceptable Noise Level at Nearest Receptors?	Significant Impact? <sup>3</sup>
		Existing Without Project <sup>1</sup>	Existing With Project Buildout <sup>1</sup>					
Pleasant Hill Drive	West of SR 273	55.47	63.95	8.48	Yes	102	No	No
Rhonda Road	Site Access to Gas Point Rd.	58.52	62.27	3.75	No	79	--	No
W. Anderson Drive	South of Olinda Rd.	53.01	66.76	13.75	Yes	157	No	No
Olinda Road	West of W. Anderson Dr.	59.72	62.41	2.69	No	81	--	No
South Street	W. Anderson Dr. to SR 273	61.89	66.70	4.81	Yes	156	No	No
SR 273	Balls Ferry Rd. to North St.	67.67	70.46	2.79	No	327	--	No
North Street	SR 273 to I-5	62.80	64.79	1.99	No	116	--	No
SR 273	North St to Ox Yoke St.	67.46	68.54	1.08	No	244	--	No
SR 273	Ox Yoke St. to S. Bonneyview Rd.	68.61	68.86	0.25	No	256	--	No
North Street	I-5 to Riverside	62.74	63.41	0.67	No	94	--	No
Ox Yoke St./Riverside Ave	SR 273 to I-5	66.79	66.79	0.00	No	158	--	No
Riverside Avenue	I-5 to Airport Rd.	64.32	64.32	0.00	No	108	--	No
Airport Road	Riverside Ave. to Dersch Rd.	63.11	63.53	0.42	No	114	--	No
Airport Road	Dersch Rd. to Knighton Rd.	63.80	64.17	0.37	No	106	--	No

Source: AMBIENT Noise and Air Quality Consulting 2007

1. Predicted traffic noise levels at 50 feet from the centerline of the near-travel lane.

2. "Substantial Increase" defined as an increase of 5 dBA, or greater, where the ambient noise environment is less than 60 dBA; 3.0 dBA, or greater, where the ambient noise environment is between 60 and 65 dBA; and an increase of 1.5 dBA, or greater, where the ambient noise environment exceeds 65 dBA.

3. "Significant Impact" defined as a substantial increase in ambient noise levels that would exceed the City's applicable exterior "normally acceptable" levels (e.g., 60 dBA CNEL for residential land uses, 70 dBA CNEL for schools, parks, commercial land uses).

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### Exposure of Sensitive Receptors to or Generation of Excessive Stationary-Source Noise Levels

**Impact 4.5.3** Exposure to noise levels generated by existing off-site stationary sources would not result in a substantial increase in ambient noise levels that could exceed the City's noise standards at proposed on-site noise-sensitive land uses. This impact is considered **less than significant**.

Land uses surrounding the project site primarily consist of undeveloped grazing land and residential land uses. The nearest noteworthy off-site stationary noise sources are located at the Anderson Marketplace shopping center. The Wal-Mart Supercenter, located in the shopping center, is located approximately 400 feet northeast of the project site, at the southwest corner of Pleasant Hill Boulevard and Rhonda Road. The nearest proposed residential dwellings would be located approximately 900 feet southwest of the Wal-Mart loading docks. Noise commonly associated with commercial loading docks, such as idling trucks, vehicle backup alarms, decompression of trailer truck brakes, forklifts, and other material loading and unloading activities, can generate intermittent noise levels of approximately 90 dBA  $L_{max}$  at 10 feet. Average-hourly noise levels associated with commercial sources typically range from approximately 60-65 dBA  $L_{eq}$  at 50 feet. Predicted noise levels at the nearest proposed residential land use would be approximately 35 dBA  $L_{eq}$ , or less. Predicted noise levels at the nearest residential land uses would not result in a significant increase in ambient noise levels. This impact is considered **less than significant**.

#### Mitigation Measures

None required.

**Impact 4.5.4** Exposure to noise levels generated by future on-site stationary sources associated with the proposed project could result in a substantial increase in ambient noise levels that could exceed the City's noise standards at noise-sensitive land uses. This impact is considered **potentially significant**.

The proposed project includes a mix of land uses, including residential, commercial, recreational and institutional land uses. These land uses would result in new stationary noise sources that could result in significant increases in ambient noise levels at proposed nearby noise-sensitive land uses. Noise levels typically associated with these proposed land uses and associated noise impacts are discussed separately below.

#### **Proposed Residential Land Uses**

Noise from proposed residential dwellings would expose other nearby residences (both existing and project-related) to minor increases in ambient noise levels. Noise typically associated with such development includes lawn and garden equipment, voices, and amplified music. Activities associated with these land uses would result in only minor increases in ambient noise levels, primarily during the day and evening hours and less frequently at night, as perceived at the closest residential receptors.

Noise levels generated by stationary sources, primarily residential central air conditioning units, averages approximately 60 dBA  $L_{eq}$  at 3 feet from the source (EPA 1971). Depending on the distance between proposed residential dwellings, noise levels associated with air conditioning units located in side-yard areas could result in substantial increases in noise levels at adjacent exterior activity areas. Assuming an average exterior-to-interior noise reduction of 15 dBA (with windows open) interior areas within approximately 10 feet of HVAC units could experience

increases in ambient noise levels that would be anticipated to result in increased levels of annoyance and potential sleep disruption for building occupants. As a result, increased noise levels associated with proposed residential land uses are considered **potentially significant**.

#### **Proposed Recreational Facilities**

The proposed project includes development of various neighborhood-use parks and recreational facilities dispersed throughout the project area. Noise from exterior recreational uses is typically associated with children's play areas, parking areas, and outdoor recreational uses such as ball fields. Noise typically associated with play areas and associated vehicle parking areas include the voices of adults and children and the occasional opening and closing of vehicle doors. However, noises typically associated with such uses, excluding larger recreational uses, are often intermittent and do not typically result in substantial increases in daytime ambient noise levels.

The greatest potential for noise-generation associated with on-site recreational uses would typically be the larger ball fields during competitive events (e.g., soccer fields, baseball fields, basketball courts, etc.). Smaller recreational uses, such as volleyball courts and tennis courts, typically do not involve large numbers of spectators and, as a result, are typically considered only minor sources of noise. Noise generated by larger recreational facilities is primarily associated with the cheering and yelling of spectator crowds. Based on noise measurements conducted for similar projects, average-hourly exterior noise levels typically associated with day-use soccer fields, basketball and volleyball courts, typically average less than 60 dBA  $L_{eq}$  at approximately 50 feet, with maximum intermittent noise levels of up to approximately 90 dBA  $L_{max}$  at 10 feet. Events involving the use of amplified sound systems can generate noise levels of approximately 75 dBA  $L_{eq}$  at 50 feet.

Recreational uses involving use of amplified sound systems or activities occurring during the more noise-sensitive evening, nighttime, and early morning hours may result in substantial increases in ambient noise levels at nearby existing or proposed residences, resulting in potential increases in annoyance and sleep disruption. As a result, this impact is considered **potentially significant**.

#### **Proposed On-Site Commercial Uses**

In total, the proposed project includes development of approximately 44 acres of commercial and limited commercial land uses, dispersed throughout the project site. In many instances, the commercial developments would be located adjacent to larger parcels that would remain undeveloped common areas or used for agriculture. The specific types of commercial uses to be developed have not yet been determined, but could include a possible hotel, restaurants, and coffee shops. Potential sources of noise associated with these types of land uses can vary substantially. Noise sources commonly associated with such uses can include occasional parking lot activities (e.g., opening and closing of vehicle doors, people talking), loading dock operations (e.g., use of forklifts, hydraulic lifts), and trash compactors. Noise commonly associated with commercial land uses such as idling trucks, vehicle backup alarms, decompression of trailer truck brakes, forklifts, and other material loading and unloading activities, can generate intermittent noise levels of approximately 90 dBA  $L_{max}$  at 10 feet. Average-hourly noise levels associated with commercial sources typically range from approximately 60 dBA  $L_{eq}$  at 50 feet. Depending on final site design and distances between sources and nearby receptors, on-site operations could result in substantial increases in ambient noise levels at nearby receptors that could exceed applicable noise standards. As a result, this impact is considered **potentially significant**.

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### Proposed Schools

The proposed project includes two school sites, including one site centrally located within the Specific Plan area, along the proposed Anderson Hills Parkway, and a second site located along West Anderson Drive. The proposed school sites would be located either adjacent to or within approximately 200 feet of proposed residential land uses.

Noise sources typical of schools include the sound of children's voices during recess periods and outdoor activities, mechanical building equipment (e.g., heating, ventilation, and air conditioning systems, and boilers), landscape maintenance equipment, and exterior intercom/speaker systems. The hours of operation for the proposed schools would typically be limited to the daytime hours, with the potential for after-school and weekend outdoor activities.

Mechanical building equipment (e.g., heating, ventilation, and air conditioning systems, and boilers) associated with the proposed school could generate noise levels of approximately 90 dBA at 3 feet from the source. However, such mechanical equipment systems are typically shielded from direct public exposure and usually housed on rooftops, within equipment rooms, or within exterior enclosures (U.S. Environmental Protection Agency 1971). As a result, noise generated by on-site mechanical equipment would not be anticipated to result in a substantial increase in ambient noise levels at nearby land uses. Landscape maintenance equipment, such as leaf blowers and gasoline-powered lawn mowers, could result in intermittent noise levels that range from approximately 80 to 120 dBA  $L_{max}$  at 3 feet, respectively. Landscape maintenance activities would be intermittent and are typically limited to daytime hours of operation. However, landscape maintenance activities occurring during the more noise-sensitive evening and nighttime hours could result in increased levels of annoyance and potential sleep disruption to occupants of nearby existing and proposed residential land uses. In addition, on-site recreational activities, particularly those involving exterior amplified speaker systems, may also result in substantial increases in ambient noise levels at nearby noise-sensitive land uses. As a result, noise impacts associated with the proposed schools are considered **potentially significant**.

### Agriculture Activities

The proposed project includes a total of approximately 109 acres of agricultural land uses (not including Phase 1), a majority of which is planned for vineyard production. Noise levels associated with vineyard farming activities are typically associated with the occasional use of tractors, as well as mechanical pumps used for water conveyance. Noise levels associated with tractors typically average approximately 84 dBA at 50 feet. However, the use of tractors is typically sporadic and most often occurs on a seasonal basis. In addition, agricultural activities involving the use of mechanical equipment are typically limited to the less noise-sensitive daytime hours. However, mechanical pumps and motors, most often associated with water conveyance, could occur during the more noise sensitive nighttime hours. Depending on the type and size of the pumps required, operational noise levels can range from approximately 65 to 90 dBA at 10 feet. However, larger pumps often used at water well stations are often located below the ground surface, which substantially reduces detectable operational noise levels at the surface. However, these facilities and related operational characteristics have not been sufficiently defined at this time to accurately assess related noise impacts to nearby noise-sensitive receptors. As a result, levels of increased annoyance and potential for sleep or activity interference at nearby noise-sensitive land uses are considered **potentially significant**.

### Utility Improvements

The proposed project would require various utility improvements, including facilities for the transfer and conveyance of electricity, water and wastewater. Noise-producing equipment

typically associated with these types of facilities includes electrical pump motors, transformers, and emergency use power generators. Depending on the type and size of the pumps required, operational noise levels can range from approximately 65 to 90 dBA at 10 feet. Electrical generators and transformers can generate noise levels of approximately 80 dBA at 3 feet (U.S. EPA, 1971). However, larger pumps often used at water well stations are often located below the ground surface, which substantially reduces detectable operational noise levels at the surface.

Assuming a maximum noise level of 90 dBA, receptors located within approximately 300 feet could experience noise levels in excess of 60 dBA. However, the location of on-site utility facilities and related operational characteristics have not been sufficiently defined at this time to accurately assess related noise impacts to nearby noise-sensitive receptors. Operation of on-site utility improvements could result in an increase in ambient noise levels at nearby noise-sensitive land uses. The potential increases would depend on the design and location of stationary noise-generating equipment. Stationary source noise impacts associated with the on-site public utility facilities are considered **potentially significant**.

#### Mitigation Measures

**MM 4.5.4** The following mitigation measures shall be implemented:

a. Residential Land Uses

- Residential dwellings shall be equipped with central heating and air conditioning systems to allow windows to be kept closed and maintain acceptable interior noise levels during inclement weather conditions.

b. Recreational Facilities, Parks and Schools

- Use of amplified public address/sound systems within park areas shall be prohibited, except as approved by the City for special events.
- Use of park facilities and exterior recreational facilities shall be limited to the daytime hours of 7:00 a.m. and 10:00 p.m. without prior approval from the City Manager or his/her designee.
- Landscape maintenance activities for the proposed park and elementary school shall be limited to the daytime hours of 7:00 a.m. and 10:00 p.m.
- The City shall require an acoustical assessment be performed prior to construction of the proposed schools. Where acoustical analysis determines that stationary-source noise levels would exceed applicable noise standards, the City shall require the implementation of all practical noise-attenuation measures sufficient to achieve compliance with applicable noise standards at nearby noise-sensitive land uses. Such measure may include, but are not limited to, the incorporation of setbacks, sound barriers, berms, and equipment enclosures.

c. Proposed Commercial Land Uses

- Material deliveries, landscape maintenance, waste-collection activities, and the operation of noise-generating stationary equipment such as solid-waste compactors and compressors (excluding building mechanical equipment [i.e., boilers, HVAC units]), shall be limited to between the hours of 7:00 a.m. and 10:00 p.m.

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- The City shall require an acoustical assessment be performed prior to construction of the proposed noise-generating commercial land uses. Where acoustical analysis determines that stationary-source noise levels would exceed applicable noise standards, the City shall require the implementation of all practical noise-attenuation measures sufficient to achieve compliance with applicable noise standards at nearby noise-sensitive land uses. Such measure may include, but are not limited to, the incorporation of setbacks, sound barriers, berms, and equipment enclosures.

### d. Agricultural/Public-Utility Improvements

- The City shall require an acoustical assessment be performed prior to construction of the proposed noise-generating utility improvements. Where acoustical analysis determines that stationary-source noise levels would exceed applicable noise standards, the City shall require the implementation of all practical noise-attenuation measures sufficient to achieve compliance with applicable noise standards at nearby noise-sensitive land uses. Such measure may include, but are not limited to, the incorporation of setbacks, sound barriers, berms, or equipment enclosures.

*Timing/Implementation:* Prior to approval of Tentative Map or Planning Director's Special Permit.

*Enforcement/Monitoring:* City of Anderson Public Works Department.

For proposed residential land uses, installation of central HVAC systems would allow occupants of dwelling units to keep windows closed to maintain acceptable interior noise levels during inclement weather conditions. Additional measures would be required to limit noise-generating activities to the less noise-sensitive periods of the day. Additional measures would require that an acoustical analysis of major on-site noise sources be conducted to further evaluate potential noise impacts associated with major on-site noise sources. Where acoustical analysis determines that stationary-source noise levels would exceed applicable noise standards, the City shall require the implementation of all practical noise-attenuation measures sufficient to achieve compliance with applicable noise standards at nearby noise-sensitive land uses. Implementation of the above mitigation measure would ensure compliance with applicable noise standards. With the provisions of **MM 4.5.4**, this impact is considered **less than significant**.

### **Compatibility of Proposed Land Uses with Projected On-Site Noise Levels**

**Impact 4.5.5** Projected on-site transportation noise levels at nearby proposed on-site development would exceed the City's noise-sensitivity standards for land use compatibility. As a result, this impact is considered **potentially significant**.

As previously noted, the proposed project includes a mix of land uses, including residential, commercial, recreational and institutional uses. On-site land uses would primarily be affected by Interstate 5, which is located along the eastern boundary of the project site, as well as existing and proposed area roadways located along the perimeter and throughout the interior of the project site.

For determination of land use compatibility, predicted traffic noise contours (in dBA  $L_{dn}$ /CNEL) for major roadways were modeled for future cumulative conditions, with implementation of the

proposed project. Traffic noise levels were modeled using the FHWA traffic noise prediction model. **Table 4.5-11** summarizes predicted distances to the 60, 65 and 70 dBA  $L_{dn}$ /CNEL contours, as well as the predicted traffic noise level at a distance of approximately 100 feet from the near travel-lane centerline. The predicted noise contour distances do not take into account shielding or reflection of noise from existing terrain or existing/future structures.

**TABLE 4.5-11**  
**PREDICTED TRANSPORTATION NOISE LEVELS**  
**FUTURE CUMULATIVE CONDITIONS**

Roadway Segment	CNEL (dBA) at 50 feet from Near Travel-Lane Centerline	Distance from Roadway Centerline to Predicted Noise Contour (dBA CNEL)		
		60	65	70
I-5, Deschutes Road to Balls Ferry Rd.	77	1,371	636	295
W. Anderson Road, South of Olinda Rd	62	157	73	WR
Anderson Hills Parkway (Proposed)	65	145	69	WR
Pleasant Hills Drive, South of Rhonda Road	61	65	WR	WR
Pleasant Hills Drive, North of Anderson Hills Pkwy	54	WR	WR	WR

Source: AMBIENT Air Quality & Noise Consulting 2007

Predicted future cumulative traffic noise levels for I-5 obtained from the City of Anderson General Plan (2006). Traffic noise levels for W. Anderson Road, Anderson Hills Parkway and Pleasant Hills Drive were calculated using the FHWA roadway noise prediction model (FHWA-RD-77-108) based on data obtained from the traffic analysis prepared for this project.

WR = Within Roadway Right-of-Way

Based on the traffic noise modeling that was conducted, the projected future 60 dBA CNEL noise contour for I-5 would extend to a distance of approximately 1,371 feet from the highway centerline. The nearest proposed on-site noise-sensitive land uses would include residential dwellings located approximately 2,500 from I-5, along the eastern boundary of the project site. The City's "normally acceptable" noise level for residential land uses is limited to a maximum of 60 dBA CNEL. Noise-sensitive land uses located along the eastern boundary of the project site would not be located within the projected future 60 dBA CNEL noise contour for I-5.

West Anderson Drive extends along the northern and western boundaries of the project site. Proposed land uses located in the vicinity of West Anderson Drive consist of commercial uses, a proposed school, and a community park. The City's "normally acceptable" noise level for such land uses is limited to a maximum of 70 dBA CNEL. The projected future 70 dBA CNEL noise contour for the adjacent segment of West Anderson Drive would not extend beyond the roadway right-of-way. Predicted noise levels at proposed land uses located along West Anderson Road would not exceed the City's land use compatibility noise standard of 70 dBA CNEL. No residential land uses or other noise-sensitive land uses are proposed within the projected 60 dBA CNEL contour of this roadway.

In addition to nearby existing roadways, proposed on-site roadways, including Anderson Hills Parkway and Pleasant Hills Drive, may also result in increases in traffic noise levels that could adversely affect proposed on-site land uses. Predicted noise contours for these on-site major roadways were calculated using the FHWA roadway noise prediction model, based on the maximum average-daily traffic volumes obtained from the traffic analysis prepared for this project. Proposed land uses located along these roadways would include residential, park, and commercial uses. As noted in **Table 4.5-5**, the "normally acceptable" noise level for residential

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land uses is limited to a maximum of 60 dBA CNEL. The City's "normally acceptable" noise level for park and commercial land uses is limited to a maximum of 70 dBA CNEL. Tentative maps depicting specific site designs and distances between proposed roadways and on-site land uses are not yet available. Nonetheless, it is conceivable that predicted traffic noise levels at on-site land uses, particularly those located along Anderson Hills Parkway, could potentially exceed the City's "normally acceptable" noise standards. As a result, this impact is considered **potentially significant**.

### Mitigation Measures

In addition to implementation of **MM 4.5-4**, implement the following mitigation measure:

**MM 4.5.5** For sensitive receptors within the 60 dBA or greater noise contour, the City shall require an acoustical assessment be performed to evaluate predicted future cumulative traffic noise impacts to proposed sensitive receptors. Where acoustical analysis determines that traffic noise levels would exceed applicable noise standards, the City shall require the implementation of all practical noise-attenuation measures sufficient to achieve compliance with applicable interior noise standards and "conditionally acceptable" exterior noise levels. Such measure may include, but are not limited to, the incorporation of setbacks, sound barriers, or berms.

*Timing/Implementation:* Prior to Tentative Map approval.

*Enforcement/Monitoring:* City of Anderson Public Works Department.

Implementation of the above mitigation would require subsequent noise analyses for proposed development and that proposed residential dwelling units be equipped with central HVAC systems so windows can remain closed to maintain acceptable interior noise levels during inclement weather conditions. Additional mitigation measures, such as increased insulation, or use of sound barriers, may also be required, per **MM 4.5.4(a)**. Implementation of the above mitigation measures would ensure that interior noise levels are reduced to within acceptable levels. However, exterior noise levels at some land uses may still exceed "normally acceptable" noise standards. No additional mitigation measures have been identified that would reduce this impact to a less than significant level. As a result, this impact is considered **significant and unavoidable**.

## PROJECT LEVEL (PHASE 2) IMPACTS AND MITIGATION MEASURES

### Exposure to Construction Noise

**Impact 4.5.6** Construction-generated noise levels related to Phase 2 could result in a substantial increase in ambient noise levels at nearby noise-sensitive land uses, including proposed residential uses that are constructed and inhabited before other portions of Phase 2 are complete. This impact is considered **potentially significant**.

As discussed in Impact 4.5.1 above, construction noise is commonly associated with site preparation and excavation activities, truck hauling of material, pouring of concrete, and use of power hand tools. Construction noise typically occurs intermittently and varies depending on the nature of the construction activities being performed. Noise generated by construction equipment, including excavation equipment, material handlers, and portable generators, can

reach high levels for brief periods. (Refer to Impact 4.5.1 for a more detailed discussion of construction-generated noise.)

During development of Phase 2, as with the rest of the overall project, construction activities occurring during the more noise-sensitive late evening and nighttime hours (i.e., 7 p.m. to 7 a.m.) could result in increased levels of annoyance and potential sleep disruption for occupants of nearby noise-sensitive land uses. As a result, noise-generating construction activities would have an impact that is considered **potentially significant**.

#### Mitigation Measures

Implement mitigation measure **MM 4.5.1**, as it pertains to Phase 2.

As discussed in Impact 4.5.1, implementation of the above **MM 4.5.1** would reduce impacts from construction activities concerning Phase 2 to a level that is considered **less than significant**.

#### **Increases in Long-term Operational Traffic Noise**

**Impact 4.5.7** Development of Phase 2 would not result in substantial increases in near-term traffic noise levels along area roadways that would exceed applicable noise standards at nearby land uses. This impact is considered **less than significant**.

As discussed in Impact 4.5.2 at the programmatic level, development of Phase 2 land uses would result in increased traffic volumes on some area roadways. The increase in traffic volumes resulting from implementation of the proposed project would, therefore, contribute to predicted increases in traffic noise levels. The FHWA roadway noise prediction model was used to predict traffic noise levels along affected roadways for existing traffic conditions, with and without implementation of the proposed project and are summarized in **Table 4.5-10**. Based on the modeling conducted, the proposed project would not result in a substantial increase in traffic noise levels that would exceed the City's "normally acceptable" noise levels at nearby land uses. This impact is considered **less than significant**.

#### Mitigation Measures

None required.

#### **Exposure of Sensitive Receptors to or Generation of Excessive Stationary-Source Noise Levels**

**Impact 4.5.8** Exposure to noise levels generated by stationary sources involved in Phase 2 would not result in a substantial increase in ambient noise levels that could exceed the City's noise standards at proposed on-site noise-sensitive land uses. This impact is considered **less than significant**.

Land uses surrounding the project site primarily consist of undeveloped grazing land and residential land uses. No major existing stationary sources of noise were identified in the vicinity of Phase 2 development that would result in a significant increase in ambient noise levels at proposed noise-sensitive land uses. (Refer to Impacts 4.5.3 for a more detailed discussion of off-site stationary-source noise.) Stationary source noise impacts associated with off-site stationary noise sources are considered **less than significant**.

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### Mitigation Measures

None required.

**Impact 4.5.4** Exposure to noise levels generated by stationary sources would not result in a substantial increase in ambient noise levels that could exceed the City's noise standards at proposed on-site noise-sensitive land uses. This impact is considered **potentially significant**.

Phase 2 of the proposed project includes a mix of residential, recreational, and agricultural land uses as well as public utility improvements. As discussed in Impact 4.5.4, these on-site land uses would result in new stationary noise sources that could result in significant increases in ambient noise levels at proposed nearby noise-sensitive land uses. The potential increases would depend on various factors, including the design and location of stationary noise-generating equipment, as well as intervening terrain and land uses. (Refer to Impacts 4.5.4 for a more detailed discussion of on-site stationary-source noise.) Stationary source noise impacts associated with on-site stationary noise sources are considered **potentially significant**.

### Mitigation Measures

Implement mitigation measure **MM 4.5.4**, as it pertains to Phase 2.

As discussed in Impact 4.5.4, implementation of the above mitigation measure would ensure compliance with applicable noise standards. With implementation of **MM 4.5.4**, this impact is considered **less than significant**.

### **Compatibility of Proposed Land Uses with Projected On-Site Noise Levels**

**Impact 4.5.10** Projected on-site transportation noise levels at nearby Phase 2 on-site development would exceed the City's noise-sensitivity standards for land use compatibility. As a result, this impact is considered **potentially significant**.

For determination of land use compatibility, predicted traffic noise contours (in dBA L<sub>dn</sub>/CNEL) for major roadways were modeled for future cumulative conditions, with implementation of the proposed project. Traffic noise levels and distances to predicted noise contours were modeled using the FHWA traffic noise prediction model and are summarized in **Table 4.5-11**. The predicted noise contour distances do not take into account shielding or reflection of noise from existing terrain or existing/future structures.

The nearest major existing roadway is Interstate 5, located approximately 3,000 feet east of development proposed as part of Phase 2. Based on the traffic noise modeling that was conducted by AMBIENT, the projected future 60 dBA CNEL noise contour for I-5 would extend to a distance of approximately 1,371 feet from the roadway centerline. Thus, the proposed Phase 2 development would not be located within the projected future 60 dBA CNEL noise contour of I-5.

In addition to nearby existing roadways, proposed on-site roadways including Anderson Hills Parkway and Pleasant Hills Drive, may also result in increases in traffic noise levels that could adversely affect proposed on-site land uses. Anderson Hills Parkway generally extends in an east-west direction along the southern boundary of Phase 2. Pleasant Hills Drive extends through the proposed Phase 2 development in a general north-south direction. As noted earlier in **Table 4.5-11**, the 60 dBA CNEL noise contour for Anderson Hills Parkway would extend to a distance of

approximately 145 feet from the centerline of this roadway. The predicted 60 dBA CNEL noise contour for Pleasant Hills Drive in the vicinity of the proposed Phase 2 development is not anticipated to extend outside of the roadway right-of-way. Based on the proposed Tentative Map for Phase 2, residential land uses would be located within the projected 60 dBA CNEL noise contour of Anderson Hills Parkway. Because the specific design of proposed land uses is not yet available, detailed quantification of predicted noise levels at proposed land uses cannot be determined at this time. Regardless, predicted traffic noise levels at proposed on-site land uses located along Anderson Hills Parkway could potentially exceed the City's "normally acceptable" noise standards. As a result, this impact is considered **potentially significant**.

#### Mitigation Measures

Implement mitigation measure **MM 4.5.5**, as it pertains to Phase 2.

As discussed in Impact 4.5.5, implementation of mitigation measure **MM 4.5.5** would require subsequent noise analyses for proposed development, and proposed residential dwelling units would be required to be equipped with central HVAC systems so windows can remain closed to maintain acceptable interior noise levels during inclement weather conditions. Additional mitigation measures such as increased insulation, or use of sound barriers, may also be required, per **MM 4.5.5(b)**. Implementation of **MM 4.5.5** would ensure that interior noise levels are reduced to within acceptable levels. However, exterior noise levels at some land uses may still exceed "normally acceptable" noise standards. No additional mitigation measures have been identified that would reduce this impact to a less than significant level. As a result, this impact is considered **significant and unavoidable**.

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

#### CUMULATIVE SETTING

The geographic extent of the cumulative setting consists of the City of Anderson, the City's Sphere of Influence, and unincorporated areas near the City, as well as consideration of regional activities and attributes (e.g., regional traffic volumes and patterns associated with State Route 273 and Interstate 5). This setting includes consideration of existing, planned and future land use development (see Sections 4.0, 4.2 and 4.4 regarding assumed development conditions in the City of Anderson and surrounding area), future (year 2030) traffic volumes and buildout of the project. The primary factor for cumulative noise impact analysis is the consideration of future traffic volumes.

#### CUMULATIVE IMPACTS

##### **Cumulative Traffic Noise**

**Impact 4.5.11** Implementation of the proposed project would result in increases to cumulative traffic noise impacts. This impact is considered **potentially significant**.

Predicted increases in ambient noise levels attributable to the proposed project at nearby existing and proposed land uses would be primarily associated with potential increases in traffic noise levels along area roadways. The FHWA roadway noise prediction model (FHWA 1988) was used to predict future cumulative traffic noise levels along affected roadways based on data obtained from the traffic analysis prepared for this project. The project's contribution to the

## 4.5 NOISE

cumulative traffic noise levels along area roadways was determined by comparing the predicted noise levels with and without project-generated traffic. Predicted cumulative traffic noise levels are summarized in **Table 4.5-12**.

As depicted in **Table 4.5-10**, substantial increases in traffic noise levels would be projected to occur along segments of Pleasant Hill Drive, West Anderson Road, South Street, Rhonda Road, and SR 273. However, with the exception of Rhonda Road, no noise-sensitive land uses are located within the projected "normally acceptable" 60 dBA noise contour of these roadway segments. As depicted in **Table 4.5-12**, predicted noise levels associated with vehicular traffic on Rhonda Road, would approach 65 dBA CNEL at 50 feet from the roadway centerline. However, many of these land uses are already located within the projected future 65 dBA CNEL noise contour of I-5, which extends to a distance of approximately 636 feet from I-5. As a result, implementation of the proposed project would not be anticipated to result in a substantial increase in overall ambient noise levels at residential dwellings located along Rhonda Road that are within approximately 636 feet of I-5. Land uses located along Rhonda Road, in excess of approximately 636 feet of I-5 could, however, experience substantial increases in ambient noise levels. Many of these land uses would include residential dwellings fronting Rhonda Road that are located north of Gas Point Road. Given that access to these dwellings is provided via Rhonda Road, construction of sound barriers would not be feasible in providing adequate noise reduction at these residences due to the requirement to maintain access to these dwellings. In addition, predicted future exterior traffic noise levels at existing commercial land uses located along SR 273, between Balls Ferry Road and North Street, would also be anticipated to exceed the "normally acceptable" land use compatibility noise standard of 70 dBA CNEL. No mitigation measures have been identified that would reduce exterior noise levels at adversely affected land uses. As a result, this cumulative impact is considered **significant and unavoidable**.

**TABLE 4.5-12**  
**PREDICTED TRAFFIC NOISE LEVELS – CUMULATIVE CONDITIONS WITH PROJECT BUILDOUT**  
**CITY OF ANDERSON AND SHASTA COUNTY**

Roadway	Segment	Predicted L <sub>dn</sub> , 50 Feet from Roadway Centerline			
		Existing Conditions			
		Existing Without Project	Existing With Project Buildout	Predicted Increase	Significant?
Pleasant Hill Drive	West of SR 273	61.13	66.38	5.25	Yes
Rhonda Road	Site Access to Gas Point Rd.	57.20	64.64	7.44	Yes
W. Anderson Drive	South of Olinda Rd	53.01	66.76	13.75	Yes
Olinda Road	West of W. Anderson Dr.	62.50	64.49	1.99	No
South Street	W. Anderson Dr. to SR 273	61.89	66.70	4.81	Yes
SR 273	Balls Ferry Rd. to North St.	69.34	71.02	1.68	Yes
North Street	SR 273 to I-5	64.14	65.61	1.47	No
SR 273	North St to Ox Yoke St.	70.45	71.21	0.76	No
SR 273	Ox Yoke St. to S. Bonneyview Rd.	70.62	70.82	0.20	No

Roadway	Segment	Predicted L <sub>dn</sub> , 50 Feet from Roadway Centerline			
		Existing Conditions			
		Existing Without Project	Existing With Project Buildout	Predicted Increase	Significant?
North Street	I-5 to Riverside	66.70	67.43	0.73	No
Ox Yoke St./Riverside Ave	SR 273 to I-5	69.69	69.73	0.04	No
Riverside Avenue	I-5 to Airport Rd.	67.95	68.12	0.17	No
Airport Road	Riverside Ave. to Dersch Rd.	67.09	67.54	0.45	No
Airport Road	Dersch Rd. to Knighton Rd.	67.68	67.95	0.27	No

Source: AMBIENT Noise and Air Quality Consulting.

Significant increases defined as an increase of 5 dBA, or greater, where the ambient noise environment is less than 60 dBA; 3.0 dBA, or greater, where the ambient noise environment is between 60 and 65 dBA; and an increase of 1.5 dBA, or greater, where the ambient noise environment exceeds 65 dBA.

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### REFERENCES

- Acoustical Society of America. 1998. ANSI S12.8-1998. Methods for Determining the Insertion Loss of Outdoor Noise Barriers.
- California Air Resources Board (ARB). January 1992. California Surface Wind Climatology.
- California Department of Transportation(Caltrans). January 2002, *California Airport Land Use Planning Handbook*.
- City of Anderson. 2007 City of Anderson General Plan, Noise Element.
- City of Anderson. City of Anderson Municipal Code, Chapter 8.30, Noise Control.
- City of Anderson. 2006. City of Anderson Noise Baseline Report.
- City of Anderson. March 2007. The Vineyards at Anderson Specific Plan.
- Cunniff, Patrick R. 1977. Environmental Noise Pollution.
- Federal Highway Administration (FHWA). February 2000. FHWA Highway Noise Barrier Design Handbook.
- Fehr & Peers. March 2007. Traffic Analysis for the Vineyards at Anderson Program EIR.
- M. David Egan, McGraw Hill, 1972. *Concepts in Architectural Acoustics*.
- U.S. Department of Transportation, Federal Transit Administration (U.S. DOT). April 2006. Transit Noise and Vibration Impact Assessment.
- United States Environmental Protection Agency (U.S. EPA). 1971. Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances.
- US EPA. March 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.
- World Health Organization (WHO). 1999. Guidelines for Community Noise.