

4.6 NOISE

4.6.1 INTRODUCTION

This section evaluates the potential noise impacts related to development of the Amoruso Ranch Specific Plan (ARSP or Proposed Project), describes the existing noise environment within the project site, and identifies noise levels expected to be generated by construction and operation of the Proposed Project. Sensitive receptors that may potentially be affected by noise are identified, as well as the criteria used to evaluate the effects of project-generated noise on the existing noise environment. The discussion also describes the fundamentals of acoustics, the results of a site reconnaissance, sound level measurements, acoustical calculations, and assessment of potential noise impacts from construction and operation of the Proposed Project. This information is summarized from the following technical studies:

- *City of Roseville General Plan 2025*, as amended June 2015 (City of Roseville, 2015a)
- *Creekview Specific Plan Final EIR*, April 2011 (City of Roseville, 2011a)
- *City of Roseville Noise Ordinance*
- *Amoruso Ranch Specific Plan EIR Environmental Noise Assessment*, December 2015 (j.c. brennan & associates, Inc., 2015)

The documents listed above are available for review during normal business hours (Monday through Friday 8 a.m. to 5 p.m.) at:

City of Roseville Permit Center

311 Vernon Street
Roseville, CA 95678

In response to the Notice of Preparation (NOP; **Appendix C**), the Sacramento County Airport System (SCAS) provided information regarding the arrival flight paths and current operational schedules for McClellan Airfield (MCC), Sacramento International Airport (SMF), Beale Air Force Base (Beale), and Mather Airport (MHR) to assist the City of Roseville in determining whether further assessment is necessary to fully consider the potential for single event noise impacts on residents and other sensitive receptors proposed to be located in the project site.

The Placer County Community Development Resource Agency (PCCDRA) stated that the Proposed Project is adjacent to the Agriculture/Fairgrounds Relocation Area of the Sunset Industrial Area (SIA) Plan and is located beyond Placer County's (County) one-mile residential development buffer from the Western Regional Sanitary Landfill (WRSL) and landfill expansion area. PCCDRA commented that the Environmental Impact Report (EIR) should address noise impacts related to both the SIA and the WRSL. PCCDRA also stated that the noise analysis should determine the appropriate locations and materials for sound walls adjacent to and along Sunset Boulevard West and the future Placer Parkway roadway and examine the need for noise mitigation along Sunset Boulevard West. PCCDRA further stated that the developer should be required to construct the soundwalls prior to the commencement of building construction.

Other members of the public stated that the Draft EIR should address noise impacts to residences in Toad Hill Ranches. Refer to **Appendix C** of this EIR to view the comments received on the Proposed Project in response to the NOP.

4.6.2 ENVIRONMENTAL SETTING

Characteristics of Environmental Noise

Noise is generally defined as a loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity and that interferes with or disrupts normal activities. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise; the perceived importance of the noise, and its appropriateness in the setting; the time of day and the type of activity during which the noise occurs; and the sensitivity of the individual.

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air, and are sensed by the human ear. Sound is generally characterized by frequency and intensity. Frequency describes the pitch of the sound and is measured in Hertz (Hz), while intensity describes the sound's loudness and is measured in decibels (dB). Decibels are measured using a logarithmic scale. A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB. Sound levels above approximately 120 dB begin to be felt inside the human ear as discomfort, and sound levels approaching 140 dB are nearing the threshold of pain (Caltrans, 1998). The minimum change in the sound level of individual events that an average human ear can detect is about one to two dB. However, the average healthy ear can barely perceive noise level changes of 3.0 dB. A change in sound level of about 10 dB is usually perceived by the average person as a doubling or a halving of the sound's loudness (Caltrans, 1998).

Due to the logarithmic nature of the dB unit, sound levels cannot be added or subtracted directly and are somewhat cumbersome to handle mathematically; however, some simple rules are useful in dealing with sound levels. First, if a sound's intensity is doubled, the sound level increases by 3.0 dB, regardless of the initial sound level. For example: $60 \text{ dB} + 60 \text{ dB} = 63 \text{ dB}$, and $80 \text{ dB} + 80 \text{ dB} = 83 \text{ dB}$.

Sound level is usually expressed by reference to a known standard. This report refers to sound pressure level. In expressing sound pressure on a logarithmic scale, the sound pressure is compared to a reference value of 20 micropascals. Sound pressure levels depend not only on the power of the source, but also on the distance from the source and on the acoustical characteristics of the space surrounding the source.

Hz is a measure of how many times each second the crest of a sound pressure wave passes a fixed point. For example, when a drummer beats a drum, the skin of the drum vibrates a number of times per second. When the drum skin vibrates 100 times per second it generates a sound pressure wave that is oscillating at 100 Hz, and this pressure oscillation is perceived by the ear/brain as a tonal pitch of 100 Hz. Sound frequencies between 20 and 20,000 Hz are within the range of sensitivity of the best human ear.

Sound from a tuning fork contains a single frequency (a pure tone); however, most sounds one hears in the environment do not consist of a single frequency but rather a band of frequencies differing in sound levels. The method commonly used to quantify environmental sounds consists of evaluating all frequencies of a sound according to a weighting system that reflects the fact that human hearing is less sensitive at low frequencies and high frequencies and more sensitive at mid-range frequencies. This is called “A weighting,” and the dB level measured is called the A-weighted decibel (dBA). In practice, the level of a noise source is conveniently measured using a sound level meter that includes a filter corresponding to the dBA curve.

Although the dBA may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noises include a mixture of noises from distant sources that create a relatively steady background noise in which no particular source is identifiable. A single descriptor called the equivalent sound level (L_{eq}) may be used to describe sound that is changing in level. L_{eq} is the energy-mean dBA during a measured time interval. It is the “equivalent” constant sound level that would have to be produced by a given source to equal the acoustic energy contained in the fluctuating sound level measured. In addition to the energy-average level, it is often desirable to know the acoustic range of the noise source being measured. This is accomplished through the maximum L_{eq} (L_{max}) and minimum L_{eq} (L_{min}) indicators that represent the root-mean-square maximum and minimum noise levels measured during the monitoring interval. The L_{min} value obtained for a particular monitoring location is often called the acoustic floor for that location.

To describe time-varying character of environmental noise, the statistical noise descriptors L10, L50, and L90 are commonly used. They are the noise levels equaled or exceeded by 10 percent, 50 percent, and 90 percent of the measured time interval. Sound levels associated with the L10 typically describe transient or short-term events; half of the sounds during the measurement interval are softer than L50 and half are louder; and levels associated with L90 often describe background noise conditions and/or continuous, steady-state sound sources.

Finally, another sound measure known as the Day-Night Average Noise Level (L_{dn}) describes noise exposure over a 24-hour period. It is calculated by adding a 10-dB penalty to sound levels at night (10:00 p.m. to 7:00 a.m.) to compensate for the increased sensitivity to noise during the quieter evening and nighttime hours. The L_{dn} is used by jurisdictions (such as the State of California and Placer and Sacramento Counties, as well as the City of Roseville) to define acceptable land use compatibility with respect to noise. For purposes of this study, and in light of the Proposed Project’s acoustical environment, peak hour noise levels are expressed in terms of L_{dn} . Sound levels of typical noise sources and environments are provided in **Table 4.6-1** to provide a frame of reference.

Existing Noise Conditions

Transportation

Motor vehicle traffic is a major contributor to the existing transportation noise along the northern boundary of the project site. Vehicular noise within the immediate project vicinity occurs primarily along Sunset Boulevard West.

TABLE 4.6-1
TYPICAL NOISE LEVELS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Rock Band	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft)	--100--	
Gas Lawn Mower at 1 m (3 ft)	--90--	
Diesel Truck at 15 m (50 ft), at 80 km/hr (50 mph)	--80--	Food Blender at 1m (3 ft) Garage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft)	--70--	Vaccum Cleaner at 3 m (10 ft)
Commercial Area Heavy Traffic at 90 m (300 ft)	--60--	Normal Speech at 1 m (3 ft)
Quiet Urban Nighttime	--40--	Theatre, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing
Source: Caltrans, 1998.		

Aircraft Noise

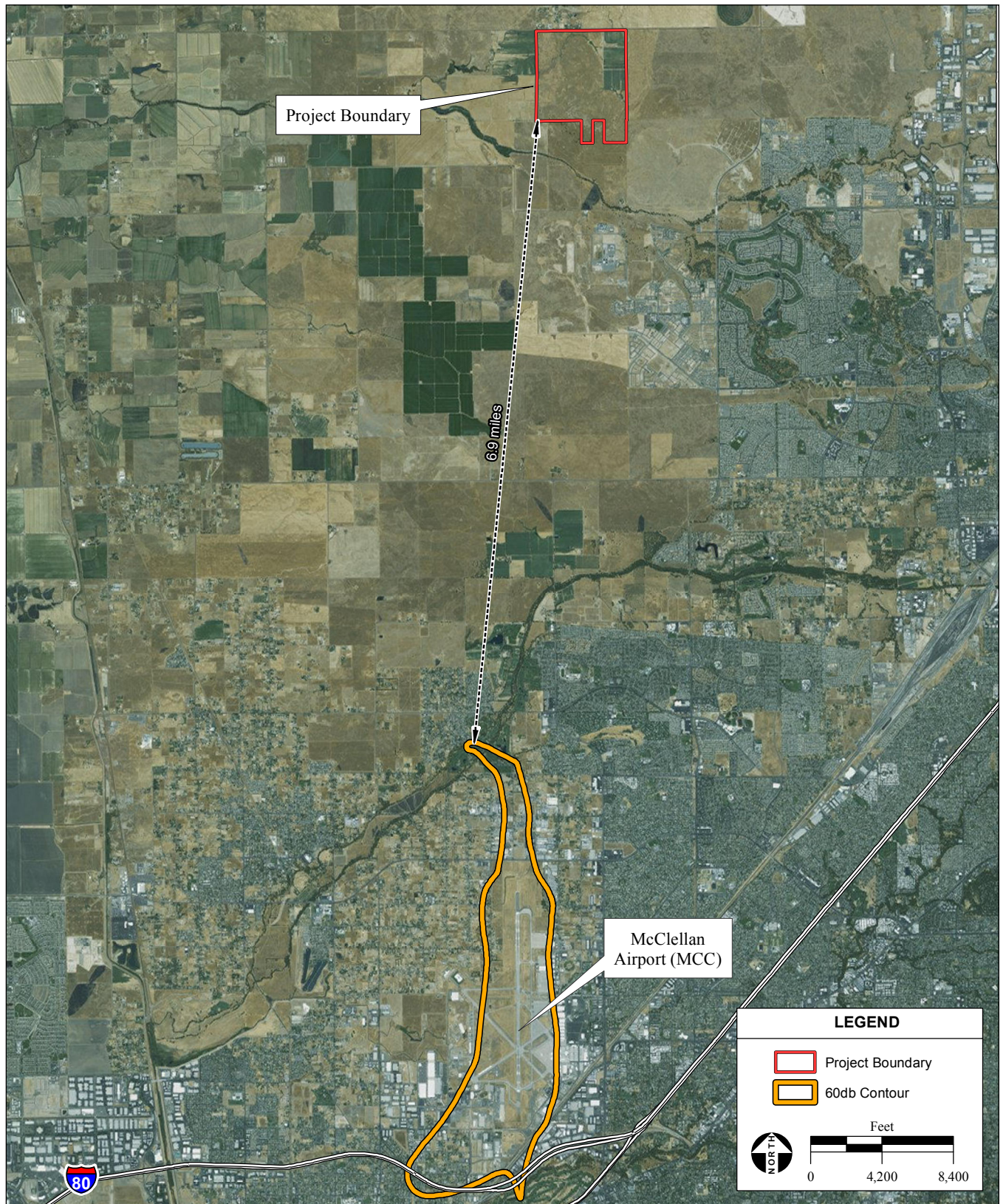
MCC is located approximately 8.25 miles south of the project site. **Figure 4.6-1** shows the noise contours for the MCC relative to the project site. MCC is owned by Sacramento County, and the County of Sacramento Economic Development and Marketing Division oversees MCC, which features a 10,600 foot lighted runway approved for day/night use, which is shared by the U.S. Coast Guard. The airfield also hosts a full-service fixed base operator served by McClellan Jet Services. The airfield is available for both daytime and nighttime use. The airfield could experience 70,000 or more flight operations per year. A flight operation is defined as a take-off or landing. While MCC is no longer a military facility, military air traffic including helicopters and large Coast Guard cargo planes continue to use the air field. The other types of flights that may use MCC are small jets and other general aviation planes. The types and number of flight operations at MCC are subject to Federal Aviation Administration (FAA) regulations.

While the Sacramento Area Council of Governments (SACOG) is the Airport Land Use Commission (ALUC) for the airfield, it does not regulate the number and types of aircraft that use the facility. The project site is also under the flight track for aircraft flying to the SMF and trainer jets flying between Beale and MHR.

For airports within Placer County such as the Lincoln Airport, Placer County Transportation Planning Agency (PCTPA) is the ALUC.

Non-Transportation

In the immediate vicinity of the Proposed Project, there are no substantial sources of non-transportation noise. The City of Roseville Energy Park (REP) power facility located approximately 1.1 miles south of



SOURCE: JC Brennan & Associates, 2005; Microsoft aerial photograph, 2/2/2012; AES, 2014

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Figure 4.6-1
McClellan 60 Decibel (CNEL) Noise Contour

the project site is audible at times, but is not a primary noise generator at the project site. Noise monitoring was conducted on January 4, 5, and 6, 2014 (j.c. brennan & associates, Inc., 2015) to determine whether there would be an increase in ambient noise levels within the project site during times the REP is operational. REP noise levels were measured at less than 41 dB L_{eq} during normal operations. **Figure 4.6-2** below shows the location of the REP noise contours in the vicinity of the Proposed Project. **Figure 4.6-2** indicates that the project site falls outside of the 50 dB L_{eq} and 45 dB L_{eq} noise contour zones of the REP. Therefore, noise levels within the project site do not exceed the City's 55 dB L_{eq} noise level standard for municipal power plants.

Also, ambient noise from operational activities at the WRS located approximately 1.8 miles to the northeast of the site may be audible at times, but this facility is not a primary source of noise at the project site. Some agricultural noise occurs periodically in the project vicinity. However, lands adjacent to the project site are used primarily for cattle grazing, which does not involve intensive use of agricultural equipment.

Existing Noise Levels

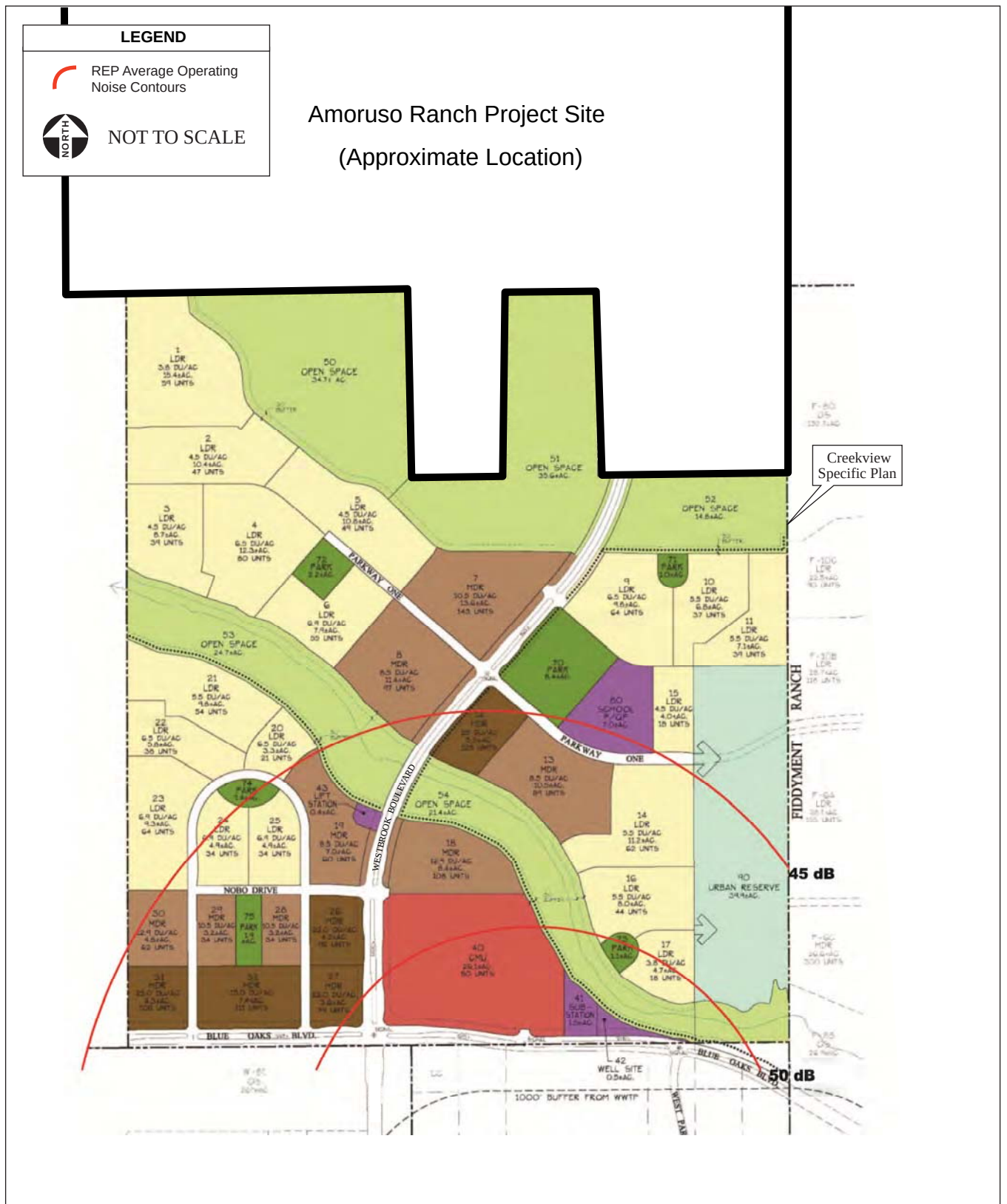
Existing Traffic Noise Levels

To describe existing noise levels due to traffic, the Federal Highway Administration (FHWA) Traffic Noise Prediction Model (FHWA RD-77-108) was used. Direct inputs to the model included traffic volumes provided by Fehr and Peers Transportation Consultants. The FHWA model is based upon the Calven reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. To predict L_{dn} /Community Noise Equivalent Level (CNEL) values, it is necessary to determine the day/night distribution of traffic and adjust the traffic volume input data to yield an equivalent hourly traffic volume. **Table 4.6-2** shows the results of this analysis. Appendix B of the *Environmental Noise Analysis* (**Appendix O**) provides the complete inputs and results for the FHWA traffic noise prediction modeling (j.c. brennan & associates, Inc., 2015).

As shown in **Table 4.6-2**, most of the study area roadways exceed the City of Roseville General Plan noise standards of 60 L_{dn} at the closest sensitive receptors, except for the segment of Fiddymont Road, north of Blue Oaks Boulevard and the segments of Sunset Boulevard West.

Existing Aviation Noise Levels

Based upon comments on the NOP received from the SCAS, the project site is located under the flight path of current and planned future operations at MCC and SMF as well as military training jets transitioning between Beale and MHR. According to these comments, the area is subject to aircraft overflights by large aircraft at altitudes less than 3,000 feet above mean sea level (msl) which may cause annoyance to residential or other sensitive uses. Based upon analysis conducted by the SCAS, the project site is likely to experience overflights by propeller and turbo-prop aircraft arriving at MCC approximately six times per day, commercial jet aircraft arriving at SMF approximately three times per day and military supersonic jet training aircraft transitioning between Beale and MHR approximately two times per day for a total of 11 overflights per day.



SOURCE: Amoruso Ranch Specific Plan, 2016; AES, 2/18/2016

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Figure 4.6-2
Roseville Energy Park (REP) Noise Contours

TABLE 4.6-2
EXISTING (2014) NO PROJECT TRAFFIC NOISE LEVELS

Roadway	Segment	Traffic Noise Level at Closest Sensitive Receptors ¹ , L _{dn} (dBA)	Distance to Contours (feet) ²		
			70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}
Blue Oaks Blvd.	W. of Fiddymment	52.7	6	14	29
Blue Oaks Blvd.	Fiddymment to Woodcreek Oaks	61.9	27	59	127
Blue Oaks Blvd.	Woodcreek Oaks to Foothills	63.0	38	81	174
Blue Oaks Blvd.	Foothills to Washington	69.4	91	196	423
Pleasant Grove Blvd.	W. of Fiddymment	60.0	16	35	76
Pleasant Grove Blvd.	Fiddymment to Woodcreek Oaks	63.7	29	62	133
Pleasant Grove Blvd.	Woodcreek Oaks to Foothills	63.3	36	77	167
Pleasant Grove Blvd.	Foothills to Washington	66.2	42	90	195
Pleasant Grove Blvd.	Washington to Roseville Pkwy	64.7	45	96	207
Pleasant Grove Blvd.	Roseville Pkwy to SR 65	63.6	47	101	217
Pleasant Grove Road	North of Baseline	55.4	12	25	54
Baseline Road	W. of Fiddymment	60.3	25	54	116
Baseline Road	Fiddymment to Junction	58.4	19	40	86
Baseline Road	Junction to Woodcreek Oaks	60.9	19	40	86
Baseline Road	Woodcreek to Foothills	62.2	23	49	105
Baseline Road	Foothills to Washington	66.9	31	67	144
Junction Blvd.	Baseline to Woodcreek Oaks	59.1	14	30	65
Junction Blvd.	Woodcreek Oaks to Foothills	60.5	15	32	70
Junction Blvd.	Foothills to Washington	61.1	17	36	77
Roseville Pkwy	Washington to Pleasant Grove	59.4	20	42	91
Roseville Pkwy	E. of Pleasant Grove	63.8	43	92	197
Sunset Blvd. West	Pleasant Grove to Amoruso	50.6	16	35	76
Sunset Blvd. West	Amoruso to Westbrook	51.0	18	38	81
Fiddymment Road	N. of Blue Oaks	57.0	14	31	66
Fiddymment Road	Blue Oaks to Pleasant Grove	60.8	22	47	102
Fiddymment Road	Pleasant Grove to Baseline	62.9	30	65	140
Woodcreek Oaks Blvd.	N. of Blue Oaks	57.9	13	29	62
Woodcreek Oaks Blvd.	Blue Oaks to Pleasant Grove	59.2	17	37	79
Woodcreek Oaks Blvd.	Pleasant Grove to Junction	58.4	17	37	79
Woodcreek Oaks Blvd.	Junction to Baseline	57.8	11	23	50
Foothills Blvd.	N. of Blue Oaks	61.8	28	61	132
Foothills Blvd.	Blue Oaks to Pleasant Grove	61.8	21	46	98
Foothills Blvd.	Pleasant Grove to Junction	62.8	33	72	154
Foothills Blvd.	Junction to Baseline	64.5	32	69	150
Foothills Blvd.	S. of Baseline	66.3	37	79	170
Washington Blvd.	Blue Oaks to Roseville Pkwy	60.6	24	51	110
Washington Blvd.	Roseville Pkwy to Pleasant Grove	58.9	20	43	94
Washington Blvd.	Pleasant Grove to Junction	61.9	25	53	114
Washington Blvd.	Junction Baseline	70.0	55	119	257

1 - Traffic noise levels are predicted at the sensitive receptors located at the closest typical setback distance along each study roadway segment. A conservative adjustment of -5 dB is assumed where noise barriers are located adjacent to the majority of sensitive receptors, or where outdoor activity areas are located behind residences.

2 - Distances are measured from the centerline of the roadway.

Source: j.c. brennan & associates, Inc., 2015 (**Appendix O**).

The SCAS previously conducted aircraft noise monitoring on the Creekview Specific Plan (CSP) Area south of the project site during the week of December 14 through 20, 2006 using their portable noise monitoring and flight tracking system. The Airport Noise and Operations Monitoring System (ANMS) is a state-of-the-art noise monitoring and flight tracking system. The system enables the SCAS to monitor the amount of noise being generated over the communities surrounding the Sacramento County airports by the aircraft operating at each airport. The ANMS collects, analyzes and processes data from a number of sources of information including four portable noise monitors, FAA radar data, and noise complaints. The noise monitoring report developed by SCAS indicates that daily CNEL noise levels due to aircraft operations ranged between 38-50 dB CNEL with an average of 42 daily overflights for the CSP Area. Sound Exposure Levels (SEL) for individual aircraft were also collected and reported. These values were used by j.c. brennan & associates, Inc. to conservatively estimate the potential for sleep disturbance due to individual aircraft overflights at the project site.

Existing Ambient Noise Level

To quantify existing ambient noise levels in the vicinity of the project site, j.c. brennan & associates, Inc. staff conducted continuous (24-hour) noise level measurements at two locations on the project site.

Figure 4.6-3 identifies noise measurement locations. The noise level measurements were conducted between January 4th and 6th, 2014. The noise level measurements were conducted to determine typical background noise levels for comparison to the project-related noise levels. **Table 4.6-3** shows a summary of the noise measurement results. Appendix C of the *Noise Analysis (Appendix O)* provides the complete results of the continuous ambient noise measurements. It should be noted that the REP was in operation during the noise monitoring period.

TABLE 4.6-3
EXISTING CONDITIONS CONTINUOUS (24 HOUR) NOISE MONITORING RESULTS

Site	Location	Date	Average Measured Hourly Noise Levels, (dBA)						
			24-hr	Daytime (7:00 am – 10:00 pm)			Nighttime (10:00 pm – 7 am)		
				L _{dn}	L _{eq}	L ₅₀	L _{max}	L _{eq}	L ₅₀
A	Project Site North	Saturday 1/4/14	60	56	46	76	53	32	72
		Sunday 1/5/14	58	54	42	75	51	31	71
		Monday 1/6/14	60	56	47	74	53	34	70
B	Project Site South	Saturday 1/4/14	43	43	38	54	33	30	50
		Sunday 1/5/14	44	39	32	55	37	31	50
		Monday 1/6/14	43	42	35	58	35	31	46
Source: j.c. brennan & associates, Inc. 2015.									

Source: j.c. brennan & associates, Inc. 2015.

Audible Increases in Noise Levels

Table 4.6-4 shows typical human perception of noise level increases and is commonly used to show expected public reaction to changes in environmental noise levels. This table was developed on the basis of test subjects' reactions to changes in the levels of steady-state pure tones or broad-band noise and to changes in levels of a given noise source. It is likely most applicable to noise levels in the range of 50 to 70 dBA, as this is the usual range of voice and interior noise levels.

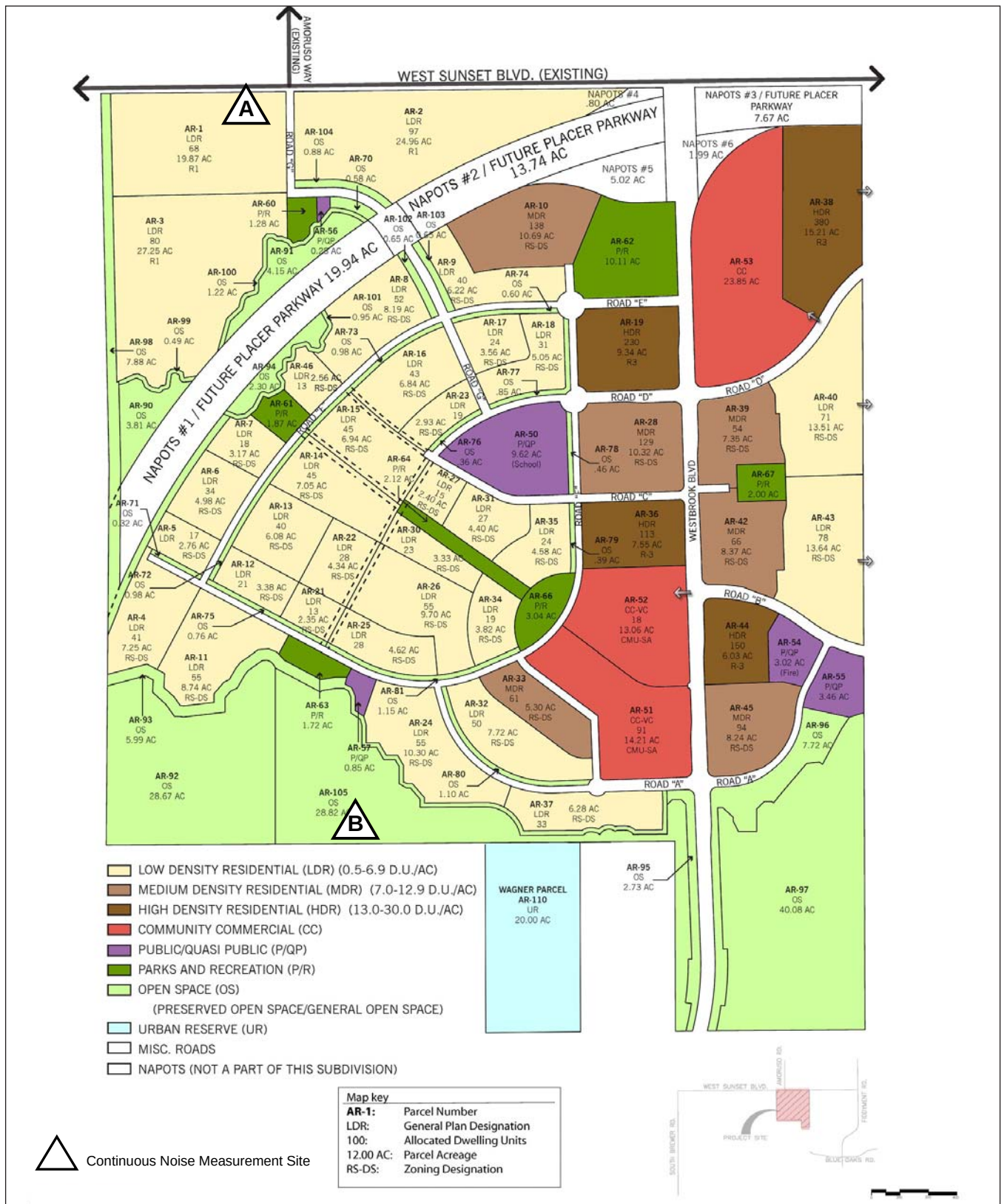


TABLE 4.6-4
SUBJECTIVE REACTION TO CHANGES IN NOISE LEVELS OF SIMILAR SOURCES

Change in Level, dBA	Subjective Reaction	Factor Change in Acoustical Energy
1	Imperceptible (Except for Tones)	1.3
3	Just Barely Perceptible	2.0
6	Clearly Noticeable	4.0
10	About Twice (or half) as Loud	10.0
Source: Egan, 1988		

4.6.3 REGULATORY SETTING

Federal

There are no federal regulations related to noise that apply to the Proposed Project.

State

The State Building Code, Title 24, Part 2 of the California Code of Regulations (CCR) establishes uniform minimum noise insulation performance standards to protect persons within new buildings which house people, including hotels, motels, dormitories, apartment houses and dwellings other than single-family dwellings. Title 24 mandates that interior noise levels attributable to exterior sources shall not exceed 45 dB L_{dn} or CNEL in any habitable room. Title 24 also mandates that for structures containing noise-sensitive uses to be located where the L_{dn} or CNEL exceeds 60 dB, an acoustical analysis must be prepared to identify mechanisms for limiting exterior noise to the prescribed allowable interior levels. If the interior allowable noise levels are met by requiring that windows be kept closed, the design for the structure must also specify a ventilation or air conditioning system to provide a habitable interior environment.

Local

City of Roseville

The City of Roseville General Plan Noise Element provides the following goals and policies relative to noise.

Noise Element Goals

- Goal 1** Protect City residents from the harmful and annoying effects of exposure to excessive noise.
- Goal 2** Protect the economic base of the City by preventing incompatible land uses from encroaching upon existing or planned noise-producing uses.

Noise Element – Transportation Noise Sources Policies

Policy 1 Allow the development of new noise-sensitive land uses (which include but are not limited to residential, schools, and hospitals) only in areas exposed to existing or projected levels of noise from transportation noise sources which satisfy the levels specified in Table IX-1 [included below as **Table 4.6-5**]. Noise mitigation measures may be required to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table IX-1.

TABLE 4.6-5
MAXIMUM ALLOWABLE NOISE EXPOSURE TRANSPORTATION NOISE SOURCES
(TABLE IX-1 OF THE ROSEVILLE GENERAL PLAN NOISE ELEMENT)

Land Use	Outdoor Activity Areas ¹ L _{dn} /CNEL, dB	Interior Spaces	
		L _{dn} /CNEL, dB	L _{eq} , dB ²
Residential	603	45	
Transient Lodging	603	45	
Hospitals & Nursing Homes	603	45	
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	603	--	40
Office Buildings	65	--	45
Schools, Libraries, Museums	--	--	45
Playgrounds, Neighborhood Parks	70	--	--
1 - Outdoor activity areas for residential developments are considered to be the back yard patios or decks of single family dwelling, and the patios or common areas where people generally congregate for multi-family development. Outdoor activity areas for non-residential developments are considered to be those common areas where people generally congregate, including pedestrian plazas, seating areas and outside lunch facilities. Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use. 2 - As determined for a typical worst-case hour during periods of use. 3 - Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn}/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 75 dB L_{dn}/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table. Note: Where a proposed use is not specifically listed on this table, the use shall comply with the noise exposure standards for the nearest similar use as determined by the Planning Department. Commercial and industrial uses have not been listed because such uses are not considered to be particularly sensitive to noise exposure. Source: City of Roseville, 2015a.			

Recognizing that in increasingly urban areas it is difficult to maintain suburban noise standards, and in order to facilitate the City's goals to encourage reinvestment and economic development in the Riverside and Downtown Specific Plan areas, the City may elect to allow new noise-sensitive land uses on a case by case basis in proximity to transportation sources. Noise mitigation, including an acoustical analysis, would be required to reduce interior space noise levels to the standards specified in Table IX-1. Exterior noise levels would require mitigation to the extent feasible using building orientation, construction and design features; however ultimately, noise levels may exceed the noise standards identified in Table IX-1.

- Policy 2** Require new roadway improvement projects to be mitigated so as not to exceed the noise levels specified in Table IX-1 at outdoor activity areas or interior spaces of existing noise sensitive land uses.
- Policy 3** Evaluate new transportation projects, such as light and heavy rail, using the standards contained in Table IX-1. However, noise from these projects may be allowed to exceed the standards contained in Table IX-1 if the City Council finds that there are special overriding circumstances.
- Policy 4** Require an acoustical analysis where:
- a) Noise sensitive land uses are proposed in areas exposed to existing or projected noise levels exceeding the levels specified in Table IX-1;
 - b) Proposed transportation noise source projects are likely to produce noise levels exceeding the levels specified in Table IX-1 at existing or planned noise-sensitive uses.

An acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be considered in the project design.

- Policy 5** Work in cooperation with Caltrans and the Union Pacific Transportation Company to maintain noise level standards for both new and existing projects in compliance with Table IX-1.

Noise Element – Fixed Noise Sources Policies

- Policy 6** Allow the development of new noise-sensitive uses (which include, but are not limited to; residential, school, and hospitals) only where the noise level due to fixed (non-transportation) noise sources satisfies the noise level standards of Table IX-3 [included below as **Table 4.6-6**]. Require proposed fixed noise sources adjacent to noise-sensitive uses to be mitigated so as not to exceed the noise level performance standards of Table IX-3.

TABLE 4.6-6
PERFORMANCE STANDARDS FOR NON-TRANSPORTATION NOISE SOURCES
(TABLE IX-3 OF THE CITY OF ROSEVILLE GENERAL PLAN NOISE ELEMENT)

Noise Level Descriptor	Daytime (7 a.m. - 10 p.m.)	Nighttime (10 p.m. - 7 a.m.)
Hourly Average (L_{eq}) ¹	50 dB	45 dB
Maximum Level (L_{max})	70 dB	65 dB
1 - For municipal power plants consisting primarily of broadband, steady-state noise sources, the hourly (L_{eq}) noise standards may be increased by up to 10 dBA, but not exceeding 55 dBA L_{eq}. Each of the noise levels specified above should be lowered by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. Such noises are generally considered by residents to be particularly annoying and are a primary source of noise complaints. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings). No standards have been included for interior noise levels. Standard construction practices should, with exterior noise levels identified, result in acceptable interior noise levels. Source: City of Roseville, 2015a.		

Recognizing that in increasingly urban areas it is difficult to maintain suburban noise standards, and in order to facilitate the City's goals to encourage reinvestment and economic development in the Riverside and Downtown Specific Plan areas, the City may elect to allow new noise-sensitive land uses on a case by case basis in a mixed-use environment. Noise levels would require mitigation to the extent feasible using building orientation, construction and design features; however ultimately, noise levels may exceed noise standards identified in Table IX-1.

Policy 7 Require proposed fixed noise sources adjacent to noise-sensitive uses to be mitigated so as not to exceed the noise level performance standards of Table IX-3.

Policy 8 Require an acoustical analysis where:

Noise-sensitive land uses are proposed in areas where existing or anticipated future fixed noise sources may

- a) Proposed non-residential or other fixed noise sources are likely to produce noise levels exceeding the performance standards of Table IX-1 at existing or planned noise sensitive uses.

An acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be considered during project design.

Noise Element – General Policies

Policy 9 Where noise mitigation measures are required to achieve the standards of Tables IX-1 and IX-3, the emphasis of such measures should be placed on site planning and project design. These measures may include, but are not limited to: building orientation, setbacks, landscaping, and building construction practices. The use of noise barriers, such as masonry walls, should be considered as a means of achieving the noise standards only after all other practical design-related noise mitigation measures have been integrated into the Proposed Project.

Policy 10 Regulate construction-related noise to reduce impacts on adjacent uses consistent with the City's Noise Ordinance.

Roseville Municipal Code (Noise Ordinance)

The City of Roseville Noise Ordinance, Chapter 9.24 of the City's Municipal Code establishes procedures and policies for handling noise complaints within the City. The Noise Ordinance establishes limits on noise sources, such as amplified music or sound.

Section 9.24.030(G) of the ordinance exempts noise from private construction (e.g., construction, alteration or repair activities) between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday, and between the hours of 8:00 a.m. and 8:00 p.m. Saturday and Sunday; provided, however, that all construction equipment is fitted with factory installed muffling devices and that all construction equipment

shall be maintained in good working order. These exemptions are typical of city and county noise ordinances and reflect the recognition that construction-related noise is temporary in character, is generally acceptable when limited to daylight hours, and is part of what residents of urban areas expect as part of a typical urban noise environment (along with sirens, etc.).

Additionally, Section 9.24.030 (D) of the ordinance exempts the normal operation of schools from noise level thresholds. The policy basis for this exemption is the fact that people are used to temporary noise impacts from schools, which generally occur during weekday work hours and reflect the normal activities of school children.

Section 9.24.130 limits sound for events on public property. Noise sources associated with outside activities on public property (e.g. athletic events, sporting events, fairs and entertainment events) are restricted to between the hours of 8 a.m. and 10:30 Sunday through Thursday between the hours of 8 a.m. and 11 p.m. on Fridays and Saturdays, and City recognized holidays. Noise shall not exceed 80 dBA, L_{max} at the property line of the site of the event. Section 9.24.140 of the ordinance also exempts noise from city operations and activities. This would include garbage collection which is conducted by the Solid Waste Division of the City's Environmental Utilities Department.

Section 9.24.100 of the ordinance establishes sound limits for sensitive receptors, as shown below:

9.24.100 Sound Limits for Sensitive Receptors.

It is unlawful for any person at any location to create any sound, or to allow the creation of any sound, on property owned, leased, occupied or otherwise controlled by such person, which causes the exterior sound level when measured at the property line of any affected sensitive receptor to exceed the ambient sound level by 3.0 dBA or exceed the sound level standards as set forth in **Table 4.6-6**, by 3.0 dBA, whichever is greater.

Placer County

Goal 9.A To protect County residents from the harmful and annoying effects of exposure to excessive noise.

Policy 9.A.6 The feasibility of proposed projects with respect to existing and future transportation noise levels shall be evaluated by comparison to Table 9-3 [included below as **Table 4.6-7**].

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

- a) Rerouting traffic onto streets that have available traffic capacity and that do not adjoin noise-sensitive land uses;
- b) Lowering speed limit, if feasible and practical;

- c) Programs to pay for noise mitigation such as low cost loans to owners of noise-impacted property or establishment of developer fees;
- d) Acoustical treatment of buildings; or,
- e) Construction of noise barriers.

TABLE 4.6-7
MAXIMUM ALLOWABLE NOISE EXPOSURE – TRANSPORTATION NOISE SOURCES

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

1 - Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use.
 2 - As determined for a typical worst-case hour during periods of use.
 3 - Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn}/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn}/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.
 Source: Placer County, 2013a.

Placer County Municipal Code (Noise Ordinance)

9.36.060 Sound Limits for Sensitive Receptors

- A. It is unlawful for any person at any location to create any sound, or to allow the creation of any sound, on property owned, leased, occupied or otherwise controlled by such person that:
 - 1. Causes the exterior sound level when measured at the property line of any affected sensitive receptor to exceed the ambient sound level by 5.0 dBA; or
 - 2. Exceeds the sound level standards as set forth in Table 1 (included below as **Table 4.6-8**), whichever is the greater.

TABLE 4.6-8
SOUND LEVEL STANDARDS FOR SENSITIVE RECEPTORS

Sound Level Descriptor	Daytime (7 a.m. – 10 p.m.)	Nighttime (10 p.m. – 7 a.m.)
Hourly L _{eq}	55 dB	45 dB
Maximum Level (L _{max})	70 dB	65 dB

Source: Placer County Municipal Code

- B. Each of the sound level standards specified in Table 1 shall be reduced by 5.0 dB for simple tone noises, consisting of speech and music. However, in no case shall the sound level standard be lower than the ambient sound level plus 5.0 dB.
- C. If the intruding sound source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient sound level can be measured, the sound level measured while the source is in operation shall be compared directly to the sound level standards of Table 1.

4.6.4 IMPACTS

This section identifies any impacts to the existing noise environment that could occur from construction, operation, and/or maintenance of the Proposed Project.

Method of Analysis

Construction Noise

Construction noise was analyzed using data compiled for various pieces of construction equipment at a representative distance of 50 feet. Construction activities are discussed relative to the applicable City of Roseville Noise Ordinance policies.

Stationary Noise

Noise impacts associated with proposed commercial and park land uses within the project site were analyzed using previously collected data for similar uses.

Traffic Noise

To describe future noise levels due to traffic, the FHWA Traffic Noise Prediction Model (FHWA RD-77-108) was used. Direct inputs to the model included traffic volumes provided by Fehr and Peers Transportation Consultants. The FHWA model is based upon the Calven reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. To predict $L_{dn}/CNEL$ values, it is necessary to determine the day/night distribution of traffic and adjust the traffic volume input data to yield an equivalent hourly traffic volume. Appendix B of the *Noise Analysis* (j.c. brennan & associates, Inc., 2015; **Appendix O**) provides the complete inputs and results for the FHWA traffic noise prediction modeling. Traffic noise levels were modeled under Existing, 2035 Cumulative, and 2035 Capital Improvement Plan (CIP) conditions, with and without the Proposed Project.

Traffic noise levels were predicted at the sensitive receptors located at the closest typical setback distance along each project-area roadway segment. The FHWA model is not capable of running noise barrier calculations on a City-wide basis. Therefore, a conservative adjustment of -5 dB was assumed where noise barriers are located adjacent to the majority of sensitive receptors or where activity areas are located behind residences, as the most basic sound wall that is 6 feet in height generally achieves a noise reduction of 5 to 6 dB. In some locations sensitive receptors may not receive full shielding from noise barriers, or may be located at distances that vary from the assumed calculation distance. However,

the traffic noise analysis is believed to be representative of the majority of sensitive receptors located closest to the study roadway segments analyzed in this EIR.

Traffic volumes were obtained from Fehr & Peers, preparers of the *Traffic Study* (**Appendix M**). Vehicle speeds and truck volumes on local area roadways were determined based on field observations and posted speeds (j.c. brennan & associates, Inc., 2015; **Appendix O**).

Aviation Noise

Aviation noise is addressed through a combination of short-term and continuous site noise measurements of aircraft operations and review of adopted airport land use compatibility policies and noise contours. The potential for sleep disturbance is discussed based upon the results of single event noise measurements conducted in the project site.

Thresholds of Significance

Consistent with Appendix G of the California Environmental Quality Act (CEQA) Guideline, the City's General Plan and Noise Ordinance, and professional judgment, the Proposed Project will have a significant impact related to noise if it will result in:

- For areas within the City of Roseville, exposure of persons to, or generation of noise levels in excess of standards established in the City's General Plan or Noise Ordinance, specifically, the exterior and interior noise levels listed in **Tables 4.6-5** and **4.6-6** (General Plan Tables IX-1 and IX-3);
- For areas within Placer County, exposure of persons to, or generation of noise levels in excess of standards established in the County's General Plan or Noise Ordinance, specifically, the exterior and interior noise levels listed in **Tables 4.6-7** and **4.6-8**;
- A substantial (greater than 3 dB) permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity at least 4 dB above levels existing without the Proposed Project and occurring on weekdays between 7:00 p.m. and 7:00 a.m. or on weekends between 8:00 p.m. and 8:00 a.m.;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project site to excessive noise levels within two miles of a public airport or public use airport; or
- For a project within the vicinity of a private airstrip, expose people residing or working in the project site to excessive noise levels.

Summary of Applicable Noise Standards

The noise standards applicable to the Proposed Project include the relevant portions of the City of Roseville General Plan and the City of Roseville Noise Ordinance described in the Regulatory Framework section above. As described in **Section 4.6.3** and shown in **Table 4.6-5**, the maximum allowable noise exposure for transportation noise sources at the outdoor activity area of residential houses is 60 dB

Ldn/CNEL; where it is not possible to reduce noise in residential outdoor activity areas to 60 dB Ldn/CNEL or less using a practical application of the best-available noise reduction measures (as required in **Table 4.6-5**), an exterior noise level of up to 75 dB Ldn/CNEL may be allowed in accordance with the General Plan Noise Element provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with **Table 4.6-5**. The maximum allowable traffic noise levels for playgrounds and neighborhood parks is 70 dB Ldn/CNEL.

General Plan noise standards for non-transportation noise sources at new noise sensitive land uses are 50 dB L_{eq} and 70 dB L_{max} during day time hours (7 a.m. to 10 p.m.) and 45 dB L_{eq} and 65 dB L_{max} during nighttime hours (10 p.m. to 7 a.m.).

Determination of a Significant Increase in Noise Levels

Generally, a project may have a significant effect on the environment if it will substantially increase ambient noise levels. As described in **Section 4.6.2** (refer to **Table 4.6-4**), research into the human perception of changes in sound level indicates the following:

- 3 dB change is barely perceptible,
- 6 dB change is clearly perceptible, and
- 10 dB change is perceived as being twice or half as loud.

For this analysis, a substantial permanent increase in noise levels is conservatively defined as 3 dB, as this is level at which the sound can be perceived.

Impacts Found to Be Less Than Significant in the Initial Study

As described within the Initial Study included as **Appendix B**, the Proposed Project will not be a significant source of groundborne vibration or groundborne noise. Therefore, this item is not discussed further in this analysis. Additionally, as there are no private airstrips in the immediate vicinity of the project site, this topic has been ruled out for further analysis (**Appendix B**).

Impacts

IMPACT 4.6-1	SHORT-TERM NOISE GENERATED BY CONSTRUCTION ACTIVITY
Applicable Policies and Regulations	City of Roseville Noise Ordinance Section 9.24.030
Significance with Policies and Regulations	Significant
Mitigation Measures	MM 4.6-1 Construction Noise Reduction
Significance After Mitigation	Significant and Unavoidable

Implementation of the Proposed Project would result in short-term construction activities associated with individual development projects in the project site. These construction activities could potentially expose sensitive receptors to noise levels in excess of the applicable noise standards and/or result in a noticeable increase in ambient noise levels. Construction activities would affect residences south and southeast of the project site. In addition, because construction would occur in phases, some on-site residential uses built during the early phases of the development would be exposed to construction activity noise levels during the latter phases of development. Further, future construction of Placer Parkway would likely occur well after occupancy of residences within the project site.

Noise impacts resulting from construction depend on the noise generated by various pieces of construction equipment, the timing and duration of noise generating activities, and the distance between construction noise sources and noise-sensitive areas. Noise levels from typical construction equipment are shown in **Table 4.6-9**. Noise generated by construction would be the greatest during site grading activities and excavation for underground utilities.

Activities involved in construction would generate maximum noise levels, as indicated in **Table 4.6-9**, ranging from 76 to 90 dB at a distance of 50 feet. Construction activities would be temporary in nature and are anticipated to occur during normal daytime working hours.

Noise would also be generated during the construction phase by increased truck traffic on area roadways. A primary project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from construction sites. This noise increase would be of short duration, and would occur during daytime hours, pursuant to the requirements of the City of Roseville Noise Ordinance, as outlined below, with the exception of 24-hour drilling activities for the proposed on-site Aquifer Storage and Recovery (ASR) well.

Construction activities associated with the Proposed Project will typically occur at distances of approximately 200 feet, or greater, from the nearest noise-sensitive receptors located within unincorporated Placer County to the west and north of Sunset Boulevard West. At 200 feet, construction related noise levels are expected to range between approximately 64-78 dB L_{max} . Much of the project

construction would occur at distances well over 200 feet where construction noise levels would be substantially less than 64-78 dB L_{max}.

TABLE 4.6-9
TYPICAL CONSTRUCTION EQUIPMENT NOISE

Type of Equipment	Predicted Noise Levels, L _{max} dB				Distances to Noise Contours (feet)	
	Noise Level at 50'	Noise Level at 100'	Noise Level at 200'	Noise Level at 400'	70 dB L _{max} contour	65 dB L _{max} contour
Auger Drill Rig	84	78	72	66	250	446
Backhoe	78	72	66	60	126	223
Compactor	83	77	71	65	223	397
Compressor (air)	78	72	66	60	126	223
Concrete Saw	90	84	78	72	500	889
Dozer	82	76	70	64	199	354
Dump Truck	76	70	64	58	100	177
Excavator	81	75	69	63	177	315
Generator	81	75	69	63	177	315
Jackhammer	89	83	77	71	446	792
Pneumatic Tools	85	79	73	67	281	500
Source: FHWA, 2006.						

The City of Roseville Noise Ordinance exempts construction-generated noise that occurs between the hours of 7:00 a.m. to 7:00 p.m. Monday through Friday, and 8:00 a.m. and 8:00 p.m. Saturday and Sunday from the City's exterior noise standards, provided that all construction equipment is fitted with factory installed muffling devices and maintained in good working order. Compliance with the City's Noise Ordinance would ensure that impacts are reduced.

Mitigation Measure 4.6-1 would reduce potential noise impacts associated with construction of the Proposed Project. Construction activities would be temporary in nature, and will comply with the requirements of the City of Roseville Noise Ordinance. In accordance with the Noise Ordinance, construction activities will occur during normal daytime working hours, with the exception of drilling activities for the proposed ASR well, which will require 24-hour drilling activities. **Mitigation Measure 4.6-1** requires that, to the extent feasible, the on-site ASR well shall be drilled prior to the occupancy of residential units within 500 feet of the well site, and noise curtains shall be utilized during drilling of the well if, at the time of well construction, homes are occupied within 1,000 feet of the well. However, because the location of the well may shift in the future due to well testing and water quality requirements, implementation of this measure cannot be guaranteed. Therefore, because future residences may be exposed noise levels that exceed the City's acceptable noise level standards as a result of 24-hour drilling operations for the ASR well, construction noise impacts are considered **significant and unavoidable**.

IMPACT 4.6-2	COMMERCIAL NOISE SOURCES
Applicable Policies and Regulations	City of Roseville General Plan Noise Element
Significance with Policies and Regulations	Significant
Mitigation Measures	MM 4.6-2 Commercial Noise Controls
Significance After Mitigation	Less than Significant

Within the project site, commercial uses are proposed on the northeastern corner of Westbrook Boulevard and Road “D,” as well as on the northwestern corner of Westbrook Boulevard and Road “A.” Adjacent to the northern commercial area is a proposed high density residential (HDR) area to the east. The southern commercial area is located adjacent to a proposed medium density residential (MDR) area to the west and HDR area to the north. These commercial areas will be zoned as Community Commercial (CC). The following allowed uses are principally permitted in CC zones:

- Amusement Center
- Banks and Financial Services
- Bar and Drinking Places
- Business Support Services
- College, Elementary, and Secondary Schools
- Community Assembly
- Community Care Facility
- Community Services
- Convenience Store
- Day Care Center
- Essential Services
- Fast Food and Drive Through Restaurant
- Full Service Restaurant
- Gasoline Sales
- Grooming and Pet Stores
- Indoor Entertainment
- Indoor Sports and Recreation
- Libraries
- Maintenance and Repair
- Medical Services
- Office, Professional
- Public Parking Services
- Retail Sales and Services
- Veterinary Clinic
- Vocational Schools

Additionally, the following uses are conditionally permitted or administratively permitted in CC zones:

- Automotive Repairs
- Automotive Sales
- Building Material Stores
- Car Wash and Detailing
- Commercial Laundries
- General Hospital Services
- Nightclubs
- Outdoor Sports and Recreation
- Private Elementary and Secondary Schools
- Single-Family, Two-Family, and Multifamily Dwellings
- Storage, Personal Storage Facility
- Veterinary Hospital

The permitted uses under Title 19 (Zoning) of the Roseville Municipal Code primarily include indoor activities, with a few exterior noise sources that could exceed the City's exterior noise level standards at the boundary line of sensitive residential uses. Examples of exterior noise sources include parking lots, mechanical equipment, drive-through speakers. Some of the conditionally permitted uses for CC zones include more substantial exterior noise sources such as car washes, automotive repair, and outdoor recreation. These types of noise sources are more likely to result in exceedance of the City's exterior noise level standards at sensitive receptor locations. **Table 4.6-10** lists various noise levels associated with different types of uses that could be approved on the CC parcels.

TABLE 4.6-10
POTENTIAL NOISE LEVELS FOR VARIOUS COMMERCIAL LAND USES

Use	L _{eq} ¹ at 100 feet	Noise Sources	Distance to Noise Contours, feet							
			No Wall		6' Wall		7' Wall		8' Wall	
			50 dB	45 dB	50 dB	45 dB	50 dB	45 dB	50 dB	45 dB
Auto Repair, tire shop	57	Typical service center activities	231	411	130	231	116	206	103	184
Loading Docks	64	Truck deliveries, loading/unloading	473	842	266	473	237	422	211	376
Fast Food Drive Through	45	Car idling, drive through speaker	53	95	30	53	27	48	24	42
Car Wash	63	Car idling, blowers, mechanical equipment.	447	794	251	447	224	398	200	355
Truck Circulation	54	Heavy truck deliveries, approximately 5 per hour.	156	278	88	156	78	139	70	124
Busy Parking Lot	54	Typical busy retail type parking lot, vehicle movements, door slamming, people conversing, etc.	158	281	89	158	79	141	71	126
Vendor Deliveries	53	Typical bread, food, dairy, UPS, FedEx type deliveries, etc.	133	237	75	133	67	119	60	106
1 - Maximum noise levels for these noise source are generally 10-15 dB higher than the average (L _{eq}) values. Because the City's maximum (L _{max}) noise level standards are 20 dB higher than the L _{eq} standards, compliance with the L _{eq} standard will also result in compliance with the L _{max} standard. Therefore, typical L _{max} noise levels are not shown in this Table. Source: j.c. brennan & associates, Inc., 2015 (Appendix O)										

No specific site designs are proposed for the commercial center at this time; therefore, noise levels cannot be estimated with any specificity and the effectiveness of specific mitigation cannot be determined at this time. However, based upon the **Table 4.6-10** data, exterior noise levels from commercial sources may exceed the City's 50 dB L_{eq} daytime and 45 dB L_{eq} nighttime noise level standards at distances of up to 376 feet. The exact degree of noise exposure will depend on the specific use. **Table 4.6-10** is intended to indicate the likely range of noise levels associated with the various potential uses. However, this list is not exhaustive and higher noise levels could occur depending on the exact use. Because the zoning of the commercial uses would allow for certain uses which could generate significant noise levels, the potential for off-site adverse noise impacts exists, even though it cannot be completely quantified at this time. This is considered a potentially **significant** impact.

Mitigation Measure 4.6-2 requires measures such as shielding (e.g., berms, masonry walls, landscaping), restriction of delivery hours, and screening of heating, ventilation, and air conditioning (HVAC) equipment, to be used to reduce noise levels at residences within 500 feet of commercial uses. Additionally, **Mitigation Measure 4.6-2** requires that individual noise studies be prepared for conditionally permitted uses in commercial areas that include more substantial exterior noise sources and measures are implemented as necessary to achieve compliance with the City of Roseville Noise Level Performance Standards at the nearest sensitive receptors. Therefore, with mitigation, this is considered a **less-than-significant** impact.

IMPACT 4.6-3	NOISE FROM SCHOOL RELATED ACTIVITIES AND NEIGHBORHOOD PARKS
Applicable Policies and Regulations	City of Roseville Municipal Code Section 9.24.030 (D) City of Roseville Municipal Code Section 9.24.130 Sound Limits on Public Property
Significance with Policies and Regulations	Less than Significant
Mitigation Measures	None Required
Significance After Mitigation	Less than Significant

The Proposed Project includes one elementary school site. The school would be located adjacent to residential areas near the center of the project site, as depicted on **Figure 2-5** in **Section 2, Project Description**. Additionally, neighborhood park uses are proposed throughout the project site (**Figure 2-5**). Neighborhood parks are defined as a landscaped park designed to serve a concentrated population or neighborhood. They are often developed as recreation facilities with a balance of passive and active recreation areas serving all ages.

Children playing at neighborhood parks or school playgrounds are often considered potentially significant noise sources which could adversely affect adjacent noise-sensitive land uses. Typical noise levels associated with groups of approximately 50 children playing at a distance of 50 feet generally range from 55 to 60 dB L_{eq} , with maximum noise levels ranging from 70 to 75 dB L_{max} . It is expected that the playground areas would be utilized during daytime hours. Based upon the reference noise level data discussed above, the 50 dB L_{eq} noise contour would be located approximately 158 feet from the center of park or playground areas. The 70 dB L_{max} contour would be located at approximately 90 feet from the center of park or playground areas.

Section 9.24.030 (D) of the Roseville Municipal Code exempts the normal operation of schools from noise level thresholds. The policy basis for this exemption is the fact that people in urban areas are familiar with temporary noise impacts from schools, which generally occur during weekday work hours and reflect normal, healthy activities of school children. This would be considered a **less-than-significant** impact.

All of the proposed parks are located adjacent to or within single-family residential areas, which means that noise from park usage may affect sensitive receptors. However, the City has multiple policies and standards which ensure that parks and residential areas are sited and designed to avoid conflicts. The park siting criteria within Table VI-5 of the General Plan Parks and Recreation Element requires buffers between active use areas of parks and residential areas. Furthermore, both the City's Community Design Guidelines and the Proposed Project Design Guidelines direct that homes be oriented to face parks and open space, rather than face away from parks and open space. The City's exterior noise standards are applied at the typical outdoor activity area for the receptor, which for single-family homes is the backyard. Thus, the area where the exterior noise standard applies will typically be shielded behind the home. The City's existing policies and standards regarding the appropriate siting and design of parks and single-family homes will ensure that impacts are **less than significant**.

IMPACT 4.6-4	EXPOSURE OF PERSONS TO NOISE LEVELS IN EXCESS OF GENERAL PLAN AND NOISE ORDINANCE STANDARDS AS A RESULT OF THE EXISTING PLUS PROJECT INCREASE IN TRAFFIC NOISE
Applicable Policies and Regulations	City of Roseville General Plan Noise Element City of Roseville Noise Ordinance
Significance with Policies and Regulations	Less than Significant
Mitigation Measures	None Required
Significance After Mitigation	Less than Significant

Implementation of the Proposed Project would result in an increase of average daily vehicle trip (ADT) volumes on the local roadway network. The increased traffic volumes would result in an increase in noise levels from traffic sources along affected roadway segments.

Table 4.6-11 shows the noise levels associated with traffic on the local roadway network under Existing No Project and Existing Plus Project conditions.

City of Roseville Standards

Table 4.6-11 indicates that some noise sensitive receptors located along the project-area roadways within the City of Roseville are currently exposed to exterior traffic noise levels exceeding the City of Roseville 60 dB L_{dn} exterior noise level standard for residential uses under existing conditions without the Proposed Project. These receptors would continue to experience elevated exterior noise levels with implementation of the Proposed Project. However, no sensitive receptors are predicted to be exposed to exterior noise levels exceeding the City's 75 dB L_{dn} conditionally acceptable noise level standard. Under the City's Noise Ordinance, a project cannot cause the exterior sound level when measured at the property line of any affected sensitive receptor to exceed the ambient sound level by 3.0 dBA or exceed the sound level standards as set forth in the General Plan (**Table 4.6-6**), by 3.0 dBA, whichever is

4.6 Noise

TABLE 4.6-11
TRAFFIC NOISE LEVELS ON LOCAL ROADWAYS – EXISTING CONDITIONS

Roadway	Segment	Distance (Feet) ¹	Traffic Noise Levels (L _{dn} dBA)			Significance Criteria	Significant Increase?	Distance to contours (feet) Existing ¹			Distance to Contours (feet) Existing Plus Project ¹		
			Existing	Existing Plus Project	Change			70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}	70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}
Blue Oaks Blvd.	West of Fiddymont	90	52.7	61.4	8.7	+3dB	Yes	6	14	29	32	69	149
Blue Oaks Blvd.	Fiddymont to Woodcreek	95	61.9	63.3	1.4	+3 dB	No	27	59	127	34	73	158
Blue Oaks Blvd.	Woodcreek to Foothills	110	63.0	63.8	0.8	+3 dB	No	38	81	174	43	92	199
Blue Oaks Blvd.	Foothills to Washington	100	69.4	69.8	0.4	+3dB	No	91	196	423	97	208	448
Pleasant Grove Blvd.	West of Fiddymont	75	60.0	60.0	-0.1	+3 dB	No	16	35	76	16	35	75
Pleasant Grove Blvd.	Fiddymont to Woodcreek	75	63.7	63.6	-0.2	+3 dB	No	29	62	133	28	60	129
Pleasant Grove Blvd.	Woodcreek to Foothills	100	63.3	63.4	0.1	+3 dB	No	36	77	167	37	79	169
Pleasant Grove Blvd.	Foothills to Washington	75	66.2	66.4	0.2	+3dB	No	42	90	195	43	93	200
Pleasant Grove Blvd.	Washington to Roseville Pkwy	100	64.7	64.8	0.1	+3 dB	No	45	96	207	45	97	209
Pleasant Grove Blvd.	Roseville Pkwy to SR 65	125	63.6	63.7	0.1	+3 dB	No	47	101	217	47	102	220
Pleasant Grove Road	North of Baseline	110	55.4	59.7	4.3	+3dB	Yes	12	25	54	23	48	104
Baseline Road	West of Fiddymont	110	60.3	61.1	0.8	+3 dB	No	25	54	116	28	61	131
Baseline Road	Fiddymont to Junction	110	58.4	59.3	0.9	+3dB	No	19	40	86	21	46	99
Baseline Road	Junction to Woodcreek	75	60.9	61.9	1.0	+3 dB	No	19	40	86	22	47	101
Baseline Road	Woodcreek to Foothills	75	62.2	62.6	0.4	+3 dB	No	23	49	105	24	52	112

4.6 Noise

Roadway	Segment	Distance (Feet) ¹	Traffic Noise Levels (L _{dn} dBA)			Significance Criteria	Significant Increase?	Distance to contours (feet) Existing ¹			Distance to Contours (feet) Existing Plus Project ¹		
			Existing	Existing Plus Project	Change			70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}	70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}
Baseline Road	Foothills to Washington	50	66.9	66.9	0.0	+3dB	No	31	67	144	31	67	144
Junction Blvd.	Baseline to Woodcreek	75	59.1	59.2	0.2	+3dB	No	14	30	65	14	31	67
Junction Blvd.	Woodcreek to Foothills	65	60.5	60.6	0.1	+3 dB	No	15	32	70	15	33	71
Junction Blvd.	Foothills to Washington	65	61.1	61.4	0.3	+3 dB	No	17	36	77	17	37	80
Roseville Pkwy	Washington to Pleasant Grove	100	59.4	59.8	0.4	+3dB	No	20	42	91	21	45	97
Roseville Pkwy	East of Pleasant Grove	110	63.8	63.9	0.1	+3 dB	No	43	92	197	43	93	200
Sunset Blvd. West	Pleasant Grove to Amoruso	150	50.6	54.1	3.5	+3 dB	Yes	8	16	35	13	28	61
Sunset Blvd. West	Amoruso to Westbrook	150	51.0	53.8	2.8	+3 dB	No	8	18	38	13	27	58
Fiddymment Road	North of Blue Oaks	105	57.0	56.6	-0.4	+3dB	No	14	31	66	14	29	63
Fiddymment Road	Blue Oaks to Pleasant Grove	90	60.8	62.8	2.0	+3 dB	No	22	47	102	30	64	138
Fiddymment Road	Pleasant Grove to Baseline	90	62.9	63.8	1.0	+3 dB	No	30	65	140	35	75	162
Woodcreek Oaks Blvd.	North of Blue Oaks	85	57.9	57.8	-0.1	+3dB	No	13	29	62	13	28	60
Woodcreek Oaks Blvd.	Blue Oaks to Pleasant Grove	90	59.2	59.3	0.1	+3dB	No	17	37	79	17	37	81
Woodcreek Oaks Blvd.	Pleasant Grove to Junction	100	58.4	59.0	0.5	+3dB	No	17	37	79	18	40	86
Woodcreek Oaks Blvd.	Junction to Baseline	70	57.8	58.9	1.1	+3dB	No	11	23	50	13	27	59
Foothills Blvd.	North of Blue Oaks	100	61.8	61.9	0.1	+3 dB	No	28	61	132	29	62	133

4.6 Noise

Roadway	Segment	Distance (Feet) ¹	Traffic Noise Levels (L _{dn} dBA)			Significance Criteria	Significant Increase?	Distance to contours (feet) Existing ¹			Distance to Contours (feet) Existing Plus Project ¹		
			Existing	Existing Plus Project	Change			70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}	70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}
Foothills Blvd.	Blue Oaks to Pleasant Grove	75	61.8	62.0	0.2	+3 dB	No	21	46	98	22	47	102
Foothills Blvd.	Pleasant Grove to Junction	100	62.8	62.9	0.1	+3 dB	No	33	72	154	34	72	156
Foothills Blvd.	Junction to Baseline	75	64.5	64.5	0.0	+3 dB	N/A	32	69	150	32	70	150
Foothills Blvd.	South of Baseline	65	66.3	66.5	0.2	+1.5 dB	No	37	79	170	38	82	176
Washington Blvd.	Blue Oaks to Roseville Pkwy	100	60.6	60.8	0.2	+3 dB	No	24	51	110	24	53	114
Washington Blvd.	Roseville Pkwy to Pleasant Grove	110	58.9	59.2	0.2	+3dB	No	20	43	94	21	45	97
Washington Blvd.	Pleasant Grove to Junction	85	61.9	61.9	0.0	+3 dB	No	25	53	114	24	53	114
Washington Blvd.	Junction Baseline	55	70.0	70.2	0.2	+1.5 dB	No	55	119	257	57	122	263
1 - Distances to traffic noise contours are measured in feet from the centerlines of the roadways. Source: j.c. brennan & associates, Inc., 2015 (Appendix O).													

greater. As shown in **Table 4.6-11**, project-related traffic would not cause a 3.0 dB increase over allowable General Plan standards at sensitive receptors under existing plus project conditions. Therefore, impacts associated with exceedance of standards established in the City's General Plan and Noise Ordinance, as a result of project-related traffic are **less than significant**.

Placer County Standards

As shown in **Table 4.6-11**, some noise sensitive receptors located along the project-area roadways within Placer County are currently exposed to exterior traffic noise levels exceeding the Placer County 60 dB L_{dn} exterior noise level standard for residential uses under existing conditions without the Proposed Project. These receptors would continue to experience elevated exterior noise levels with implementation of the Proposed Project. However, no sensitive receptors are predicted to be exposed to exterior noise levels exceeding the County's 65 dB L_{dn} conditionally acceptable noise level standard. Under the County's Noise Ordinance, a project cannot cause the exterior sound level when measured at the property line of any affected sensitive receptor to exceed the ambient sound level by 5.0 dBA or exceed the sound level standards set forth in the Noise Ordinance (**Table 4.6-8**), whichever is greater. As shown in **Table 4.6-11**, project-related traffic would not cause a 5.0 dB increase over ambient sound levels under existing plus project conditions. Therefore, impacts associated with exceedance of standards established in the County's General Plan and Noise Ordinance as a result of project-related traffic are **less than significant**.

IMPACT 4.6-5	SUBSTANTIAL PERMANENT INCREASE IN AMBIENT NOISE LEVELS AS A RESULT OF THE EXISTING PLUS PROJECT INCREASE IN TRAFFIC NOISE
Applicable Policies and Regulations	City of Roseville Noise Ordinance
Significance with Policies and Regulations	Significant
Mitigation Measures	MM 4.6-3 Traffic Noise Control
Significance After Mitigation	Significant and Unavoidable

As indicated by **Table 4.6-11**, the projected noise level increases associated with development of the Proposed Project range from 0.1 to 8.7 dB. Noise levels on Blue Oaks Boulevard west of Fiddymont Road; Pleasant Grove Road, north of Baseline; and Sunset Boulevard West from Pleasant Grove Road to Amoruso Way, are projected to increase by 8.7 dB, 4.3 dB, and 3.5 dB, respectively. These predicted noise level increases would exceed the substantial permanent increase threshold of 3.0 dB. This is a **significant** impact.

A landscaped sound wall/earthen berm combination has already been constructed as part of the West Roseville Specific Plan (WRSP) for the existing residential receptors located along the south side of Blue Oaks Boulevard, west of Fiddymont Road. These noise barriers were based upon projected traffic

volumes for cumulative roadway conditions and ensure that exterior and interior traffic noise levels at these sensitive receptors under future conditions do not exceed the City's exterior noise level limits. However, even with these measures, existing receptors would still experience an 8.7 dB increase in traffic noise levels under Existing Plus Project conditions due to increased traffic volumes on Blue Oaks Boulevard as result of the Proposed Project and this increase cannot be mitigated further. Therefore, impacts associated with ambient noise level increases along Blue Oaks Boulevard west of Fiddymont Road are considered **significant and unavoidable**.

Access to existing residential receptors located adjacent to Sunset Boulevard West from Pleasant Grove Road to Amoruso Way and adjacent to Pleasant Grove Road north of Baseline Road, is provided directly from Sunset Boulevard West and Pleasant Grove Road, respectively. Therefore, the use of noise barriers to mitigate traffic noise is not feasible because the access driveway opening would negate any noise reduction that could otherwise be achieved by a sound wall. However, **Mitigation Measure 4.6-3** would achieve a reduction in noise level increases along Sunset Boulevard West and Pleasant Grove Road north of Baseline Road through use of Open Graded Asphalt Concrete (OGAC) along these sections of the roadways. **Mitigation Measure 4.6-3** would reduce the total increase in traffic noise levels along these roadway segments by a minimum of 3.0 dB, reducing the Proposed Project's noise level increase to approximately 0.5 dB on Sunset Boulevard West and 1.3 on Pleasant Grove Road. Because increases of 0.5 dB and 1.3 dB are less than the established 3.0 dB increase threshold, impacts along these roadway segments would be less than significant after mitigation. However, use of OGAC requires improvements to Sunset Boulevard West and Pleasant Grove Road, which are not within the responsibility and jurisdiction of the City. Because Sunset Boulevard West and Pleasant Grove Road are not within the responsibility and jurisdiction of the City of Roseville, it cannot be reasonably assumed that **Mitigation Measure 4.6-3** would be implemented by the time that the impact would occur. Therefore, impacts associated with substantial increases in ambient noise levels along Sunset Boulevard West from Pleasant Grove Road to Amoruso Way and Pleasant Grove Road north of Baseline are considered **significant and unavoidable**.

Noise level increases on all other roadways shown in **Table 4.6-11** would be below the 3.0 dB increase threshold for substantial increases in ambient noise levels. Therefore, permanent ambient noise level impacts related to roadways other than the three segments described above would be **less than significant**.

IMPACT 4.6-6	EXPOSURE OF PERSONS TO NOISE LEVELS IN EXCESS OF GENERAL PLAN AND NOISE ORDINANCE STANDARDS AS A RESULT OF THE 2035 CIP PLUS PROJECT INCREASE IN TRAFFIC NOISE OUTSIDE THE PROJECT SITE
Applicable Policies and Regulations	City of Roseville General Plan Noise Element City of Roseville Noise Ordinance
Significance with Policies and Regulations	Less than Significant
Mitigation Measures	None Required
Significance After Mitigation	Less than Significant

Table 4.6-12 shows the noise levels associated with traffic on the local roadways network under 2035 CIP No Project and 2035 CIP Plus Project conditions.

City of Roseville Standards

Table 4.6-12 indicates that some noise sensitive receptors located along the project-area roadways within the City of Roseville would be exposed to exterior traffic noise levels exceeding the City of Roseville 60 dB L_{dn} exterior noise level standard for residential uses under 2035 CIP Conditions without the Proposed Project. These receptors would continue to experience elevated exterior noise levels with implementation of the Proposed Project. However, no sensitive receptors are predicted to be exposed to exterior noise levels exceeding the City's 75 dB L_{dn} conditionally acceptable noise level standard. Under the City's Noise Ordinance, a project cannot cause the exterior sound level when measured at the property line of any affected sensitive receptor to exceed the ambient sound level by 3.0 dBA or exceed the sound level standards as set forth in the General Plan (**Table 4.6-6**), by 3.0 dBA, whichever is greater. As shown in **Table 4.6-12**, project-related traffic would not cause a 3.0 dB increase over allowable General Plan standards at sensitive receptors under 2035 CIP Plus Project conditions.

Therefore, impacts associated with exceedance of standards established in the City's General Plan or Noise Ordinance, are **less than significant** under 2035 CIP Plus Project Conditions.

Placer County Standards

As shown in **Table 4.6-12**, some noise sensitive receptors located along the project-area roadways within Placer County are currently exposed to exterior traffic noise levels exceeding the Placer County 60 dB L_{dn} exterior noise level standard for residential uses under 2035 CIP conditions without the Proposed Project. These receptors would continue to experience elevated exterior noise levels with implementation of the Proposed Project. However, no sensitive receptors are predicted to be exposed to exterior noise levels exceeding the County's 65 dB L_{dn} conditionally acceptable noise level standard under 2035 CIP Plus Project conditions. Under the County's Noise Ordinance, a project cannot cause the exterior sound level when measured at the property line of any affected sensitive receptor to exceed the ambient sound level by 5.0 dBA or exceed the sound level standards set forth in the Noise Ordinance (**Table 4.6-8**), whichever is greater. As shown in **Table 4.6-12**, project-related traffic would not cause a 5.0 dB increase over

TABLE 4.6-12
TRAFFIC NOISE LEVELS ON LOCAL ROADWAYS – 2035 CIP CONDITIONS

Roadway	Segment	Distance (Feet) ¹	Traffic Noise Levels (L _{dn} dBA)			Significance Criteria	Significant Increase?	Distance to contours (feet) 2035 CIP ¹			Distance to Contours (feet) 2035 CIP Plus Project ¹		
			2035 CIP	2035 CIP Plus Project	Change			70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}	70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}
Blue Oaks Blvd.	West of Fiddymment	90	64.8	64.4	-0.3	+3 dB	No	40	87	187	38	83	178
Blue Oaks Blvd.	Fiddymment to Woodcreek	95	66.6	66.7	0.1	+3 dB	No	56	122	262	58	124	268
Blue Oaks Blvd.	Woodcreek to Foothills	110	66.8	66.9	0.1	+3 dB	No	68	146	315	69	148	319
Blue Oaks Blvd.	Foothills to Washington	100	71.5	71.5	0.0	+3 dB	No	125	270	582	126	272	586
Pleasant Grove Blvd.	West of Fiddymment	75	65.3	65.5	0.2	+3 dB	No	37	79	170	38	81	175
Pleasant Grove Blvd.	Fiddymment to Woodcreek	75	66.3	66.4	0.1	+3 dB	No	43	92	198	43	93	200
Pleasant Grove Blvd.	Woodcreek to Foothills	100	65.8	65.9	0.1	+3 dB	No	52	113	244	53	114	246
Pleasant Grove Blvd.	Foothills to Washington	75	67.4	67.4	0.0	+3 dB	No	51	109	234	51	109	235
Pleasant Grove Blvd.	Washington to Roseville Pkwy	100	66.0	65.9	0.0	+3 dB	No	54	116	249	54	115	249
Pleasant Grove Blvd.	Roseville Pkwy to SR 65	125	65.1	65.2	0.0	+3 dB	No	59	128	275	59	128	276
Pleasant Grove Road	North of Baseline	110	64.1	64.2	0.1	+3 dB	No	45	96	207	45	97	210
Baseline Road	West of Fiddymment	110	65.5	64.3	-1.2	+3 dB	No	55	118	254	46	99	213
Baseline Road	Fiddymment to Junction	110	64.1	64.2	0.1	+3 dB	No	45	96	207	45	97	209
Baseline Road	Junction to Woodcreek	75	65.4	65.5	0.1	+3 dB	No	37	80	172	38	81	175

4.6 Noise

Roadway	Segment	Distance (Feet) ¹	Traffic Noise Levels (L _{dn} dBA)			Significance Criteria	Significant Increase?	Distance to contours (feet) 2035 CIP ¹			Distance to Contours (feet) 2035 CIP Plus Project ¹		
			2035 CIP	2035 CIP Plus Project	Change			70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}	70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}
Baseline Road	Woodcreek to Foothills	75	65.7	65.7	0.0	+3 dB	No	39	83	179	39	84	180
Baseline Road	Foothills to Washington	50	69.2	69.2	0.0	+3 dB	No	44	95	205	44	96	206
Junction Blvd.	Baseline to Woodcreek	75	63.0	63.2	0.2	+3 dB	No	26	55	119	26	57	122
Junction Blvd.	Woodcreek to Foothills	65	63.5	63.7	0.2	+3 dB	No	24	52	112	25	54	115
Junction Blvd.	Foothills to Washington	65	63.8	63.9	0.1	+3 dB	No	25	54	117	26	55	119
Roseville Pkwy	Washington to Pleasant Grove	100	63.7	63.8	0.1	+3 dB	No	38	81	175	38	83	178
Roseville Pkwy	East of Pleasant Grove	110	66.2	66.2	0.0	+3 dB	No	61	132	285	36	79	169
Sunset Blvd. West	Pleasant Grove to Amoruso	150	53.5	55.8	2.3	+3 dB	No	12	26	55	17	36	79
Sunset Blvd. West.	Amoruso to Westbrook	150	52.8	56.1	3.3	+3 dB	Yes	11	23	49	18	38	82
Fiddymment Road	North of Blue Oaks	105	63.6	62.8	-0.8	+3 dB	No	39	84	182	35	75	161
Fiddymment Road	Blue Oaks to Pleasant Grove	90	63.9	63.9	0.0	+3 dB	No	35	75	163	35	76	163
Fiddymment Road	Pleasant Grove to Baseline	90	66.3	66.4	0.1	+3 dB	No	51	110	238	52	111	240
Woodcreek Oaks Blvd.	North of Blue Oaks	85	57.8	57.5	-0.4	+3 dB	No	13	28	61	12	27	58
Woodcreek Oaks Blvd.	Blue Oaks to Pleasant Grove	90	61.2	61.0	-0.2	+3 dB	No	23	50	108	23	49	105
Woodcreek Oaks Blvd.	Pleasant Grove to Junction	100	61.4	61.6	0.2	+3 dB	No	27	57	123	27	59	127

4.6 Noise

Roadway	Segment	Distance (Feet) ¹	Traffic Noise Levels (L _{dn} dBA)			Significance Criteria	Significant Increase?	Distance to contours (feet) 2035 CIP ¹			Distance to Contours (feet) 2035 CIP Plus Project ¹		
			2035 CIP	2035 CIP Plus Project	Change			70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}	70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}
Woodcreek Oaks Blvd.	Junction to Baseline	70	60.7	60.9	0.2	+3 dB	No	17	36	78	17	37	80
Foothills Blvd.	North of Blue Oaks	100	69.1	69.1	0.0	+3 dB	No	88	189	406	87	187	403
Foothills Blvd.	Blue Oaks to Pleasant Grove	75	65.8	65.8	0.0	+3 dB	No	39	84	181	39	84	182
Foothills Blvd.	Pleasant Grove to Junction	100	64.6	64.6	0.0	+3 dB	No	43	93	201	43	93	201
Foothills Blvd.	Junction to Baseline	75	66.2	66.2	0.0	+3 dB	No	42	90	193	42	90	193
Foothills Blvd.	South of Baseline	65	68.1	68.2	0.0	+3 dB	No	49	105	226	49	105	227
Washington Blvd.	Blue Oaks to Roseville Pkwy	100	64.1	64.2	0.1	+3 dB	No	40	87	188	41	88	190
Washington Blvd.	Roseville Pkwy to Pleasant Grove	110	61.8	61.8	0.0	+3 dB	No	31	67	145	31	68	146
Washington Blvd.	Pleasant Grove to Junction	85	64.2	64.2	0.0	+3 dB	No	35	75	162	35	75	161
Washington Blvd.	Junction Baseline	55	72.0	72.1	0.0	+3 dB	No	75	162	349	75	163	350

1 - Distances to traffic noise contours are measured in feet from the centerlines of the roadways.

Source: j.c. brennan & associates, Inc., 2015 (**Appendix O**).

ambient sound levels under existing plus project conditions. Therefore, impacts associated with exceedance of standards established in the County's General Plan and Noise Ordinance as a result of project-related traffic are **less than significant**.

IMPACT 4.6-7	SUBSTANTIAL PERMANENT INCREASE IN AMBIENT NOISE LEVELS AS A RESULT OF THE 2035 CIP PLUS PROJECT INCREASE IN TRAFFIC NOISE OUTSIDE THE PROJECT SITE
Applicable Policies and Regulations	City of Roseville Noise Ordinance
Significance with Policies and Regulations	Significant
Mitigation Measures	MM 4.6-3 Traffic Noise Control
Significance After Mitigation	Significant and Unavoidable

As indicated by **Table 4.6-12**, the projected noise level increases associated with development of the Proposed Project range from 0.1 to 3.3 dB. Noise levels on Sunset Boulevard West from Amoruso Way to Westbrook Boulevard are projected to increase by 3.3 dB. This predicted noise level increase would exceed the substantial permanent increase threshold of 3.0 dB. This is a **significant** impact.

As discussed in detail in **Impact 4.6-5**, noise **Mitigation Measure 4.6-3** would reduce impacts on Sunset Boulevard West by reducing the traffic noise level increase to 0.3 dB or less, resulting in a less-than-significant impact along this roadway segment. However, because Sunset Boulevard West is not within the responsibility and jurisdiction of the City of Roseville, it cannot be reasonably assumed that **Mitigation Measure 4.6-3** would be implemented by the time that the impact would occur. Therefore, impacts associated with substantial increases in ambient noise levels along Sunset Boulevard West from Amoruso Way to Westbrook Boulevard under 2035 CIP Plus Project Conditions are considered **significant and unavoidable**.

Noise level increases on all other roadways shown in **Table 4.6-12** would be below the 3.0 dB increase threshold for substantial increases in ambient noise levels. Therefore, impacts roadways other than Sunset Boulevard West from Amoruso Way to Westbrook Boulevard would be **less than significant** under 2035 CIP Plus Project Conditions.

IMPACT 4.6-8	EXPOSURE OF PERSONS TO NOISE LEVELS IN EXCESS OF GENERAL PLAN AND NOISE ORDINANCE STANDARDS AS A RESULT OF THE 2035 CUMULATIVE PLUS PROJECT INCREASE IN TRAFFIC NOISE OUTSIDE THE PROJECT SITE
Applicable Policies and Regulations	City of Roseville General Plan Noise Element City of Roseville Noise Ordinance
Significance with Policies and Regulations	Less than Significant
Mitigation Measures	None Required
Significance After Mitigation	Less than Significant

Table 4.6-13 shows the noise levels associated with traffic on the local roadways network under 2035 Cumulative No Project and 2035 Cumulative Plus Project conditions.

City of Roseville Standards

Table 4.6-13 indicates that some noise sensitive receptors located along the project-area roadways within the City of Roseville would be exposed to exterior traffic noise levels exceeding the City of Roseville 60 dB L_{dn} exterior noise level standard for residential uses under 2035 Cumulative Conditions without the Proposed Project. These receptors would continue to experience elevated exterior noise levels with implementation of the Proposed Project. However, no sensitive receptors are predicted to be exposed to exterior noise levels exceeding the City's 75 dB L_{dn} conditionally acceptable noise level standard. Under the City's Noise Ordinance, a project cannot cause the exterior sound level when measured at the property line of any affected sensitive receptor to exceed the ambient sound level by 3.0 dBA or exceed the sound level standards as set forth in the General Plan (**Table 4.6-6**), by 3.0 dBA, whichever is greater. As shown in **Table 4.6-13**, project-related traffic would not cause a 3.0 dB increase over allowable General Plan standards at sensitive receptors under 2035 Cumulative Plus Project conditions. Therefore, impacts associated with exceedance of standards established in the City's General Plan or Noise Ordinance, or applicable standards of other agencies, are **less than significant** under 2035 Cumulative Plus Project Conditions.

Placer County Standards

As shown in **Table 4.6-13**, some noise sensitive receptors located along the project-area roadways within Placer County are currently exposed to exterior traffic noise levels exceeding the Placer County 60 dB L_{dn} exterior noise level standard for residential uses under 2035 Cumulative conditions without the Proposed Project. These receptors would continue to experience elevated exterior noise levels with implementation of the Proposed Project. However, no sensitive receptors are predicted to be exposed to exterior noise levels exceeding the County's 65 dB L_{dn} conditionally acceptable noise level standard under 2035 Cumulative Plus Project conditions. Under the County's Noise Ordinance, a project cannot cause the exterior sound level when measured at the property line of any affected sensitive receptor to exceed the

TABLE 4.6-13
TRAFFIC NOISE LEVELS ON LOCAL ROADWAYS – 2035 CUMULATIVE CONDITIONS

Roadway	Segment	Distance (Feet) ¹	Traffic Noise Levels (L _{dn} dBA)			Significance Criteria	Significant Increase?	Distance to contours (feet) 2035 Cumulative ¹			Distance to Contours (feet) 2035 Cumulative Plus Project ¹		
			2035 Cumulative	2035 Cumulative Plus Project	Change			70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}	70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}
Blue Oaks Blvd.	West of Fiddymont	90	63.8	63.9	0.1	+3 dB	No	35	75	161	36	77	165
Blue Oaks Blvd.	Fiddymont to Woodcreek	95	65.7	65.8	0.1	+1.5 dB	No	49	106	229	50	108	232
Blue Oaks Blvd.	Woodcreek to Foothills	110	66.0	66.0	0.0	+1.5 dB	No	59	127	274	59	128	276
Blue Oaks Blvd.	Foothills to Washington	100	71.7	71.7	0.1	+1.5 dB	No	129	278	598	130	280	604
Pleasant Grove Blvd.	West of Fiddymont	75	65.0	65.1	0.1	+3 dB	No	35	75	162	35	76	165
Pleasant Grove Blvd.	Fiddymont to Woodcreek	75	66.0	66.0	0.0	+1.5 dB	No	41	88	189	41	88	190
Pleasant Grove Blvd.	Woodcreek to Foothills	100	65.4	65.4	0.0	+1.5 dB	No	49	106	229	49	107	230
Pleasant Grove Blvd.	Foothills to Washington	75	67.4	67.4	0.0	+1.5 dB	No	50	108	232	50	108	233
Pleasant Grove Blvd.	Washington to Roseville Pkwy	100	65.9	65.9	0.0	+1.5 dB	No	53	114	246	53	114	246
Pleasant Grove Blvd.	Roseville Pkwy to SR 65	125	65.1	65.1	0.0	+1.5 dB	No	59	126	272	59	126	272
Pleasant Grove Road	North of Baseline	110	64.0	64.4	0.4	+3 dB	No	44	94	202	46	100	216
Baseline Road	West of Fiddymont	110	65.5	64.2	-1.3	+1.5 dB	No	55	118	255	45	97	209
Baseline Road	Fiddymont to Junction	110	63.9	64.0	0.0	+3 dB	No	43	94	202	44	94	202
Baseline Road	Junction to Woodcreek	75	65.3	65.3	0.0	+1.5 dB	No	36	79	169	37	79	170
Baseline Road	Woodcreek to Foothills	75	65.7	65.7	0.0	+1.5 dB	No	39	83	179	39	83	179

4.6 Noise

Roadway	Segment	Distance (Feet) ¹	Traffic Noise Levels (L _{dn} dBA)			Significance Criteria	Significant Increase?	Distance to contours (feet) 2035 Cumulative ¹			Distance to Contours (feet) 2035 Cumulative Plus Project ¹		
			2035 Cumulative	2035 Cumulative Plus Project	Change			70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}	70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}
Baseline Road	Foothills to Washington	50	69.1	69.1	0.0	+1.5 dB	No	43	93	201	43	93	201
Junction Blvd.	Baseline to Woodcreek	75	62.3	62.4	0.1	+3 dB	No	23	50	107	23	50	109
Junction Blvd.	Woodcreek to Foothills	65	62.7	62.7	0.0	+3 dB	No	21	46	99	21	46	99
Junction Blvd.	Foothills to Washington	65	63.4	63.4	0.0	+3 dB	No	24	51	110	24	51	110
Roseville Pkwy	Washington to Pleasant Grove	100	63.9	64.0	0.1	+3 dB	No	39	85	183	40	86	185
Roseville Pkwy	East of Pleasant Grove	110	66.2	66.2	0.0	+1.5 dB	No	62	133	286	62	133	286
Sunset Blvd. West	Pleasant Grove to Amoruso	150	55.4	57.9	2.5	+3 dB	No	16	34	74	23	50	108
Sunset Blvd. West	Amoruso to Westbrook	150	55.0	58.3	3.4 ²	+3 dB	Yes	15	32	70	25	54	116
Fiddymment Road	North of Blue Oaks	105	63.2	63.2	0.1 ²	+3 dB	No	37	79	170	37	80	173
Fiddymment Road	Blue Oaks to Pleasant Grove	90	64.1	64.1	0.0	+3 dB	No	36	78	168	36	78	168
Fiddymment Road	Pleasant Grove to Baseline	90	66.2	66.3	0.1	+1.5 dB	No	51	109	235	51	110	237
Woodcreek Oaks Blvd.	North of Blue Oaks	85	62.1	62.1	0.0	+3 dB	No	25	55	118	25	55	118
Woodcreek Oaks Blvd.	Blue Oaks to Pleasant Grove	90	61.6	61.6	0.0	+3 dB	No	25	54	116	25	54	115
Woodcreek Oaks Blvd.	Pleasant Grove to Junction	100	60.9	61.0	0.1	+3 dB	No	25	54	115	25	54	116
Woodcreek Oaks Blvd.	Junction to Baseline	70	60.4	60.4	0.0	+3 dB	No	16	34	74	16	34	74

4.6 Noise

Roadway	Segment	Distance (Feet) ¹	Traffic Noise Levels (L _{dn} dBA)			Significance Criteria	Significant Increase?	Distance to contours (feet) 2035 Cumulative ¹			Distance to Contours (feet) 2035 Cumulative Plus Project ¹		
			2035 Cumulative	2035 Cumulative Plus Project	Change			70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}	70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}
Foothills Blvd.	North of Blue Oaks	100	68.4	68.4	0.1	+1.5 dB	No	78	168	363	79	170	366
Foothills Blvd.	Blue Oaks to Pleasant Grove	75	65.5	65.5	0.0	+1.5 dB	No	38	81	175	38	81	175
Foothills Blvd.	Pleasant Grove to Junction	100	64.7	64.5	-0.2	+3 dB	No	45	96	207	43	93	201
Foothills Blvd.	Junction to Baseline	75	66.2	66.2	0.0	+1.5 dB	No	42	90	195	42	91	195
Foothills Blvd.	South of Baseline	65	68.2	68.2	0.0	+1.5 dB	No	49	106	228	49	106	228
Washington Blvd.	Blue Oaks to Roseville Pkwy	100	64.1	64.1	0.0	+3 dB	No	40	87	188	41	88	189
Washington Blvd.	Roseville Pkwy to Pleasant Grove	110	61.9	61.9	0.0	+3 dB	No	32	68	146	32	68	147
Washington Blvd.	Pleasant Grove to Junction	85	64.3	64.3	0.0	+3 dB	No	35	76	164	35	76	164
Washington Blvd.	Junction Baseline	55	72.1	72.1	0.0	+1.5 dB	No	76	163	351	76	164	352
1 - Distances to traffic noise contours are measured in feet from the centerlines of the roadways. 2 - Difference between 2035 Cumulative and 2035 Cumulative Plus Project may not equal change due to rounding. Source: j.c. brennan & associates, Inc., 2015 (Appendix O).													

ambient sound level by 5.0 dBA or exceed the sound level standards set forth in the Noise Ordinance (**Table 4.6-8**), whichever is greater. As shown in **Table 4.6-13**, project-related traffic would not cause a 5.0 dB increase over ambient sound levels under Existing Plus Project conditions. Therefore, impacts associated with exceedance of standards established in the County's General Plan and Noise Ordinance as a result of project-related traffic are **less than significant**.

IMPACT 4.6-9	SUBSTANTIAL PERMANENT INCREASE IN AMBIENT NOISE LEVELS AS A RESULT OF THE 2035 CUMULATIVE PLUS PROJECT INCREASE IN TRAFFIC NOISE OUTSIDE THE PROJECT SITE
Applicable Policies and Regulations	City of Roseville General Plan Noise Element Table IX-1 Transportation Noise Standards
Significance with Policies and Regulations	Significant
Mitigation Measures	MM 4.6-3 Traffic Noise Control
Significance After Mitigation	Significant and Unavoidable

As indicated by **Table 4.6-13**, the projected noise level increases associated with development of the Proposed Project range from 0.1 to 3.4 dB. Noise levels on Sunset Boulevard West from Amoruso Way to Westbrook Boulevard are projected to increase by 3.4 dB. This predicted noise level increase would exceed the substantial permanent increase threshold of 3.0 dB. This is a **significant** impact.

As discussed in detail in **Impact 4.6-5**, noise **Mitigation Measure 4.6-3** would reduce impacts on Sunset Boulevard West by reducing the traffic noise level increase to 0.4 dB or less, resulting in a less-than-significant impact along this roadway segment. However, because Sunset Boulevard West is not within the responsibility and jurisdiction of the City of Roseville, it cannot be reasonably assumed that **Mitigation Measure 4.6-3** would be implemented by the time that the impact would occur. Therefore, impacts associated with substantial increases in ambient noise levels along Sunset Boulevard West from Amoruso Way to Westbrook Boulevard under 2035 Cumulative Plus Project Conditions are considered **significant and unavoidable**.

Noise level increases on all other roadways shown in **Table 4.6-13** would be below the 3.0 dB increase threshold for substantial increases in ambient noise levels. Therefore, impacts roadways other than Sunset Boulevard West would be **less than significant** under 2035 Cumulative Plus Project Conditions.

IMPACT 4.6-10	TRAFFIC NOISE IMPACTS AT FUTURE NOISE-SENSITIVE LAND USES DEVELOPED WITHIN THE PROJECT SITE
Applicable Policies and Regulations	City of Roseville General Plan Noise Element
Significance with Policies and Regulations	Significant
Mitigation Measures	MM 4.6-4 Traffic Noise Attenuation within the Project Site
Significance After Mitigation	Less than Significant

The FHWA traffic noise prediction model was used to predict 2035 Plus Project traffic noise levels at the proposed residential land uses associated with the Proposed Project. It should be noted that for this analysis, both the 2035 CIP Plus Project and 2035 Cumulative Plus Project traffic volumes were reviewed for each roadway segment and the higher of the two traffic volumes was assumed for conservative analysis. **Table 4.6-14** shows the predicted traffic noise levels at the proposed residential uses that would be located adjacent to the major project-area arterial roadways. **Table 4.6-14** also indicates the property line noise barrier heights required to achieve compliance with an exterior noise level standard of 60 dB L_{dn}.

As shown in **Table 4.6-14**, noise levels would be above 60 dB along future Placer Parkway in the low density residential (LDR) and MDR areas west of Westbrook Boulevard and the HDR area east of Westbrook Boulevard. However, it is anticipated that noise barriers ranging in height from six to nine feet could be used to reduce exterior noise levels to approximately 61 to 63 dB L_{dn} at the proposed residential uses located along the future Placer Parkway. The location and final design of noise barriers to address potential impacts from Placer Parkway on future residences within the project site will be determined as part of the environmental review process for the future Placer Parkway project. Although the anticipated noise levels with noise barriers would still exceed the City's 60 dB L_{dn} exterior noise level standard, they would comply with the City's conditionally acceptable noise level standard of 75 dB L_{dn}. Achieving the City's 60 dB L_{dn} standard will not likely be considered feasible using any other practical noise reduction measures because the City has a sound wall height limit of seven feet, so taller sound walls are prohibited in the City. Noise barrier locations will be determined at the time of the final design of Placer Parkway with consideration of access to open space.

Appendix D of the *Noise Analysis* (**Appendix O**) provides the complete inputs and results of the FHWA traffic noise prediction model and barrier calculations. The modeled noise barriers assume flat site conditions where roadway elevations, base of wall elevations, and building pad elevations are approximately equivalent.

TABLE 4.6-14
TRAFFIC NOISE LEVELS AT PROPOSED RESIDENTIAL USES

Roadway	Segment	Approximate Residential Setback, feet ¹	ADT	Predicted Traffic Noise Levels, dB L _{dn} ²				
				No Wall	6' Wall	7' Wall	8' Wall	9' Wall
Westbrook Blvd	South of Road A	350	31,300	59	--	--	--	--
Westbrook Blvd	Road A to Road B	280	31,300	53 ³	--	--	--	--
Westbrook Blvd	Road B to Road C	90	18,500	60 ³	--	--	--	--
Westbrook Blvd	Road C to Road D	90	18,500	60 ³	--	--	--	--
Westbrook Blvd	Road D to Road E	90	16,700	60 ³	--	--	--	--
Westbrook Blvd	North of Road E	90	16,700	60 ³	--	--	--	--
Road - A	West of Westbrook Blvd	65	7,100	58	--	--	--	--
Road - A	East Of Westbrook Blvd	65	8,100	59	--	--	--	--
Road - B	East Of Westbrook Blvd	65	3,700	55	--	--	--	--
Road - C	West of Westbrook Blvd	65	3,600	55	--	--	--	--
Road - D	West of Westbrook Blvd	65	4,700	56	--	--	--	--
Road - D	East Of Westbrook Blvd	65	10,200	60	--	--	--	--
Road - E	West of Westbrook Blvd	220	1,300	43	--	--	--	--
All Internal Roads	Estimated Less Than 3500 ADT	65	3,500	55	--	--	--	--
Placer Pkwy	LDR - West of Westbrook Blvd	150	18,600	68	64	64	63	63
Placer Pkwy	MDR - West of Westbrook Blvd	150	18,600	68	64	64	63	63
Placer Pkwy	HDR - East of Westbrook Blvd	250	33,500	68	63	62	62	61

1 - Setback distances are measured in feet from the centerlines of the roadways to the center of residential backyards.

2 - The modeled noise barriers assume that Placer Parkway may be elevated by 15 feet relative to the project site. The noise barrier design should be reviewed when detailed grading plans are available for the Proposed Project and the Placer Parkway Project.

3 - Assumes that outdoor activity areas will be shielded by an intervening building(s). This is a preferred site design measure to reduce exterior noise and is preferred over the use of sound walls.

-- Meets the City of Roseville's exterior noise criterion without mitigation.

Source: Fehr & Peers, 2016a (**Appendix M**); j.c. brennan & associates, Inc. 2015 (**Appendix O**).

Additionally, interior noise levels of residential units could exceed the City's 45 dB L_{dn} interior noise level standard. Modern residential construction typically provides an exterior-to-interior noise level reduction of 25 dB. First floor noise exposures at the residential uses along the project roadways are predicted to range between 18 and 43 dB L_{dn}. Noise levels at second and third floor levels are typically two to three dB louder, or 21 to 46 dB L_{dn}. The highest noise levels would occur at the residential uses along the future Placer Parkway alignment. These uses are predicted to be exposed to interior noise levels of up to 46 dB L_{dn} at second or third floor elevations, which exceeds the City's 45 dB L_{dn} interior noise level standard. This is considered a **significant** impact

Mitigation Measure 4.6-4 would reduce interior noise impacts by requiring that detailed interior noise analysis be conducted for residential receptors constructed adjacent to the future Placer Parkway alignment and requiring that mechanical ventilation be installed in residential uses to allow residents to keep doors and windows closed, as desired for acoustical isolation. As described in **Mitigation Measure**

4.6-4, the interior noise analysis would detail noise control measures required to achieve compliance with the City's 45 dB L_{dn} interior noise level standard, such as requiring windows and doors on second or third floor residential facades facing Placer Parkway to have a sound transmission class (STC) rating of 30 to 35. With implementation of **Mitigation Measure 4.6-4**, interior noise levels from traffic within the project site would be **less than significant**.

IMPACT 4.6-11	AIRCRAFT OPERATIONS AND OVERFLIGHT NOISE
Applicable Policies and Regulations	Caltrans Airport Land Use Handbook
Significance with Policies and Regulations	Less than Significant
Mitigation Measures	None Required
Significance After Mitigation	Less than Significant

According to the Sacramento County Department of Airports, the area in the vicinity of MCC is subject to frequent large aircraft overflights at altitudes less than 3,000 feet above msl. Additionally, the project site is also under the flight track for aircraft flying to SMF and trainer jets flying between Beale and MHR. Based on current and historical experience, single event noise occurrences can cause annoyance to residential or other sensitive uses.

MCC's most recent Airport Land Use Compatibility Plan (formerly known as Comprehensive Land Use Plans or CLUP) was updated in 1987 and amended in 1992 when McClellan was still operated as an Air Force base. The manner in which the airport is now operated is significantly different than when it was operated as an Air Force base, and the fleet utilizing the facility is also significantly changed. These changes have resulted in a smaller area exposed to high levels of aircraft noise and have reduced the area required for aircraft safety zones.

McClellan Airport's Reuse Plan identified the ways in which the County of Sacramento envisions the uses of the airport changing over time. A theoretical capacity noise exposure contour was also prepared which identified a capacity of the airfield and assumed full utilization of facilities at McClellan.

Figure 4.6-1 indicates that the 60 dB CNEL "Theoretic Capacity" noise contour for MCC would remain south of Elverta Road. Therefore, exterior noise levels from aircraft operations at MCC are not predicted to exceed the City of Roseville 60 dB L_{dn} /CNEL exterior noise level standard on the project site. Further, aircraft operations are not predicted to exceed the City's 45 dB L_{dn} /CNEL interior noise level standard on the project site. Additionally, the project site is located outside of the noise contours and planning areas for SMF, Beale, and MHR. Therefore, this impact is **less than significant**.

Sleep Disturbance

For the purposes of evaluating the potential for sleep disturbance due to interior noise from aircraft operations over the project site, including overflight noise from MCC, SMF, Beale, and MHR, j.c. brennan & associates, Inc. utilized the methods described in American National Standards Institute/Acoustical Society of America (ANSI/ASA) S12.9-2008/Part 6, along with the Federal Interagency Committee on Aviation Noise (FICAN)¹ research, as described in Annex B of the ANSI procedures. The ANSI procedures calculate the probability of behavioral awakenings while accounting for the predicted mean indoor SEL at the future residential uses on the project site and the number of observed nighttime aircraft events. Appendix E of the *Noise Analysis (Appendix O)* provides the complete inputs and results of the sleep disturbance calculations.

Noise monitoring conducted at Site B on the project site did not record any SEL aircraft events exceeding 75 dB during nighttime hours. The only SEL event exceeding 75 dB occurred at 5:23 p.m. on January 6, 2014. The measured SEL for this event was 82.6 dB. While nighttime overflights were not observed during the ambient noise level survey for the project, some nighttime activity is known to occur. During the 7 days of noise monitoring aircraft operations, at the CSP Area to the south, one nighttime (10:00 p.m. to 7:00 a.m.) event occurred having an SEL of 75 dB or greater. The event occurred on December 14, 2006 at 12:49 a.m. and resulted in an SEL of 82.6 dB.

Using one nighttime SEL of 82.6 dB, and assuming that typical construction practices will achieve an exterior to interior noise level reduction of 25 dB with the windows in the closed position, the interior SEL would be approximately 57.6 dB. Based upon the ANSI procedures, the maximum percent awakened would be approximately 2.6 percent. FICAN explained that, “because the adopted curve represents the upper limit of the data presented, it should be interpreted as predicting the maximum percent of the exposed population expected to be behaviorally awakened, or the maximum percent awakened” (j.c. brennan & associates, Inc., 2015).

The maximum percent awakened is predicted to be fairly low; therefore, the impact due to MCC, SMF, Beale, and MHR overflights is considered **less than significant**. As indicated in **Section 2.12 of the Project Description**, future residents will be notified of the proximity of McClellan and the potential for overflights from MCC, SMF, Beale, and MHR.

4.6.5 MITIGATION MEASURES

MM 4.6-1 Construction Noise Reduction (Impact 4.6-1)

The following measures shall be implemented to reduce impacts of construction noise:

- Ensure construction activities comply with the requirements of the City of Roseville Noise Ordinance with respect to hours of operation.
- Locate fixed construction equipment such as compressors and generators as far as possible from sensitive receptors. Shroud or shield all impact tools, and muffle or shield all intake and exhaust ports on power construction equipment.

¹ FICAN was formed in 1993 to provide forums for debate over future research needs to better understand, predict and control the effects of aviation noise, and to encourage new technical development efforts in these areas

- Designate a disturbance coordinator and conspicuously post this person's number around the project site and in adjacent public spaces. The disturbance coordinator shall receive all public complaints about construction noise disturbances and shall be responsible for determining the cause of the complaint, and implement any feasible measures to be taken to alleviate the problem.
- Well Drilling Construction Noise:
 - o To the extent feasible, the on-site ASR well shall be drilled prior to the occupancy of residential units within 500 feet of the well site.
 - o Noise curtains shall be utilized during drilling of the well if, at the time of well construction, homes are occupied within 1,000 feet of the well.

MM 4.6-2 Commercial Noise Control (Impact 4.6-2)

For all commercial uses within 500 feet of residential uses, the developer shall implement the following or equally effective measures:

- Where commercial land uses adjoin residential property lines, the following measures shall be included in the design of the commercial use. If the primary noise sources are parking lot noise, HVAC equipment and light truck deliveries, then 6-7 foot tall masonry walls shall be constructed to provide adequate isolation of parking lot and delivery truck activities. HVAC equipment shall be located either at ground level, or when located on roof-tops the building facades shall include parapets for shielding.
- Where commercial uses adjoin common residential property lines, and loading docks or truck circulation routes face the residential areas, the following mitigation measures shall be included in the project design:
 - o Loading docks and truck delivery areas shall be a minimum distance of 211 feet from residential property lines;
 - o Property line barriers shall be eight feet in height. Circulation routes for trucks shall be located a minimum of 80 feet from residential property lines;
 - o Loading dock and truck deliveries shall be limited to daytime hours;
 - o All heating, cooling and ventilation equipment shall be located within mechanical rooms where possible;
 - o All heating, cooling and ventilation equipment shall be shielded from view with solid barriers;
 - o Emergency generators shall comply with the local noise criteria at the nearest noise-sensitive receivers; and
 - o In cases where loading docks or truck delivery circulation routes are located less than 211 feet from residential property lines or if nighttime deliveries are required, an acoustical evaluation shall be submitted to the City to verify compliance with the City of Roseville Noise Level

Performance Standards. Uses that do not comply with the City of Roseville Noise Level Performance Standards shall not be permitted.

- Prior to City approval of conditionally permitted uses which include more substantial exterior noise sources such as car washes, automotive repair, and outdoor recreation, a noise study shall be prepared by an acoustical engineer that identifies the necessary measures required to achieve compliance with the City of Roseville Noise Level Performance Standards at the nearest sensitive receptors. The City shall require that the measures identified in the noise study are implemented as a condition of approval of conditional use permits.

MM 4.6-3 Traffic Noise Control (Impacts 4.6-5, 4.6-7, 4.6-9)

The following measures would reduce impacts to off-site sensitive receptors from traffic noise levels:

- Sunset Boulevard West shall be repaved from Pleasant Grove Road to Westbrook Boulevard using OGAC.
- Pleasant Grove Road shall be repaved north of Baseline Road using OGAC.

MM 4.6-4 Traffic Noise Attenuation within the Project Site (Impact 4.6-10)

The following measure shall be implemented to reduce traffic noise impacts:

- A detailed analysis of interior noise levels shall be conducted when building plans are available for the residential uses adjacent to the proposed Placer Parkway alignment. The analysis shall identify noise control measures that are required to achieve compliance with the City of Roseville 45 dB L_{dn} interior noise level standard, such as installation of windows and doors with a STC rating of 30 to 35, and these noise control measures shall be implemented to achieve compliance with the City's standard. Such analysis shall be conducted by a qualified acoustical consultant recognized by the City of Roseville.
- Mechanical ventilation shall be installed in all residential uses adjacent to Placer Parkway to allow residents to keep doors and windows closed, as desired for acoustical isolation.