

4.10 NOISE

INTRODUCTION

This section describes noise fundamentals, relevant regulations and standards, and existing conditions associated with noise. Based on applicable thresholds of significance, the section also analyzes the potential impacts of Project construction and operational noise on noise sensitive land uses in the vicinity of the project site. Information in this section is largely based on information and findings obtained in the *Cielo Vista Noise Study* (herein referred to as the "Noise Study"), prepared by Urban Crossroads, Inc., dated March 4, 2013. The Noise Study is contained in Appendix I of this EIR.

1. ENVIRONMENTAL SETTING

a. Noise Fundamentals

Noise has been simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. **Figure 4.10-1, *Typical Noise Levels and their Subjective Loudness and Effects*** presents a summary of the typical noise levels and their subjective loudness and effects that are described in further detail below.

(1) Range of Noise

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA, which can cause serious discomfort.

(2) Noise Descriptors¹

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most commonly used figure is the equivalent level (Leq). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in dBA. The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. In addition, the hourly Leq is the noise metric used to collect short-term noise level measurement samples and to estimate the 24-hour Community Noise Equivalent Levels (CNEL).

¹ *Cielo Vista Noise Study, prepared by Urban Crossroads, Inc., March 4, 2013.*

The CNEL is the weighted average of the intensity of a sound with corrections for time of day and averaged over 24 hours. CNEL does not represent the actual sound level heard at any particular time, but rather represents the total sound exposure. The time of day corrections require the addition of 5 decibels to dBA Leq sound levels in the evening from 7 p.m. to 10 p.m., and the addition of 10 decibels to dBA Leq sound levels at night between 10 p.m. and 7 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound is perceived to be louder.

(3) Traffic Noise Prediction

The level of traffic noise depends on three primary factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and a greater number of trucks. A doubling of the traffic volume (assuming that the speed and truck mix do not change) results in a noise level increase of 3 dBA which is the smallest difference in noise levels that the human ear normally is able to perceive. The truck mix on a given roadway may also have an effect on community noise levels. As the number of heavy trucks increases and becomes a larger percentage of the vehicle mix, adjacent noise levels increase. Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires.

(4) Noise Control

Noise control is the process of obtaining an acceptable noise environment for a particular observation point or receptor by controlling the noise source, transmission path, receptor, or all three. This concept is known as the source-path-receptor concept. In general, noise control measures can be applied to any and all of these three elements.

(5) Ground Absorption

To account for the ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models, soft site and hard site conditions. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. A drop-off rate of 4.5 dBA per doubling of distance is typically observed over soft ground with landscaping, as compared with a 3.0 dBA drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth.² As indicated above, softer site conditions result in higher sound propagation loss per doubling distance than hard site conditions. Caltrans' research has shown that the use of soft site conditions is more appropriate for the application of the Federal Highway Administration (FHWA) traffic noise prediction model used in this analysis.

(6) Community Response to Noise

Approximately ten (10) percent of the population has a very low tolerance for noise, and will object to any noise not of their own making. Consequently, even in the quietest environment, some complaints will occur. Another 25 percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment.³

² *Technical Noise Supplement – A Technical Supplement to the Traffic Noise Analysis Protocol, Sacramento, CA: California Department of Transportation Environmental Program, October 1998.*

³ *Environmental Protection Agency, "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," Report. No. 550/9-74-004, Washington DC, March 1974.*

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100		
GAS LAWN MOWER AT 1m (3 ft)		90	VERY NOISY	SPEECH INTERFERENCE
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	SLEEP DISTURBANCE
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10		
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0	VERY FAINT	

Typical Noise Levels and Their Subjective Loudness and Effects

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Despite this variability in behavior on an individual level, the population as a whole can be expected to exhibit the following responses to changes in noise levels. An increase or decrease of 1.0 dBA cannot be perceived except in carefully controlled laboratory experiments. A 3.0 dBA increase may be perceptible outside of the laboratory. An increase of 5.0 dBA is often necessary before any noticeable change in community response (i.e., complaints) would be expected.⁴

Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon each individual's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

- Fear associated with noise producing activities;
- Socio-economic status and educational level of the receptor;
- Noise receptor's perception that they are being unfairly treated;
- Attitudes regarding the usefulness of the noise-producing activity; and
- Receptor's belief that the noise source can be controlled.

Recent studies have shown that changes in long-term noise levels are noticeable, and are responded to by people. For example, about ten (10) percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one (1) dBA is associated with approximately two (2) percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people begin complaining. Group or legal actions to stop the noise should be expected to begin at traffic noise levels near 70 dBA and aircraft noise levels near 65 dBA.

(7) Land Use Compatibility with Noise

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches and residences are more sensitive to noise intrusion than are commercial or industrial activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process.

b. Regulatory Framework

(1) Federal

There are no federal regulations pertinent to the Project.

⁴ *Highway Traffic Noise Analysis and Abatement Policy and Guidance, U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch, June 1995; and Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol, Sacramento, CA: California Department of Transportation Environmental Program, October 1998.*

(2) State

(a) State of California Noise Requirements

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared according to guidelines adopted by the Governor's Office of Planning and Research. The purpose of the Noise Element is to "limit the exposure of the community to excessive noise levels".

In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts. Under CEQA, a project has a potentially significant impact if the project exposes people to noise levels in excess of thresholds, which can include standards established in the local general plan or noise ordinance.

(b) State of California Building Code

The State of California noise insulation standards are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 2, and the California Building Code. These noise standards are applied to new construction in California for the purpose of controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are located near major transportation noise sources, and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. Acoustical studies that accompany building plans must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

(3) Local

(a) County of Orange Stationary Source Noise Standards

The County of Orange Noise Control Ordinance (Section 4-6-1 to Section 4-6-16 of the Codified Ordinances of the County of Orange) establishes the maximum permissible noise level that may intrude into a neighbor's property. The Noise Control Ordinance (originally adopted in 1973) establishes noise level standards for various land use categories affected by stationary noise sources.

For residential properties, the exterior noise level shall not exceed 55 dBA Leq during daytime hours (7:00 AM to 10:00 PM) and shall not exceed 50 dBA Leq during the nighttime hours (10:00 PM to 7:00 AM) for more than 30 minutes in any hour. For events with shorter duration, these noise levels are adjusted upwards accordingly.

(b) County of Orange Construction Noise Standards

Section 4-6-7(e) of the County's Noise Control Ordinance indicates that noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 8:00 PM to 7:00 AM on weekdays, including Saturday, or at any time on Sunday or Federal Holiday are exempt.

(c) Community Noise Assessment Criteria

The community noise assessment criteria presented in this section is based on well documented criteria and research into human response to community noise. In community noise assessment, changes in noise levels greater than 3 dBA are often identified as "barely perceptible," while changes of 5 dBA are "readily perceptible." Studies show that a relative noise impact of 5 dBA triggers community reaction (sporadic complaints to widespread complaints to several legal threats to vigorous action). In the range of 1 dBA to 3 dBA, people who are very sensitive to noise may perceive a slight change in noise level. However, in a community situation the noise exposure is extended over a long time period, and changes in noise levels occur over years rather than the immediate comparison made in a laboratory situation. Therefore, the level at which changes in community noise levels become discernible is likely to be some value greater than 1 dBA, and 3 dBA appears to be appropriate for most people. While a 1 dBA increase may be perceptible to a minority of very noise sensitive people, noise increases of up to 3 dBA are "barely perceptible" to most people. The 3 dBA increase criteria represent a balance of community benefits and reasonableness.⁵

(d) County of Orange General Plan

The Noise Element of the General Plan contains information that relates to the noise environment in the unincorporated sections of the County of Orange. The purpose of the Noise Element is to provide a statement of public policy and a decision framework for the maintenance of a quiet environment. The Noise Element identifies the sources of noise, analyzes the extent of the noise intrusion, and estimates its potential impact upon the County. This identification process in turn provides the basis for goals, policies, and implementation programs designed to preserve, where possible, a quiet environment in the County of Orange. The Project's consistency with the applicable goals and policies of the Noise Element is discussed in the impact analysis below.

(e) City of Yorba Linda General Plan

The City's General Plan contains goals and policies that are relevant to noise in the Noise Element. The Project's consistency with the applicable goals and policies of the Noise Element is discussed in the impact analysis below.

c. Existing Conditions

Regional access to the project site is provided via State Route (SR) 91 (91 Freeway) located approximately 1.7 miles southwest of the site. The nearest arterial roadway to the project site is Yorba Linda Boulevard, which is located approximately 0.25 miles to the south of the site. From Yorba Linda Boulevard, the site would be accessed at two points. First, access would be provided directly from Aspen Way. Aspen Way extends approximately 1,200 feet west of the project site connecting to San Antonio Road, which intersects with Yorba Linda Boulevard. The southerly access point for the Project would be from Via del Agua, a residential street, located to the south of the project site which connects with Yorba Linda Boulevard.

The Casino Ridge single-family residential community abuts the project site on the north, and established single-family residential neighborhoods abut the project site on the south and west. An undeveloped parcel commonly referred to as the Esperanza Hills property, abuts the project site on the east. The approximate 469-acre Esperanza Hills property is currently in the early planning stages for a proposed project that would

⁵ *Ibid.*

include the development of 340 single-family units. The majority of the 84-acre project site is vacant, with the exception of several operational and abandoned oil wells and various dirt access roads and trails which traverse the site.

(1) Sensitive Receptors

Human response to noise varies widely depending on the type of noise, time of day, and sensitivity of the receptor. The effects of noise on humans can range from temporary or permanent hearing loss to mild stress and annoyance due to such things as speech interference and sleep deprivation. Prolonged stress, regardless of the cause, is known to contribute to a variety of health disorders. Noise, or the lack thereof, is a factor in the aesthetic perception of some settings, particularly those with religious or cultural significance. Certain land uses are particularly sensitive to noise including schools, hospitals, rest homes, long-term medical and mental care facilities, and parks and recreation areas. Residential areas are also considered noise sensitive, especially during the nighttime hours.

Existing sensitive receptors located in the vicinity of the project site include single-family residential homes located to the north, west and south adjacent to the project site, as well as schools and parks in the local project vicinity. The sensitive receptors identified within the study area of the Noise Study are listed in **Table 4.10-1, Sensitive Receptors**. The approximate distances are measured from the Project's nearest proposed grading activities to the nearest sensitive receptor structures. The extent of grading near the residential sensitive receptors to the west and south of the site would be immediately adjacent to these sensitive receptors. In several instances, the sensitive receptors located in the project vicinity are shielded from the construction areas by existing vegetation and by moderate to steep sloping hillsides.

Table 4.10-1

Sensitive Receptors

Type	Name	Approximate Distance from Project Site (feet) ^a	Direction from Project Site
Residential	Residential Uses	> 500	North
		60	West
		60	South
Schools	Travis Ranch School	2,100	South
	Yorba Linda High School	7,900	West
Parks	San Antonio Park	900	West
	Arroyo Park	1,800	Southwest
	Dominguez Trailside Park	1,900	South
	Chino Hills State Park	3,000	North

^a Distances are measured from the Project's nearest proposed grading activities to the nearest sensitive receptor structures.

Source: PCR Services Corporation field reconnaissance, June 2012, and Google Earth 2012.

(2) Existing Noise Levels

(a) Mobile Noise Sources

In order to assess potential for mobile source noise impacts, it is necessary to determine the noise currently generated by vehicles traveling within the local circulation network. The vehicular traffic noise levels were projected using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model - FHWA-RD-77-108 (the "FHWA Model"). The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Please refer to **Table 4.10-2, Off-Site Roadway Parameters** for the FHWA Traffic Noise Prediction Model roadway parameters used in this analysis. The roadway classifications and volumes for the roadways adjacent to the project site were determined based on the County of Orange Roadway General Plan Circulation Element roadway classifications. Please refer to **Table 4.10-3, Hourly Traffic Flow Distribution for the hourly traffic flow distributions (vehicle mix)** used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA Model.

The ADT volumes used for the off-site traffic noise prediction model are shown in Table 5-3, *Average Daily Traffic (ADT) Volumes*, in the Noise Study. The off-site traffic noise prediction model inputs were used to calculate the reference CNEL dBA noise levels at a distance of 100 feet from the centerline for the 32 off-site study area roadway segments. Noise level contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 55, 60, 65, and 70 dBA noise levels. Noise level contours do not take into account the effect of any existing noise barriers, intervening buildings or topography that may affect ambient noise levels. In addition, since the noise contours reflect modeling of vehicular noise along area roadways, they appropriately do not reflect noise contribution from the surrounding activities within the project area. Please refer to Table 6-1, *Existing (2012) Conditions Noise Contours* in the Noise Study for the distance to the 55, 60, 65, and 70 dBA CNEL noise contours for the study area roadway segments. Existing CNEL noise levels at 100 feet are shown in **Table 4.10-4, Existing (2012) Traffic Noise Levels**. As shown in Table 4.10-4, noise within the local circulation network due to traffic noise ranges from 45.5 dBA to 67.5 dBA (CNEL at 100 feet), with the highest levels occurring on Yorba Linda Boulevard, east of Lakeview Avenue.

(b) Stationary Noise Sources

The project site and surrounding area primarily consists of residential uses with schools and parks uses located within the project vicinity. Noise levels in single-family residential areas such as those adjacent to the project site typically range from 45 to 55 dBA during daytime hours and are generally less than 50 dBA during nighttime hours.

Table 4.10-2
Off-Site Roadway Parameters

Roadway	Segment	Roadway Classification	Lanes	Vehicle Speed (MPH)
Lakeview Ave	North of Yorba Linda BL.	Primary	4	45
Lakeview Ave	South of Yorba Linda BL.	Primary	4	45
CA 90	North of Yorba Linda BL.	Local	2	40
CA 90	South of Yorba Linda BL.	Local	2	40
Kellogg Drive	South of Yorba Linda BL.	Secondary	2	45
Fairmont BL.	North of Yorba Linda BL.	Primary	4	45
Fairmont BL.	South of Yorba Linda BL.	Primary	4	45
Village Center Drive	North of Yorba Linda BL.	Secondary	2	45
Village Center Drive	South of Yorba Linda BL.	Secondary	2	45
Paseo De Las Palomas	South of Yorba Linda BL.	Primary	4	45
San Antonio Road	North of Aspen Way	Local	2	40
San Antonio Road	South of Aspen Way	Local	2	40
San Antonio Road	North of Yorba Linda BL.	Local	2	40
Yorba Ranch	North of Yorba Linda BL.	Primary	4	45
Yorba Ranch	South of Yorba Linda BL.	Primary	4	45
Via Del Agua	North "A" Street	Local	2	40
Via Del Agua	South of "A" Street	Local	2	40
Via Del Agua	North of Yorba Linda BL.	Local	2	40
Aspen Way	East of San Antonio Road	Local	2	40
Yorba Linda BL.	West of CA 90	Major	6	45
Yorba Linda BL.	Between CA 90 and Lakeview Ave	Major	6	45
Yorba Linda BL.	East of Lakeview Ave	Major	6	45
Yorba Linda BL.	West of Kellogg Drive	Major	6	45
Yorba Linda BL.	East of Kellogg Drive	Major	6	45
Yorba Linda BL.	East of Fairmont BL.	Primary	4	45
Yorba Linda BL.	West of Village Center Drive	Primary	4	45
Yorba Linda BL.	East of Village Center Drive	Primary	4	45
Yorba Linda BL.	West of Paseo De Las Palomas	Primary	4	45
Yorba Linda BL.	East of Paseo De Las Palomas	Primary	4	45
Yorba Linda BL.	West of Yorba Ranch Road	Primary	4	45
Yorba Linda BL.	East of Yorba Ranch Road	Primary	4	45
Yorba Linda BL.	East of Via Del Agua	Primary	4	45

Source: Cielo Vista Noise Study, prepared by Urban Crossroads, Inc., dated March 4, 2013.

Table 4.10-3

Hourly Traffic Flow Distribution ^a

Motor-Vehicle Type	Daytime (7 am to 7 pm)	Evening (7 pm to 10 pm)	Night (10 pm to 7 am)	Total % Traffic Flow
County of Orange				
Automobiles	77.5%	12.9%	9.6%	97.42%
Medium Trucks	84.8%	4.9%	10.3%	1.84%
Heavy Trucks	86.5%	2.7%	10.8%	0.74%

^a Typical County of Orange vehicle mix.

Source: Cielo Vista Noise Study, prepared by Urban Crossroads, Inc., dated March 4, 2013.

2. ENVIRONMENTAL IMPACTS

a. Methodology

(1) Construction Noise Impacts

Construction noise impacts were evaluated by estimating the noise levels generated by construction activity, calculating the construction-related noise level at nearby sensitive receptor property line locations, and comparing construction-related noise to the Project significance threshold to determine significance. (2) Off-Site Traffic Noise Impacts

Traffic generated by the Project would influence the traffic noise levels in surrounding areas. To quantify the traffic noise impacts on the surrounding areas, the changes in traffic noise levels on 32 roadway segments surrounding the project site were estimated based on the change in the average daily traffic volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts provided in the Noise Study.

To assess the noise level impacts associated with the Project, CNEL noise levels at 100 feet (dBA) from the roadway centerline were developed for Existing (2012), Opening Year 2015 and Horizon Year 2035 conditions, which were compared to Existing Conditions noise contours. The Esperanza Hills cumulative project, located in close proximity to the Project, is considering an alternative access via Aspen Way as opposed to that Project's preferred primary access to Via Del Agua/Stonehaven Drive. As such, an additional analysis has been performed for the intersections that could potentially be affected by the change in travel patterns resulting from the proposed access alternative via Aspen Way for the Esperanza Hills cumulative project. The purpose of assessing the access alternative is to identify any additional near-term and long-range cumulative impacts that could potentially occur with the change in proposed access. Accordingly, this traffic analysis includes an assessment of the following traffic scenarios: Existing (2012); Opening Year (2015); Opening Year (2015) Access Alternative via Aspen Way; Horizon Year (2035); and Horizon Year (2035) Access Alternative via Aspen Way traffic conditions. These scenarios are consistent with the traffic analyses included in Section 4.14, *Traffic/Transportation*, of this EIR.

Table 4.10-4

Existing (2012) Traffic Noise Levels

Road	Segment	CNEL at 100 Feet ^a (dBA)
Lakeview Ave	North of Yorba Linda BL.	62.6
Lakeview Ave	South of Yorba Linda BL.	63.5
CA 90	North of Yorba Linda BL.	66.6
CA 90	South of Yorba Linda BL.	65.9
Kellogg Drive	South of Yorba Linda BL.	61.1
Fairmont BL.	North of Yorba Linda BL.	62.3
Fairmont BL.	South of Yorba Linda BL.	62.1
Village Center Drive	North of Yorba Linda BL.	63.9
Village Center Drive	South of Yorba Linda BL.	61.9
Paseo De Las Palomas	South of Yorba Linda BL.	58.3
San Antonio Road	North of Aspen Way	55.6
San Antonio Road	South of Aspen Way	54.7
San Antonio Road	North of Yorba Linda BL.	55.6
Yorba Ranch	North of Yorba Linda BL.	50.0
Yorba Ranch	South of Yorba Linda BL.	57.4
Via Del Agua	North "A" Street	49.7
Via Del Agua	South of "A" Street	49.7
Via Del Agua	North of Yorba Linda BL.	52.7
Aspen Way	East of San Antonio Road	45.5
Yorba Linda BL.	West of CA 90	65.7
Yorba Linda BL.	Between CA 90 and Lakeview Ave	67.4
Yorba Linda BL.	East of Lakeview Ave	67.5
Yorba Linda BL.	West of Kellogg Drive	66.6
Yorba Linda BL.	East of Kellogg Drive	67.4
Yorba Linda BL.	East of Fairmont BL.	65.5
Yorba Linda BL.	West of Village Center Drive	65.0
Yorba Linda BL.	East of Village Center Drive	66.0
Yorba Linda BL.	West of Paseo De Las Palomas	66.2
Yorba Linda BL.	East of Paseo De Las Palomas	66.6
Yorba Linda BL.	West of Yorba Ranch Road	66.7
Yorba Linda BL.	East of Yorba Ranch Road	66.5
Yorba Linda BL.	East of Via Del Agua	66.4

^a The 100 feet is from the roadway centerline.

Please refer to Table 6-1, Existing (2012) Conditions Noise Contours in the Noise Study for the distance to the 55, 60, 65, and 70 dBA CNEL noise contours for the study area roadway segments.

Source: Cielo Vista Noise Study, prepared by Urban Crossroads, Inc., dated March 4, 2013.

In order for a transportation related noise impact to be considered a significant impact, the Project traffic must create a noise level increase of 3.0 dBA or greater and exceed the County of Orange 65 dBA CNEL exterior noise level standard.

(3) On-Site Traffic Noise Impacts

It is expected that the primary source of noise impacts on the project site would be traffic noise from neighboring roads such as Aspen Way and Via Del Agua. The project would also experience some background traffic noise impacts from the project's internal roads. In consideration of the site characteristics, such as its proximity to nearby roadways, and the traffic volumes/speed of vehicular traffic on nearby roadways, the analysis provides a determination of whether the Project would be subject to substantial noise impacts from traffic noise.

(4) Stationary Source Noise Impacts

The analysis of stationary source impacts provides a qualitative discussion of impacts related to the County's noise thresholds based on the proposed and surrounding land uses in the project vicinity.

(5) Ground-Borne Vibration

Ground-borne vibration impacts were evaluated by identifying potential vibration sources, measuring the distance between vibration sources and surrounding structure locations, and making a significance determination.

b. Thresholds of Significance

Appendix G of the *CEQA Guidelines* and the County of Orange Environmental Analysis Checklist provide thresholds of significance to determine whether a project would have a significant environmental impact regarding noise. Based on the size and scope of the Project and the potential for noise impacts, the thresholds identified below are included for evaluation in this EIR. Please refer to Section 6.0, *Mandatory Findings of Significance*, for a discussion of other issues associated with the evaluation of noise where the characteristics of the Project made it clear that effects would not be significant and further evaluation in this section was not warranted.

Would the Project result in:

- Threshold 1: Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies (refer to Impact Statement 4.10-1);
- Threshold 2: Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels (refer to Impact Statement 4.10-2);
- Threshold 3: A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project (refer to Impact Statement 4.10-1); and

Threshold 4: A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project (refer to Impact Statement 4.10-1).

c. Project Design Features

There are no specific Project Design Features (PDFs) that relate to potential noise impacts.

Analysis of Project Impacts

NOISE GENERATION

Threshold	Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
Threshold	Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?
Threshold	Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

4.10-1 Implementation of the Project could result in temporary increases in ambient noise levels and expose people to temporary, intermittent, and moderate to high-level noise levels. However, as the Project would comply with the County of Orange Noise Ordinance, construction noise impacts would be less than significant. Nonetheless, mitigation measures have been prescribed to minimize construction noise at the nearby noise sensitive residential land uses. The Project’s residential would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the Project. However, operation of oil well facilities could result in potentially significant noise generation. Thus, mitigation has been prescribed to ensure that noise from oil well operations would result in less than significant impacts to Project residents. With implementation of the prescribed mitigation measure, long-term operational noise impacts would be less than significant.

(1) Short-Term Construction Noise Impacts

Construction is performed in discrete steps, each of which has its own mix of equipment and consequently, its own noise characteristics. Noise generated by construction equipment, including trucks, power tools, concrete mixers and portable generators can reach high levels. Noise levels generated by heavy construction equipment can range from approximately 70 dBA to noise levels in excess of 100 dBA when measured at 50 feet. However, these noise levels diminish with distance from the construction site at a rate of 6 dBA per doubling of distance. For example, a noise level of 78 dBA measured at 50 feet from the noise source to the receptor would be reduced to 72 dBA at 100 feet from the source to the receptor, and would be further reduced to 66 dBA at 200 feet from the source to the receptor.

The various sequential phases of construction would change the character of the noise generated on-site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise to be categorized by work phase. Project construction includes the following phases and durations: site preparation; grading activities; building construction; paving; and architecture

coating. **Table 4.10-5, Construction Noise Levels**, summarizes the short-term construction noise levels for each stage of construction. The short-term construction noise levels for each stage of construction indicates that at a distance of 50 feet, the project construction noise levels are expected to range from 74.0 to 87.1 dBA Leq. The analysis shows that the highest construction noise level impacts would occur during the site grading activities. Operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three or four minutes at lower power settings.

Existing sensitive receptors located in the vicinity of the project site include single-family residential homes located to the north, west and south adjacent to the project site, as well as schools and parks in the local project vicinity. The closest existing sensitive receptor structures in the vicinity of the project site are single-family residences located approximately 60 feet to the west and south of the project site. Grading activities associated with the Project would occur immediately adjacent to these residential properties. Based on the construction noise levels shown in Table 4.10-5, the nearest sensitive receptors could be exposed to temporary noise levels of up to approximately 87.1 dBA (Leq). The sensitive receptors would not be exposed to continuous close-range construction noise as the construction activities would occur throughout the project site and not be concentrated or confined in the area directly adjacent to these receptors. Normally, construction activities occur in small construction zones with noise emanating from the various points in the area. In several instances, the sensitive receptors located in the project vicinity are shielded from the construction areas by existing vegetation and by moderate to steep sloping hillsides.

The extent of construction traffic noise impacts to noise sensitive receptors would be minimal and temporary, with traffic being primarily limited to that associated with initial construction mobilization, worker travel, and deliveries (as necessary). As Project grading activities would balance soils on-site, haul trips would not be necessary for grading activities. It is noted that some contaminated soils may be removed from the site as a result of “aprons” of surficial petroleum hydrocarbon impacts surrounding well heads and the potential for “mud pits” on-site. However, the extent of such hauling from these removal activities would be limited (i.e., likely up to several truck trips per day, as necessary) and as such, would not create significant hauling-related mobile noise impacts. Because of the logarithmic nature of traffic noise levels, a doubling of the traffic volume (assuming that the speed of the roadway segment and the mix of trucks on that particular segment do not change) results in a noise level increase of 3.0 dB(A).⁶ The potential removal of contaminated soils from the site and worker trips (less than 40) and deliveries would not result in a doubling of the traffic volumes. Therefore, roadway construction traffic noise would not result in a perceptible noise increase.

Pursuant to Section 4-6-7(e) of the County of Orange Noise Control Ordinance, noise-related construction activities are not permitted between the hours of 8:00 PM to 7:00 AM on weekdays, including Saturday, or at any time on Sunday or Federal Holidays. If construction noise were to occur outside the permitted hours, construction noise would be a potentially significant impact.

Construction activities associated with the Project are expected to create temporary, intermittent, and moderate to high-level noise impacts surrounding the project site when activities occur near the project property line. Construction noise is temporary, intermittent and of short duration, and would not present any long-term impacts. While such noise does not strictly comply with the provisions of the Noise Ordinance of the Codified Ordinances of the County of Orange construction noise impacts are exempt and considered acceptable if carried out within the hours specified in the ordinance and would therefore be considered less

⁶ As previously discussed, a doubling of sound energy results in a 3.0 dB increase in sound.

Table 4.10-5

Construction Noise Levels

Equipment Type	Quantity	Usage Factor ^a	Hours Of Operation ^b	Reference Noise Level @ 50 Feet (Lmax dBA)	Cumulative Level @ 50 Feet (Leq dBA)
Site Preparation					
Scrapers	1	40%	3.2	84.0	80.0
Graders	1	40%	3.2	85.0	81.0
Cumulative Hourly Noise Levels 50 Feet (Leq dBA)					83.6
Grading					
Scrapers	2	40%	3.2	84.0	83.0
Graders	1	40%	3.2	85.0	81.0
Rubber Tired Dozers	1	40%	3.2	79.0	75.0
Excavators	2	40%	3.2	81.0	80.0
Tractors/Loaders/Backhoes	2	40%	3.2	78.0	77.0
Cumulative Hourly Noise Levels 50 Feet (Leq dBA)					87.1
Building					
Tractors/Loaders/Backhoes	3	40%	3.2	78.0	78.8
Forklifts	3	20%	1.6	75.0	72.8
Cranes	1	16%	1.3	81.0	73.0
Generator Sets	1	50%	4.0	81.0	78.0
Welders	1	40%	3.2	74.0	70.0
Cumulative Hourly Noise Levels 50 Feet (Leq dBA)					82.7
Paving					
Pavers	2	50%	4.0	77.0	77.0
Paving Equipment	2	40%	3.2	76.0	75.0
Rollers	2	20%	1.6	80.0	76.0
Cumulative Hourly Noise Levels 50 Feet (Leq dBA)					80.9
Architectural Coating					
Air Compressors	1	40%	3.2	78.0	74.0
Cumulative Hourly Noise Levels 50 Feet (Leq dBA)					74.0

^a Estimates the fraction of time each piece of equipment is operating at full power during a construction operation.

^b Represents the actual hours of peak construction equipment activity out of a typical 8 hour workday.

Source: FHWA's Roadway Construction Noise Model, January 2006.

than significant. Nonetheless, Mitigation Measures 4.10-1 through 4.10-3 have been prescribed to minimize construction noise at the nearby noise sensitive residential land uses.

Properly maintained and operating equipment ensures that such equipment would not exceed manufacturer's specification for operating noise (Mitigation Measure 4.10-1). Motorized equipment is required to be staged at the greatest distance from sensitive receptors to reduce noise impact on sensitive receptors (Mitigation Measure 4.10-2). Construction trips to and from the project site would overlap with construction hours so that no project-related construction activity extends outside of permissible hours (Mitigation Measure 4.10-3).

Mitigation Measures

Mitigation Measure 4.10-1 During all project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site. All operations shall comply with the County of Orange Codified Ordinance Division 6 (Noise Control). The contractor shall produce evidence that the measures are in place prior to issuance of any grading permits and as approved by the County of Orange Manager, Planning Services.

Mitigation Measure 4.10-2 The construction contractor shall locate equipment staging in areas that would create the greatest distance between construction-related noise sources and noise sensitive receptors nearest the project site during all project construction. All operations shall comply with the County of Orange Codified Ordinance Division 6 (Noise Control). Prior to issuance of any grading permits the County of Orange Manager, Planning Services shall approve the location of the staging area.

Mitigation Measure 4.10-3 The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment. Haul routes shall be selected so that trips passing sensitive land uses or residential dwellings will be minimized. Further, haul routes shall be located to avoid concurrent use of haul routes from other related projects where sensitive receptors are located along such routes. Haul routes shall be approved by the Manager, OC Planning Services prior to the issuance of any grading permits.

(2) Operational Noise Impacts

(a) Off-Site Traffic Noise Impacts

Project implementation would result in additional traffic on adjacent roadways, thereby increasing vehicular generated noise in the vicinity of the existing and proposed land uses. The following analyses provide a discussion of the Project's potential to result in noise impacts under Existing (2012), Opening Year (2015) and Horizon Year (2035) traffic conditions.

Existing (2012) Off-Site Noise Conditions

As shown in **Table 4.10-6, Existing Year (2012) Plus Off-Site Project Related Traffic Noise Impacts**, under the "Existing Year (2012) Without Project" scenario, noise levels at a distance of 100 feet from the centerline would range from approximately 45.5 dBA to 67.5 dBA. The highest noise level for the "Without Project" scenario would occur along Yorba Linda Boulevard, east of Lakeview Avenue. Under the "With Project" scenario, noise levels at a distance of 100 feet from the centerline would range from approximately 47.7 dBA to 67.5 dBA. The highest noise level for the "With Project" scenario would occur along Yorba Linda Boulevard both between CA 90 and Lakeview Avenue and east of Lakeview Avenue.

Table 4.10-6

Existing Year (2012) Off-Site Plus Project Related Traffic Noise Impacts

Roadway	Segment	CNEL at 100 Feet from roadway centerline (dBA)			Potential Significant Impact? ^a
		Without Project	With Project	Project Addition	
Lakeview Ave	North of Yorba Linda BL.	62.6	62.6	0.0	No
Lakeview Ave	South of Yorba Linda BL.	63.5	63.5	0.0	No
CA 90	North of Yorba Linda BL.	66.6	66.6	0.0	No
CA 90	South of Yorba Linda BL.	65.9	65.9	0.0	No
Kellogg Drive	South of Yorba Linda BL.	61.1	61.2	0.1	No
Fairmont BL.	North of Yorba Linda BL.	62.3	62.3	0.0	No
Fairmont BL.	South of Yorba Linda BL.	62.1	62.1	0.0	No
Village Center Drive	North of Yorba Linda BL.	63.9	63.9	0.0	No
Village Center Drive	South of Yorba Linda BL.	61.9	62.0	0.1	No
Paseo De Las Palomas	South of Yorba Linda BL.	58.3	58.4	0.1	No
San Antonio Road	North of Aspen Way	55.6	55.9	0.3	No
San Antonio Road	South of Aspen Way	54.7	55.0	0.3	No
San Antonio Road	North of Yorba Linda BL.	55.6	55.9	0.3	No
Yorba Ranch	North of Yorba Linda BL.	50.0	50.0	0.0	No
Yorba Ranch	South of Yorba Linda BL.	57.4	57.4	0.0	No
Via Del Agua	North "A" Street	49.7	49.7	0.0	No
Via Del Agua	South of "A" Street	49.7	53.2	3.5	No
Via Del Agua	North of Yorba Linda BL.	52.7	54.7	2	No
Aspen Way	East of San Antonio Road	45.5	47.7	2.2	No
Yorba Linda BL.	West of CA 90	65.7	65.7	0.0	No
Yorba Linda BL.	Between CA 90 and Lakeview Ave	67.4	67.5	0.1	No
Yorba Linda BL.	East of Lakeview Ave	67.5	67.5	0.0	No
Yorba Linda BL.	West of Kellogg Drive	66.6	66.6	0.0	No
Yorba Linda BL.	East of Kellogg Drive	67.4	67.4	0.0	No
Yorba Linda BL.	East of Fairmont BL.	65.5	65.6	0.1	No
Yorba Linda BL.	West of Village Center Drive	65.0	65.1	0.1	No
Yorba Linda BL.	East of Village Center Drive	66.0	66.1	0.1	No
Yorba Linda BL.	West of Paseo De Las Palomas	66.2	66.3	0.1	No
Yorba Linda BL.	East of Paseo De Las Palomas	66.6	66.7	0.1	No
Yorba Linda BL.	West of Yorba Ranch Road	66.7	66.8	0.1	No
Yorba Linda BL.	East of Yorba Ranch Road	66.5	66.6	0.1	No
Yorba Linda BL.	East of Via Del Agua	66.4	66.4	0.0	No

^a A significant impact occurs when the noise level exceeds 65 dBA CNEL and the Project generates a noise level increase of greater than 3.0 dBA.

Please refer to Table 6-1, Existing (2012) Conditions Noise Contours and Table 6-2, Existing (2012) With Project Conditions Noise Contours in the Noise Study for the distance to the 55, 60, 65, and 70 dBA CNEL noise contours for the study area roadway segments.

Source: Cielo Vista Noise Study, prepared by Urban Crossroads, Inc., dated March 4, 2013.

As shown on Table 4.10-6, the Project would increase the off-site traffic noise levels from 0.0 to 3.5 dBA CNEL on the 32 off-site roadway segments. A significant noise impact would occur when the noise level exceeds 65 dBA CNEL and the Project generates a noise level increase of greater than 3.0 dBA. Per the community noise assessment criteria, since the noise level of 3.5 would not exceed 65 dBA CNEL, off-site traffic noise impacts under Existing Year (2012) traffic conditions would be less than significant.

Opening Year (2015) Off-Site Noise Conditions

As shown in **Table 4.10-7**, *Opening Year (2015) Project Related Traffic Noise Impacts*, under the “Without Project” scenario, noise levels at a distance of 100 feet from the centerline would range from approximately 45.5 dBA to 67.9 dBA. The highest noise level for the “Without Project” scenario would occur along Yorba Linda Boulevard, east of Lakeview Avenue and east of Kellogg Drive. Under the “With Project” scenario, noise levels at a distance of 100 feet from the centerline would range from approximately 47.7 dBA to 67.9 dBA. The highest noise level for the “With Project” scenario would occur along Yorba Linda Boulevard both east of Lakeview Avenue and east of Kellogg Drive.

As shown on Table 4.10-7, the Project would increase the off-site traffic noise levels from 0.0 to 2.2 dBA CNEL on the 32 off-site roadway segments. A significant noise impact would occur when the noise level exceeds 65 dBA CNEL and the Project generates a noise level increase of greater than 3.0 dBA. Per the community noise assessment criteria, since the noise levels would not be increased by greater than 3.0 dBA, off-site traffic noise impacts under Opening Year (2015) traffic conditions would be less than significant.

Opening Year (2015) Access Alternative via Aspen Way Off-Site Noise Conditions

As shown in **Table 4.10-8**, *Opening Year (2015) Access Alternative via Aspen Way Project Related Traffic Noise Impacts*, under both the “Without Project” and “With Project” scenarios, noise levels at a distance of 100 feet from the centerline would range from approximately 50.0 dBA to 67.9 dBA. The highest noise level for both scenarios would occur along Yorba Linda Boulevard both east of Lakeview Avenue and east of Kellogg Drive.

As shown on Table 4.10-8, the Project would increase the off-site traffic noise levels from 0.0 to 3.0 dBA CNEL on the 32 off-site roadway segments. A significant noise impact would occur when the noise level exceeds 65 dBA CNEL and the Project generates a noise level increase of greater than 3.0 dBA. Per the community noise assessment criteria, since the noise levels would not be increased by greater than 3.0 dBA, off-site traffic noise impacts under Opening Year (2015) Access Alternative via Aspen Way traffic conditions would be less than significant.

Horizon Year (2035) Off-Site Noise Conditions

According to **Table 4.10-9**, *Horizon Year (2035) Project Related Traffic Noise Impacts*, under the “Without Project” scenario, noise levels at a distance of 100 feet from the centerline would range from approximately 46.7 dBA to 68.2 dBA. The highest noise levels for “Without Project” scenario would occur along Yorba Linda Boulevard both east of Lakeview Avenue and east of Kellogg Drive. Under the “With Project” scenario, noise levels at a distance of 100 feet from centerline would range from approximately 48.5 dBA to 68.2 dBA. The highest noise levels for “With Project” scenario would occur along Yorba Linda Boulevard within the following three segments: between CA-90 and Lakeview Avenue; east of Lakeview Avenue; and east of Kellogg Drive.

Table 4.10-7

Opening Year (2015) Project Related Traffic Noise Impacts

Roadway	Segment	CNEL at 100 Feet from roadway centerline (dBA)			Potential Significant Impact? ^a
		2015 Without Project	2015 With Project	Project Addition	
Lakeview Ave	North of Yorba Linda BL.	62.8	62.8	0.0	No
Lakeview Ave	South of Yorba Linda BL.	63.9	63.9	0.0	No
CA 90	North of Yorba Linda BL.	66.9	66.9	0.0	No
CA 90	South of Yorba Linda BL.	66.1	66.1	0.0	No
Kellogg Drive	South of Yorba Linda BL.	61.7	61.7	0.0	No
Fairmont BL.	North of Yorba Linda BL.	63.1	63.1	0.0	No
Fairmont BL.	South of Yorba Linda BL.	62.4	62.4	0.0	No
Village Center Drive	North of Yorba Linda BL.	64.2	64.2	0.0	No
Village Center Drive	South of Yorba Linda BL.	62.2	62.2	0.0	No
Paseo De Las Palomas	South of Yorba Linda BL.	58.7	58.8	0.1	No
San Antonio Road	North of Aspen Way	55.7	56.0	0.3	No
San Antonio Road	South of Aspen Way	54.8	55.0	0.2	No
San Antonio Road	North of Yorba Linda BL.	55.7	56.0	0.3	No
Yorba Ranch	North of Yorba Linda BL.	50.0	50.0	0.0	No
Yorba Ranch	South of Yorba Linda BL.	57.6	57.6	0.0	No
Via Del Agua	North "A" Street	55.7	55.7	0.0	No
Via Del Agua	South of "A" Street	55.7	56.8	1.1	No
Via Del Agua	North of Yorba Linda BL.	56.7	57.6	0.9	No
Aspen Way	East of San Antonio Road	45.5	47.7	2.2	No
Yorba Linda BL.	West of CA 90	65.9	66.0	0.1	No
Yorba Linda BL.	Between CA 90 and Lakeview Ave	67.8	67.8	0.0	No
Yorba Linda BL.	East of Lakeview Ave	67.9	67.9	0.0	No
Yorba Linda BL.	West of Kellogg Drive	67.1	67.1	0.0	No
Yorba Linda BL.	East of Kellogg Drive	67.9	67.9	0.0	No
Yorba Linda BL.	East of Fairmont BL.	66.0	66.1	0.1	No
Yorba Linda BL.	West of Village Center Drive	65.5	65.6	0.1	No
Yorba Linda BL.	East of Village Center Drive	66.6	66.7	0.1	No
Yorba Linda BL.	West of Paseo De Las Palomas	66.8	66.9	0.1	No
Yorba Linda BL.	East of Paseo De Las Palomas	67.2	67.2	0.0	No
Yorba Linda BL.	West of Yorba Ranch Road	67.2	67.3	0.1	No
Yorba Linda BL.	East of Yorba Ranch Road	67.1	67.2	0.1	No
Yorba Linda BL.	East of Via Del Agua	66.7	66.7	0.0	No

^a A significant impact occurs when the noise level exceeds 65 dBA CNEL and the Project generates a noise level increase of greater than 3.0 dBA.

Please refer to Table 6-3, Year 2015 Without Project Conditions Noise Contours and Table 6-4, Year 2015 With Project Conditions Noise Contours in the Noise Study for the distance to the 55, 60, 65, and 70 dBA CNEL noise contours for the study area roadway segments.

Source: Cielo Vista Noise Study, prepared by Urban Crossroads, Inc., dated March 4, 2013.

Table 4.10-8

Opening Year (2015) Access Alternative via Aspen Way Project Related Traffic Noise Impacts

Roadway	Segment	CNEL at 100 Feet from roadway centerline (dBA)			Potential Significant Impact? ^a
		2015 Without Project	2015 With Project	Project Addition	
Lakeview Ave	North of Yorba Linda BL.	62.8	62.8	0.0	No
Lakeview Ave	South of Yorba Linda BL.	63.9	63.9	0.0	No
CA 90	North of Yorba Linda BL.	66.9	66.9	0.0	No
CA 90	South of Yorba Linda BL.	66.1	66.1	0.0	No
Kellogg Drive	South of Yorba Linda BL.	61.7	61.7	0.0	No
Fairmont BL.	North of Yorba Linda BL.	63.1	63.1	0.0	No
Fairmont BL.	South of Yorba Linda BL.	62.4	62.4	0.0	No
Village Center Drive	North of Yorba Linda BL.	64.2	64.2	0.0	No
Village Center Drive	South of Yorba Linda BL.	62.2	62.2	0.0	No
Paseo De Las Palomas	South of Yorba Linda BL.	58.7	58.8	0.1	No
San Antonio Road	North of Aspen Way	59.0	59.1	0.1	No
San Antonio Road	South of Aspen Way	58.6	58.8	0.2	No
San Antonio Road	North of Yorba Linda BL.	59.0	59.1	0.1	No
Yorba Ranch	North of Yorba Linda BL.	50.0	50.0	0.0	No
Yorba Ranch	South of Yorba Linda BL.	57.6	57.6	0.0	No
Via Del Agua	North "A" Street	50.2	50.2	0.0	No
Via Del Agua	South of "A" Street	50.2	53.2	3.0	No
Via Del Agua	North of Yorba Linda BL.	52.7	54.7	2.0	No
Aspen Way	East of San Antonio Road	56.7	56.8	0.1	No
Yorba Linda BL.	West of CA 90	65.9	66.0	0.1	No
Yorba Linda BL.	Between CA 90 and Lakeview Ave	67.8	67.8	0.0	No
Yorba Linda BL.	East of Lakeview Ave	67.9	67.9	0.0	No
Yorba Linda BL.	West of Kellogg Drive	67.1	67.1	0.0	No
Yorba Linda BL.	East of Kellogg Drive	67.9	67.9	0.0	No

Table 4.10-8 (Continued)**Opening Year (2015) Access Alternative via Aspen Way Off-Site Project Related Traffic Noise Impacts**

Roadway	Segment	CNEL at 100 Feet from roadway centerline (dBA)			Potential Significant Impact? ^a
		2015 Without Project	2015 With Project	Project Addition	
Yorba Linda BL.	East of Fairmont BL.	66.0	66.1	0.1	No
Yorba Linda BL.	West of Village Center Drive	65.5	65.6	0.1	No
Yorba Linda BL.	East of Village Center Drive	66.6	66.7	0.1	No
Yorba Linda BL.	West of Paseo De Las Palomas	66.8	66.9	0.1	No
Yorba Linda BL.	East of Paseo De Las Palomas	67.2	67.2	0.0	No
Yorba Linda BL.	West of Yorba Ranch Road	67.1	67.2	0.1	No
Yorba Linda BL.	East of Yorba Ranch Road	66.9	67.0	0.1	No
Yorba Linda BL.	East of Via Del Agua	66.8	66.9	0.1	No

^a A significant impact occurs when the noise level exceeds 65 dBA CNEL and the Project generates a noise level increase of greater than 3.0 dBA. Please refer to Table 6-5, Year 2015 Without Project Conditions Noise Contours (Access Alternative Via Aspen Way) and Table 6-6, Year 2015 Without Project Conditions Noise Contours (Access Alternative Via Aspen Way) in the Noise Study for the distance to the 55, 60, 65, and 70 dBA CNEL noise contours for the study area roadway segments.

Source: Cielo Vista Noise Study, prepared by Urban Crossroads, Inc., dated March 4, 2013.

As shown on Table 4.10-9, the Project would increase the off-site traffic noise levels from 0.0 to 1.8 dBA CNEL on the 32 off-site roadway segments. A significant noise impact would occur when the noise level exceeds 65 dBA CNEL and the Project generates a noise level increase of greater than 3.0 dBA. Per the community noise assessment criteria, off-site traffic noise impacts under Horizon Year (2035) traffic conditions would be less than significant.

Horizon Year (2035) Access Alternative via Aspen Way Off-Site Noise Conditions

According to **Table 4.10-10**, *Horizon Year (2035) Access Alternative via Aspen Way Project Related Traffic Noise Impacts*, under both the “Without Project” and “With Project” scenarios, noise levels at a distance of 100 feet from the centerline would range from approximately 50.6 dBA to 68.2 dBA. The highest noise levels for the “Without Project” scenario would occur along Yorba Linda Boulevard both east of Lakeview Avenue and east of Kellogg Drive. The highest noise levels for “With Project” scenario would occur along Yorba Linda Boulevard within the following three segments: between CA-90 and Lakeview Avenue; east of Lakeview Avenue; and east of Kellogg Drive.

Table 4.10-9

Horizon Year (2035) Project Related Traffic Noise Impacts

Roadway	Segment	CNEL at 100 Feet from roadway centerline (dBA)			Potential Significant Impact? ^a
		2035 Without Project	2035 With Project	Project Addition	
Lakeview Ave	North of Yorba Linda BL.	64.3	64.3	0.0	No
Lakeview Ave	South of Yorba Linda BL.	64.8	64.8	0.0	No
CA 90	North of Yorba Linda BL.	67.3	67.3	0.0	No
CA 90	South of Yorba Linda BL.	66.5	66.5	0.0	No
Kellogg Drive	South of Yorba Linda BL.	62.1	62.1	0.0	No
Fairmont BL.	North of Yorba Linda BL.	64.0	64.0	0.0	No
Fairmont BL.	South of Yorba Linda BL.	62.7	62.7	0.0	No
Village Center Drive	North of Yorba Linda BL.	64.6	64.6	0.0	No
Village Center Drive	South of Yorba Linda BL.	62.5	62.5	0.0	No
Paseo De Las Palomas	South of Yorba Linda BL.	58.8	58.9	0.1	No
San Antonio Road	North of Aspen Way	57.7	58.1	0.4	No
San Antonio Road	South of Aspen Way	55.6	55.9	0.3	No
San Antonio Road	North of Yorba Linda BL.	57.7	57.9	0.2	No
Yorba Ranch	North of Yorba Linda BL.	50.6	50.6	0.0	No
Yorba Ranch	South of Yorba Linda BL.	58.4	58.4	0.0	No
Via Del Agua	North "A" Street	56.1	56.1	0.0	No
Via Del Agua	South of "A" Street	56.4	57.3	0.9	No
Via Del Agua	North of Yorba Linda BL.	57.3	58.1	0.8	No
Aspen Way	East of San Antonio Road	46.7	48.5	1.8	No
Yorba Linda BL.	West of CA 90	66.3	66.3	0.0	No
Yorba Linda BL.	Between CA 90 and Lakeview Ave	68.1	68.2	0.1	No
Yorba Linda BL.	East of Lakeview Ave	68.2	68.2	0.0	No
Yorba Linda BL.	West of Kellogg Drive	67.3	67.4	0.1	No
Yorba Linda BL.	East of Kellogg Drive	68.2	68.2	0.0	No
Yorba Linda BL.	East of Fairmont BL.	66.2	66.2	0.0	No
Yorba Linda BL.	West of Village Center Drive	65.7	65.7	0.0	No
Yorba Linda BL.	East of Village Center Drive	66.7	66.8	0.1	No
Yorba Linda BL.	West of Paseo De Las Palomas	67.0	67.0	0.0	No

Table 4.10-9 (Continued)

Roadway	Segment	CNEL at 100 Feet from roadway centerline (dBA)			Potential Significant Impact? ^a
		2035 Without Project	2035 With Project	Project Addition	
Yorba Linda BL.	East of Paseo De Las Palomas	67.3	67.4	0.1	No
Yorba Linda BL.	West of Yorba Ranch Road	67.9	68.0	0.1	No
Yorba Linda BL.	East of Yorba Ranch Road	67.7	67.8	0.1	No
Yorba Linda BL.	East of Via Del Agua	67.4	67.4	0.0	No

^a A significant impact occurs when the noise level exceeds 65 dBA CNEL and the Project generates a noise level increase of greater than 3.0 dBA.

Please refer to Table 6-7, Year 2035 Without Project Conditions Noise Contours and Table 6-8, Year 2035 With Project Conditions Noise Contours in the Noise Study for the distance to the 55, 60, 65, and 70 dBA CNEL noise contours for the study area roadway segments.

Source: Cielo Vista Noise Study, prepared by Urban Crossroads, Inc., dated March 4, 2013.

As shown on Table 4.10-10, the Project would increase the off-site traffic noise levels from 0.0 to 2.3 dBA CNEL on the 32 off-site roadway segments. A significant noise impact would occur when the noise level exceeds 65 dBA CNEL and the Project generates a noise level increase of greater than 3.0 dBA. Per the community noise assessment criteria, off-site traffic noise impacts under Horizon Year (2035) Access Alternative via Aspen Way traffic conditions would be less than significant.

(b) On-Site Traffic Noise Impacts

It is expected that the primary source of noise impacts on the project site would be traffic noise from neighboring roads such as Aspen Way and Via Del Agua and, furthermore, the 2015 and 2035 projected noise levels do not exceed the exterior standard of 65 dBA CNEL. However, it is important to recognize that the project site is not located directly adjacent to these neighboring roads, and the proposed homes within the project site would benefit from the noise attenuation provided by the intervening residential homes that separate the Project from these roads. The Project would also experience some background traffic noise impacts from the Project's internal roads. However, due to the distance, topography and low traffic volume/speed, traffic noise from these roads would not make a significant contribution to the noise environment.

Since the project site is not located immediately adjacent to any collector, secondary, major or arterial roadway, the expected exterior noise levels would not approach or exceed the County of Orange 65 dBA CNEL exterior noise criteria. While the lots within the project site are generally located at distances of

Table 4.10-10

Horizon Year (2035) Access Alternative via Aspen Way Project Related Traffic Noise Impacts

Roadway	Segment	CNEL at 100 Feet from roadway centerline (dBA)			Potential Significant Impact? ^a
		2035 Without Project	2035 With Project	Project Addition	
Lakeview Ave	North of Yorba Linda BL.	64.3	64.3	0.0	No
Lakeview Ave	South of Yorba Linda BL.	64.8	64.8	0.0	No
CA 90	North of Yorba Linda BL.	67.3	67.3	0.0	No
CA 90	South of Yorba Linda BL.	66.5	66.5	0.0	No
Kellogg Drive	South of Yorba Linda BL.	62.1	62.1	0.0	No
Fairmont BL.	North of Yorba Linda BL.	64.0	64.0	0.0	No
Fairmont BL.	South of Yorba Linda BL.	62.7	62.7	0.0	No
Village Center Drive	North of Yorba Linda BL.	64.6	64.6	0.0	No
Village Center Drive	South of Yorba Linda BL.	62.5	62.5	0.0	No
Paseo De Las Palomas	South of Yorba Linda BL.	58.8	58.9	0.1	No
San Antonio Road	North of Aspen Way	60.0	60.1	0.1	No
San Antonio Road	South of Aspen Way	59.0	59.1	0.1	No
San Antonio Road	North of Yorba Linda BL.	60.0	60.1	0.1	No
Yorba Ranch	North of Yorba Linda BL.	50.6	50.6	0.0	No
Yorba Ranch	South of Yorba Linda BL.	58.4	58.4	0.0	No
Via Del Agua	North "A" Street	51.1	51.1	0.0	No
Via Del Agua	South of "A" Street	51.8	54.1	2.3	No
Via Del Agua	North of Yorba Linda BL.	54.1	55.6	1.5	No
Aspen Way	East of San Antonio Road	56.7	56.9	0.2	No
Yorba Linda BL.	West of CA 90	66.3	66.3	0.0	No
Yorba Linda BL.	Between CA 90 and Lakeview Ave	68.1	68.2	0.1	No
Yorba Linda BL.	East of Lakeview Ave	68.2	68.2	0.0	No
Yorba Linda BL.	West of Kellogg Drive	67.3	67.4	0.1	No

Table 4.10-10 (Continued)

Horizon Year (2035) Access Alternative via Aspen Way Project Related Traffic Noise Impacts

Roadway	Segment	CNEL at 100 Feet from roadway centerline (dBA)			Potential Significant Impact? ^a
		2035 Without Project	2035 With Project	Project Addition	
Yorba Linda BL.	East of Kellogg Drive	68.2	68.2	0.0	No
Yorba Linda BL.	East of Fairmont BL.	66.2	66.2	0.0	No
Yorba Linda BL.	West of Village Center Drive	65.7	65.7	0.0	No
Yorba Linda BL.	East of Village Center Drive	66.7	66.8	0.1	No
Yorba Linda BL.	West of Paseo De Las Palomas	67.0	67.0	0.0	No
Yorba Linda BL.	East of Paseo De Las Palomas	67.3	67.4	0.1	No
Yorba Linda BL.	West of Yorba Ranch Road	67.8	67.9	0.1	No
Yorba Linda BL.	East of Yorba Ranch Road	67.6	67.7	0.1	No
Yorba Linda BL.	East of Via Del Agua	67.5	67.6	0.1	No

^a A significant impact occurs when the noise level exceeds 65 dBA CNEL and the Project generates a noise level increase of greater than 3.0 dBA.

Please refer to Table 6-9 Year 2035 Without Project Conditions Noise Contours (Access Alternative Via Aspen Way) and Table 6-10, Year 2035 With Project Conditions Noise Contours (Access Alternative Via Aspen Way) in the Noise Study for the distance to the 55, 60, 65, and 70 dBA CNEL noise contours for the study area roadway segments.

Source: Cielo Vista Noise Study, prepared by Urban Crossroads, Inc., dated March 4, 2013.

greater than 100 feet from any roadway, the expected exterior noise levels have been calculated using a conservative reference distance of 100 feet. At a distance of 100 feet, the unmitigated exterior noise levels from the nearest streets (Aspen Way, Via Del Agua) are expected to range from 51.1 to 56.7 dBA CNEL. The County of Orange General Plan Policy 6.5 indicates that all outdoor living areas associated with new residential uses shall be attenuated to less than 65 dBA CNEL. The Project would be consistent with this policy. Also, there are no known noise generators impacting the Project that would result in outdoor noise levels exceeding 65 dBA CNEL. Therefore, no exterior noise mitigation is required.

Though the project site does not contain noise sensitive exterior areas requiring noise mitigation (e.g. noise barriers), the interior noise level impacts must not exceed the County of Orange 45 dBA CNEL interior noise level standard. Standard building construction would reduce the exterior noise levels by 12 dBA CNEL with the windows open. With exterior noise level of less than 56.7 dBA CNEL, standard building construction and a windows open condition would satisfy the County of Orange interior noise standard of 45 dBA CNEL. Therefore, impacts associated with on-site noise sources would be less than significant.

(c) Stationary Noise Sources

The project site and surrounding area primarily consists of residential uses with schools and parks uses located within the project vicinity. The primary sources of stationary noise that would occur within the project site and surrounding area include typical activities of residential-related activities (e.g., mechanical equipment, parking areas, conversations (normal to loud), and recreational areas). These activities do not generate excessive amounts of noise, typically occur during daytime hours, and would be shielded by vegetation and moderate to steep sloping hillsides and masked by background traffic noise. Therefore, impacts associated with these stationary noise sources would be less than significant.

In addition, a 1.8-acre parcel located in Planning Area 1 is proposed for interim continued oil operations including consolidation of wells relocated from the rest of the project site. Oil wells can generate noise levels of up to approximately 60 dB at 100 feet (without screening).⁷ Noise levels from oil wells depends on the type of motor and pump utilized, in addition to screening. No residences on lots adjacent to the drilling pad area would be permitted within 150 feet of any surface operational well or within 50 feet of a subsurface pumping unit/well enclosed within a concrete vault, or as otherwise approved by the OCFA. Without any screening and dependent on the type of wells utilized, Project residents could be exposed to noise levels that exceed 55 dBA Leq during daytime hours or 50 dBA Leq during the nighttime hours established for residential areas by the County for non-transportation noise sources. Thus, such impacts are considered to be potentially significant. Mitigation Measure 4.10-4 has been prescribed to ensure that noise from oil well operations would result in less than significant impacts to Project residents. Through methods such as screening, motor dampening, and nighttime shutdown, this mitigation measure would ensure that operational noise associated with the oil wells does not exceed County noise standards.

Mitigation Measures

Mitigation Measure 4.10-4 The Project Applicant shall retain the services of a qualified acoustical engineer with expertise in design of sound isolations to ensure that operation of the on-site oil well facilities are within County's exterior noise limits at the property line of the nearest proposed residential lot. Noise measures may include, but are not limited to, screening of oil facilities, motor dampening, and/or nighttime shutdown so as to meet the County's noise requirements. Screening, if necessary, could include landscaping and/or sound wall. The acoustics analysis of the oil well facilities shall be reviewed and approved by the Manager, OC Planning, or his designee prior to issuance of building permits for the oil well facilities.

GROUNDBORNE VIBRATION AND NOISE

Threshold	Would the Project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?
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4.10-2 *Implementation of the Project would not result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. Impacts would be less than significant in this regard.*

⁷ *Plains Exploration and Production – Phase V Oil Field Expansion Conditional Use Permit Initial Study, San Luis Obispo County Department of Planning and Building, 2008.*

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants. Construction vibrations can be transient, random, or continuous. Transient construction vibrations are generated by blasting, impact pile driving, and wrecking balls. Continuous vibrations result from vibratory pile drivers, large pumps, horizontal directional drilling, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment. A review of the project related construction activities suggests the vibration impacts would be limited to the large bulldozers and loaded trucks that may cause perceptible vibration levels at close proximity.

However, according to the Transportation and Construction-Induced Vibration Guidance Manual prepared for Caltrans, ground-borne vibration from construction activities and equipment such as such as D-8 and D-9 Caterpillars bulldozers, earthmovers and haul trucks at distances of 10 feet do not create vibration amplitudes that causes structural damage to nearby structures. Since the Project is not expected to employ any transient construction vibrations associated with pile driving or rock blasting equipment and with the nearest receivers located over 50 feet from the nearest point of construction activities, impacts from groundborne vibration are anticipated to be less-than-significant during construction activities.

In addition to the construction related activities, operational activities, including the potential oil production activities on the drilling pad, at the project site would not include nor require equipment, facilities, or activities that would result in perceptible ground-borne vibration, thus creating no ground borne vibration impacts.

CONSISTENCY WITH COUNTY OF ORANGE AND CITY OF YORBA LINDA PLANS AND POLICIES

(1) County of Orange General Plan

The County's General Plan contains a goals and policies that are relevant to noise, which are presented in the Noise Element. As discussed below in **Table 4.10-11**, *Project Consistency with Orange County General Plan*, the Project would be consistent with the applicable goals and policies of the County of Orange General Plan pertaining to noise.

Table 4.10-11

Project Consistency with Orange County General Plan

Goals, Objectives and Policies	Project Consistency
<i>Noise Element</i>	
General Plan's Major Land Use Element Policies	
<p>Policy 4.1 To enforce the County's Noise Ordinance to prohibit or mitigate harmful and unnecessary noise within the County.</p>	<p>Consistent. As discussed within this Section, the Project would comply with the County's Noise Ordinance during both construction and operation of the Project. Operational noise impacts associated with the Project would be less than significant with implementation of the prescribed mitigation measure relating to oil facility operations. While construction noise may temporarily exceed levels permitted by the County of Orange Noise Ordinance, such noise is treated as being in compliance if it occurs during the designated construction hours. As the Project's construction activities would occur during the designated construction hours, the Project would comply with the Noise Ordinance. Accordingly, construction noise impacts would be less than significant. Nonetheless, Mitigation Measures 4.10-1 through 4.10-3 have been prescribed to minimize construction noise to the extent feasible at the nearby noise sensitive residential land uses.</p>
<p>Goal 5 To fully integrate noise considerations in land use planning to prevent new noise/land use conflicts.</p>	<p>Consistent. The Project's proposed single-family land uses are consistent with the County's land uses envisioned for the project site, per the County's Land Use Element. The Project's single-family uses would be a similar land use as those existing within the adjacent single-family neighborhoods to the north, south and west of the project site. Noise sources and levels within the project site would be similar to those in the adjacent neighborhoods.</p>
<p>Policy 5.1 To utilize the criteria of acceptable noise levels for various types of land uses as depicted in Table VIII-2 (in the County of Orange General Plan Noise Element) in the review of development proposals.</p>	<p>Consistent. As discussed within this Section, operation of the project would result in less than significant long-term noise impacts on and off project site with implementation of the prescribed mitigation measure relating to oil facility operations. The Project's proposed residential uses would be within the acceptable noise levels as depicted in Table VIII-2 in the County's General Plan.</p>
<p>Policy 5.4 To stress the importance of building and design techniques in future site planning for noise reduction.</p>	<p>Consistent. Conditions of approval would be applied to the Project requiring all residential units developed within the project site to be constructed in accordance with the County adopted noise standards for interior noise levels, assuming standard structural noise reduction(s).</p>
<p>Goal 6 To identify and employ mitigation measures in order to reduce the impact of noise levels and attain the standards established by the Noise Element, for both interior areas and outdoor living areas for noise sensitive land uses.</p>	<p>Consistent. As discussed within this Section, as the Project would comply with the County of Orange Noise Ordinance, construction noise impacts would be less than significant. Nonetheless, Mitigation Measures 4.10-1 through 4.10-3 have been prescribed to minimize construction noise to the extent feasible at the nearby noise sensitive residential land uses. During project operation, Project residents and surrounding noise</p>

Table 4.10-11 (Continued)

Project Consistency with Orange County General Plan

Goals, Objectives and Policies	Project Consistency
	sensitive receptors would not be exposed to interior or exterior noise levels that would exceed the standards established by the Noise Element with implementation of the prescribed mitigation measure relating to oil facility operations.
Policy 6.2 To continue enforcement of Chapter 35 of the Uniform Building Code, currently adopted edition, and the California Noise Insulation Standards (Title 25 California Administrative Code).	Consistent. All new residences developed by the Project would be constructed in accordance with the applicable provisions of Chapter 35 of the Uniform Building Code and the California Noise Insulation Standards (Title 25 California Administrative Code).
Policy 6.3 To require that all new residential units have an interior noise level in living areas that is not greater than 45 decibels CNEL with it being understood that standard construction practices reduce the noise level by 12 decibels CNEL with the windows open and 20 decibels CNEL with the windows closed. Higher attenuation than listed above may be claimed if adequate field monitoring or acoustical studies are provided to and approved by the County.	Consistent. Conditions of approval would be applied to the Project requiring all residential units developed within the project site to be constructed in accordance with the County adopted noise standards for interior noise levels.
Policy 6.4 To require that all new residential units have an interior noise level in habitable rooms that does not exceed acceptable levels as caused by aircraft fly-overs or as caused by individual passing railroad trains.	Consistent. Conditions of approval would be applied to the Project requiring all residential units developed within the project site to be constructed in accordance with the County adopted noise standards for interior noise levels. Further, the project site and future residential development would not be subject to excessive noise from aircraft flyovers and/or railroad noise.
Policy 6.5 All outdoor living areas associated with new residential uses shall be attenuated to less than 65 decibels CNEL.	Consistent. Mitigation has been prescribed for the Project to ensure that noise from oil well operations results in less than significant impacts to Project residents. Otherwise, there are no known noise generators impacting the Project that would result in outdoor noise levels exceeding 65 CNEL. Conditions of approval would be applied to the Project requiring all residential uses within the project site to be constructed in accordance with the County adopted noise standards.
Policy 6.7 To apply noise standards as defined in the Noise Element for noise-sensitive land uses.	Consistent. Conditions of approval would be applied to the Project requiring all residential units developed within the project site to be constructed in accordance with the County adopted noise standards for interior noise levels.

Source PCR Services Corporation, 2013.

(2) City of Yorba Linda General Plan

The City’s General Plan contains goals and policies that are relevant to noise in the General Plan Noise Element. As discussed below in **Table 4.10-12**, *Project Consistency with Yorba Linda General Plan*, the Project would be potentially consistent with the applicable goals and policies of the City of Yorba Linda General Plan pertaining to noise. The notation of “Potentially Consistent” is in deference to the City’s authority for making such determinations for projects located within the city limits.

Table 4.10-12

Project Consistency with Yorba Linda General Plan

Goals, Objectives and Policies	Project Consistency
Noise Element	
Goal 5: Project approvals that include conditions to mitigate noise impacts.	<p>Potentially Consistent. Construction activities associated with the Project are expected to create temporary, intermittent, and moderate to high level noise impacts surrounding the project site when activities occur near the project property line. However, the City’s Noise Control Ordinance exempts construction activities from compliance with the City’s noise standards provided that such activities do not occur between 8:00 p.m. and 7:00 a.m. Monday through Saturday and do not occur at all on Sundays and federal holidays. Notwithstanding, mitigation is proposed to require proper operation and maintenance of construction equipment; require equipment staging areas to be located away from adjacent and nearby homes; and require the hauling routes not pass close to sensitive land uses or residential dwellings, if possible.</p> <p>Mitigation has been prescribed for the Project to ensure that noise from oil well operations results in less than significant impacts to Project residents. Otherwise, Project operation (once the homes are occupied) is not expected to create an exceedance of the City noise standards within the community.</p>
Policy 3.2: Develop and implement measures to reduce noise generated by construction activities.	

Source PCR Services Corporation, 2013.

3. CUMULATIVE IMPACTS

4.10-3 The Project combined with the related projects would not result in substantial adverse effects related to noise in the project area. Thus, cumulative noise impacts would be less than significant.

As discussed in Section 3.0 of this EIR, there are 18 related projects in the surrounding areas. The potential for noise impacts to occur are specific to the location of each related project as well as the cumulative traffic on the surrounding roadway network. While the majority of these projects are located at a substantial distance from the project site and are considered too far to contribute to cumulative noise impacts from construction activities, Related Project No. 1, a residential development, is located within 500 feet from the project site. Therefore, this project could have contributions to overall cumulative noise impacts.

(1) Cumulative Construction Noise/Vibration Impacts

Noise from on-site construction activities are localized and would normally affect the areas within 500 feet from the individual construction sites due to distance attenuation.⁸ While construction activities for Related Project No. 1 could overlap with the Project, it is not anticipated that the Project would contribute to cumulatively considerable noise impacts from construction equipment to the sensitive receptors located to the west, south and north of the Project site as no existing sensitive receptors are located within 1,000 feet of any areas where both the Project's and Related Project No. 1's construction activities (grading, building, etc.) could occur simultaneously.⁹ Further, noise associated with construction equipment would be reduced to the maximum extent reasonably and technically feasible through proposed mitigation measures for each individual project and compliance with the County's noise ordinances. Thus, cumulative construction equipment noise impacts would be less than significant.

However, potentially significant short-term cumulative impacts from construction traffic noise could occur at the noise sensitive receptors if trucks and delivery vehicles from the Project and the related project would use the same roadways that have adjacent sensitive uses. Per Mitigation Measure 4.14-1 (refer to Section 4.14, *Traffic/Transportation*, of this EIR), the Project, as well as the adjacent Esperanza Hills project, would be required to prepare a Construction Staging and Traffic Management Plan to be implemented during construction of the Project. This Plan would consider related project construction traffic and construction traffic noise and pedestrian safety related to school routes, which include the residential streets near the project site. These residential streets include the noise sensitive receptors. The Plan would effectively manage the volume of cumulative construction traffic which would in turn serve to reduce potential construction-related traffic noise impacts. In addition, Mitigation Measure 4.10-3 requires that haul routes be located to avoid concurrent use of haul routes from other related projects where the Project's haul routes occur on roadways with adjacent sensitive receptors. Construction traffic noise levels would be intermittent, temporary and would cease at the end of the construction phase, and would be expected to comply with time restrictions and other relevant provisions in the County's Noise Ordinance. Based on these considerations, including implementation of Mitigation Measures 4.10-3 and 4.14-1, potentially significant cumulative construction traffic noise impacts would be reduced to a less than significant level.

Due to the rapid attenuation characteristics of ground-borne vibration and distance of the related projects to the project site, including the Esperanza Hills Project as discussed above, there is no potential for a cumulative construction impact with respect to ground-borne vibration.

(2) Cumulative Operational Noise/Vibration Impacts

(a) Stationary Noise

The primary sources of stationary noise that would occur within the project site and surrounding area include typical activities of residential-related activities (e.g., mechanical equipment, parking areas,

⁸ Noise levels diminish with distance from a construction site at a rate of 6 dBA per doubling of distance. For example, a noise level of 87 dBA measured at 50 feet would be reduced by approximately 20 dBA measured at 500 feet. When considering two sources of noise, if one noise source is 10 dBA or less than the second source, there is no perceived increase in the total noise level. This is due to the logarithmic addition of noise – for example, 87 dBA plus 77 dBA is equivalent to 87.4 dBA, which is an imperceptible increase in noise relative to 87 dBA. The effect is even more pronounced when there is a 20 dBA difference between two noise sources – for example, 87 dBA plus 67 dBA is equivalent to 87.0 dBA (no perceived increase).

⁹ While there are noise sensitive receptors located adjacent to the project site along Dorinda Road and Stonehaven Drive to the west and south of the project site, respectively, these residences are located just over 1,000 feet from where noise intensive construction activities would occur associated with the Esperanza Hills Project.

conversations (normal to loud), and recreational areas). These activities do not generate excessive amounts of noise, typically occur during daytime hours, and would be shielded in some areas by vegetation and moderate to steep sloping hillsides and masked by background traffic noise. Future on-site oil-related activities would be shielded or otherwise designed, as necessary, to comply with applicable noise standards (per Mitigation Measure 4.10-4). Furthermore, future development projects such as the Esperanza Hills Project would require separate discretionary approval and CEQA assessment on a project-by-project basis, which would address potential noise impacts and identify necessary attenuation measures, where appropriate. Thus, cumulative noise exposure for long-term operations would result in a less than significant impact.

(b) Traffic Noise

The cumulative mobile noise analysis is conducted in a two-step process. First, the combined effects from both the Project and other related projects are compared, including the Esperanza Hills Project. Second, for combined effects that are determined to be cumulatively significant, the Project's incremental effects then are analyzed. The Project's contribution to a cumulative traffic noise increase would be considered significant when the combined effect exceeds perception level (i.e., auditory level increase) threshold. The combined effect compares the "Horizon Year (2035) With Project" or the "Horizon Year (2035) Access Alternative via Aspen Way" condition to "existing conditions." This comparison accounts for the traffic noise increase from the Project generated in combination with traffic generated by projects in the related projects list, including the Esperanza Hill Project. It is noted that only five (5) of the 18 related projects are anticipated to be occupied in 2015. As such, it follows that the 2035 scenario would generate the highest levels of cumulative mobile source noise. As the County does not have a defined threshold for determining cumulative noise impacts, for purposes of this analysis, the following criteria have been utilized to evaluate the combined effects of the cumulative noise increase.

Combined Effects: The cumulative with project noise level ("Horizon Year [2035] With Project" or the "Horizon Year (2035) Access Alternative via Aspen Way") causes the following:

- An increase of the existing noise level by 5 dBA or more, where the existing level is less than 60 dBA CNEL;
- An increase of the existing noise level by 3 dBA or more, where the existing level is 60 to 65 dBA CNEL; or
- An increase of the existing noise level by 1.5 dBA or more, where the existing level is greater than 65 dBA CNEL.

Although there may be a significant noise increase due to the Project in combination with other related projects (combined effects), it must also be demonstrated that the Project has an incremental effect. In other words, a significant portion of the noise increase must be due to the Project. The following criteria have been utilized to evaluate the incremental effect of the cumulative noise increase.

Incremental Effects: The "Horizon Year (2035) With Project" or the "Horizon Year (2035) Access Alternative via Aspen Way" causes a 1 dBA increase in noise over the "Horizon Year (2035) Without Project" or the "Horizon Year (2035) Access Alternative via Aspen Way Without Project" noise level, respectively.

A significant impact would result only if both the combined and incremental effects criteria have been exceeded. Noise by definition is a localized phenomenon, and drastically reduces as distance from the source increases. Consequently, only proposed projects and growth due to occur in the general vicinity of the

Project would contribute to cumulative noise impacts. **Table 4.10-13**, *Cumulative Noise Scenario*, and **Table 4.10-14**, *Cumulative Noise Scenario (Access Alternative via Aspen Way)*, list the traffic noise effects along roadway segments in the project vicinity for “Existing Without Project” and Horizon Year 2035 traffic conditions and indicate the incremental and net cumulative noise effect.

Per Table 4.10-13 and Table 4.10-14, the *Combined Effects and Incremental Effects* criteria are not both exceeded along any of the area roadways studied. Thus, the Project would not result in long-term cumulative mobile noise impacts based on Project generated traffic or cumulative and incremental noise levels.

(c) Vibration

During operation of the Project, there would be no equipment, facilities, or activities that would result in perceptible ground-borne vibration to surrounding land use, thus creating no ground borne vibration impacts from the Project, as discussed in the Project impacts analysis above under Impact Statement 4.10-2. Thus, there is no potential for a cumulative operational impact with respect to ground-borne vibration.

4. REFERENCES

Cielo Vista Noise Study. Urban Crossroads, Inc. March 4, 2013.

FHWA’s Roadway Construction Noise Model. January 2006.

Table 4.10-13

Cumulative Noise Scenario

		CNEL at 100 feet from roadway centerline (dBA)						
Roadway	Segment	Existing Without Project	Horizon Year (2035)		Combined Effects (Difference In dBA between Existing Without Project and Horizon Year (2035) With Project)	Incremental Effects (Difference in dBA between Long-Term (2035) With Project and Horizon Year (2035) Without Project)	Cumulatively Significant Impact	
			Without Project	With Project				
Lakeview Ave	North of Yorba Linda BL.	62.6	64.3	64.3	1.7	0.0	No	
Lakeview Ave	South of Yorba Linda BL.	63.5	64.8	64.8	1.3	0.0	No	
CA 90	North of Yorba Linda BL.	66.6	67.3	67.3	0.7	0.0	No	
CA 90	South of Yorba Linda BL.	65.9	66.5	66.5	0.6	0.0	No	
Kellogg Drive	South of Yorba Linda BL.	61.1	62.1	62.1	1.0	0.0	No	
Fairmont BL.	North of Yorba Linda BL.	62.3	64.0	64.0	1.7	0.0	No	
Fairmont BL.	South of Yorba Linda BL.	62.1	62.7	62.7	0.6	0.0	No	
Village Center Drive	North of Yorba Linda BL.	63.9	64.6	64.6	0.7	0.0	No	
Village Center Drive	South of Yorba Linda BL.	61.9	62.5	62.5	0.6	0.0	No	
Paseo De Las Palomas	South of Yorba Linda BL.	58.3	58.8	58.9	0.6	0.1	No	
San Antonio Road	North of Aspen Way	55.6	57.7	58.1	2.5	0.4	No	
San Antonio Road	South of Aspen Way	54.7	55.6	55.9	1.2	0.3	No	
San Antonio Road	North of Yorba Linda BL.	55.6	57.7	57.9	2.3	0.2	No	
Yorba Ranch	North of Yorba Linda BL.	50.0	50.6	50.6	0.6	0.0	No	
Yorba Ranch	South of Yorba Linda BL.	57.4	58.4	58.4	1.0	0.0	No	
Via Del Agua	North "A" Street	49.7	56.1	56.1	6.4	0.0	No	

Table 4.10-13 (Continued)

Cumulative Noise Scenario

		CNEL at 100 feet from roadway centerline (dBA)					
Roadway	Segment	Existing Without Project	Horizon Year (2035)		Combined Effects (Difference In dBA between Existing Without Project and Horizon Year (2035) With Project)	Incremental Effects (Difference in dBA between Long-Term (2035) With Project and Horizon Year (2035) Without Project)	Cumulatively Significant Impact
			Without Project	With Project			
Via Del Agua	South of "A" Street	49.7	56.4	57.3	7.6	0.9	No
Via Del Agua	North of Yorba Linda BL.	52.7	57.3	58.1	5.4	0.8	No
Aspen Way	East of San Antonio Road	45.5	46.7	48.5	3.0	1.8	No
Yorba Linda BL.	West of CA 90	65.7	66.3	66.3	0.6	0.0	No
Yorba Linda BL.	Between CA 90 and Lakeview Ave	67.4	68.1	68.2	0.8	0.1	No
Yorba Linda BL.	East of Lakeview Ave	67.5	68.2	68.2	0.7	0.0	No
Yorba Linda BL.	West of Kellogg Drive	66.6	67.3	67.4	0.8	0.1	No
Yorba Linda BL.	East of Kellogg Drive	67.4	68.2	68.2	0.8	0.0	No
Yorba Linda BL.	East of Fairmont BL.	65.5	66.2	66.2	0.7	0.0	No
Yorba Linda BL.	West of Village Center Drive	65.0	65.7	65.7	0.7	0.0	No
Yorba Linda BL.	East of Village Center Drive	66.0	66.7	66.8	0.8	0.1	No
Yorba Linda BL.	West of Paseo De Las Palomas	66.2	67.0	67.0	0.8	0.0	No
Yorba Linda BL.	East of Paseo De Las Palomas	66.6	67.3	67.4	0.8	0.1	No
Yorba Linda BL.	West of Yorba Ranch Road	66.7	67.9	68.0	1.3	0.1	No

Table 4.10-13 (Continued)

Cumulative Noise Scenario

Roadway	Segment	CNEL at 100 feet from roadway centerline (dBA)					Incremental Effects (Difference in dBA between Long-Term (2035) With Project and Horizon Year (2035) Without Project)	Cumulatively Significant Impact
		Existing Without Project	Horizon Year (2035) Without Project	Horizon Year (2035) With Project	Combined Effects (Difference In dBA between Existing Without Project and Horizon Year (2035) With Project)	Horizon Year (2035) Without Project		
Yorba Linda BL.	East of Yorba Ranch Road	66.5	67.7	67.8	1.2	0.1	No	
Yorba Linda BL.	East of Via Del Agua	66.4	67.4	67.4	1.2	0.1	No	

Please refer to Table 6-1, Existing (2012) Conditions Noise Contours, Table 6-7, Year 2035 Without Project Conditions Noise Contours and Table 6-8, Year 2035 With Project Conditions Noise Contours in the Noise Study for the distance to the 55, 60, 65, and 70 dBA CNEL noise contours for the study area roadway segments.

Source: Cielo Vista Noise Study, prepared by Urban Crossroads, Inc., dated March 4, 2013; and PCR, 2012.

Table 4.10-14

Cumulative Noise Scenario (Access Alternative via Aspen Way)

Roadway	Segment	CNEL at 100 feet from roadway centerline (dBA)					Incremental Effects (Difference in dBA between Long-Term (2035) With Project and Horizon Year (2035) (Access Alternative via Aspen Way) Without Project)	Cumulatively Significant Impact
		Existing Without Project	Horizon Year (2035) (Access Alternative via Aspen Way) Without Project	Horizon Year (2035) (Access Alternative via Aspen Way) With Project	Combined Effects (Difference In dBA Between Existing Without Project and Horizon Year (2035) (Access Alternative via Aspen Way) With Project)	Horizon Year (2035) (Access Alternative via Aspen Way) Without Project		
Lakeview Ave	North of Yorba Linda BL.	62.6	64.3	64.3	1.7	0.0	No	
Lakeview Ave	South of Yorba Linda BL.	63.5	64.8	64.8	1.3	0.0	No	
CA 90	North of Yorba Linda BL.	66.6	67.3	67.3	0.7	0.0	No	
CA 90	South of Yorba Linda BL.	65.9	66.5	66.5	0.6	0.0	No	
Kellogg Drive	South of Yorba Linda BL.	61.1	62.1	62.1	1.0	0.0	No	
Fairmont BL.	North of Yorba Linda BL.	62.3	64.0	64.0	1.7	0.0	No	
Fairmont BL.	South of Yorba Linda BL.	62.1	62.7	62.7	0.6	0.0	No	
Village Center Drive	North of Yorba Linda BL.	63.9	64.6	64.6	0.7	0.0	No	
Village Center Drive	South of Yorba Linda BL.	61.9	62.5	62.5	0.6	0.0	No	
Paseo De Las Palomas	South of Yorba Linda BL.	58.3	58.8	58.9	0.6	0.1	No	
San Antonio Road	North of Aspen Way	55.6	60.0	60.1	4.5	0.1	No	
San Antonio Road	South of Aspen Way	54.7	59.0	59.1	4.4	0.1	No	
San Antonio Road	North of Yorba Linda BL.	55.6	60.0	60.1	4.5	0.1	No	
Yorba Ranch	North of Yorba Linda BL.	50.0	50.6	50.6	0.6	0.0	No	
Yorba Ranch	South of Yorba Linda BL.	57.4	58.4	58.4	1.0	0.0	No	

Table 4.10-14 (Continued)

Cumulative Noise Scenario (Access Alternative via Aspen Way)

Roadway	Segment	CNEL at 100 feet from roadway centerline (dBA)					Incremental Effects (Difference in dBA between Long-Term (2035) With Project and Horizon Year (2035) (Access Alternative via Aspen Way) Without Project)	Cumulatively Significant Impact
		Existing Without Project	Horizon Year (2035) (Access Alternative via Aspen Way) Without Project	Horizon Year (2035) (Access Alternative via Aspen Way) With Project	Combined Effects (Difference In dBA Between Existing Without Project and Horizon Year (2035) (Access Alternative via Aspen Way) With Project)	Horizon Year (2035) (Access Alternative via Aspen Way) Without Project		
Via Del Agua	North "A" Street	49.7	51.1	51.1	1.4	0.0	No	
Via Del Agua	South of "A" Street	49.7	51.8	54.1	4.4	2.3	No	
Via Del Agua	North of Yorba Linda BL.	52.7	54.1	55.6	2.9	1.5	No	
Aspen Way	East of San Antonio Road	45.5	56.7	56.9	11.4	0.2	No	
Yorba Linda BL.	West of CA 90	65.7	66.3	66.3	0.6	0.0	No	
Yorba Linda BL.	Between CA 90 and Lakeview Ave	67.4	68.1	68.2	0.8	0.1	No	
Yorba Linda BL.	East of Lakeview Ave	67.5	68.2	68.2	0.7	0.0	No	
Yorba Linda BL.	West of Kellogg Drive	66.6	67.3	67.4	0.8	0.1	No	
Yorba Linda BL.	East of Kellogg Drive	67.4	68.2	68.2	0.8	0.0	No	
Yorba Linda BL.	East of Fairmont BL.	65.5	66.2	66.2	0.7	0.0	No	
Yorba Linda BL.	West of Village Center Drive	65.0	65.7	65.7	0.7	0.0	No	
Yorba Linda BL.	East of Village Center Drive	66.0	66.7	66.8	0.8	0.1	No	
Yorba Linda BL.	West of Paseo De Las Palomas	66.2	67.0	67.0	0.8	0.0	No	
Yorba Linda BL.	East of Paseo De Las Palomas	66.6	67.3	67.4	0.8	0.1	No	
Yorba Linda BL.	West of Yorba Ranch Road	66.7	67.8	67.9	1.2	0.1	No	

Table 4.10-14 (Continued)

Cumulative Noise Scenario (Access Alternative via Aspen Way)

Roadway	Segment	CNEL at 100 feet from roadway centerline (dBA)					Incremental Effects (Difference in dBA between Long-Term (2035) With Project and Horizon Year (2035) (Access Alternative via Aspen Way) Without Project)	Cumulatively Significant Impact
		Existing Without Project	Horizon Year (2035) (Access Alternative via Aspen Way) Without Project	Horizon Year (2035) (Access Alternative via Aspen Way) With Project	Combined Effects (Difference In dBA Between Existing Without Project and Horizon Year (2035) (Access Alternative via Aspen Way) With Project)	Horizon Year (2035) (Access Alternative via Aspen Way) With Project		
Yorba Linda BL.	East of Yorba Ranch Road	66.5	67.6	67.7	1.2	0.1	No	
Yorba Linda BL.	East of Via Del Agua	66.4	67.5	67.6	1.2	0.1	No	

Please refer to Table 6-1, Existing (2012) Conditions Noise Contours, Table 6-9, Year 2035 Without Project Conditions Noise Contours (Access Alternative Via Aspen Way) and Table 6-10, Year 2035 With Project Conditions Noise Contours (Access Alternative Via Aspen Way) in the Noise Study for the distance to the 55, 60, 65, and 70 dBA CNEL noise contours for the study area roadway segments.

Source: Cielo Vista Noise Study, prepared by Urban Crossroads, Inc., dated March 4, 2013; and PCR, 2012.