4.6 NOISE

4.6.1 INTRODUCTION

This section evaluates the potential noise impacts due to and upon development of the CSP project, describes the existing noise environment within the CSP area, and identifies noise levels expected to be generated by construction and operation of the proposed Project. 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 concrete batch plant operations. This information is summarized from the following technical studies:

- City of Roseville *General Plan,* 2010 as amended
- City of Roseville *Noise Ordinance*
- California Department of Transportation*, Airport Land Use Handbook*
- J.C. Brennan & Associates, Inc. *Creekview Noise Study*, November 19, 2010
- DKS Associates, *Creekview Specific Plan Traffic Study*, September 2010
- *West Roseville Specific Plan FEIR*, February 2004
- *Creekview Specific Plan,* 2010

The documents listed above are available for review during normal business hours at:

City of Roseville Permit Center
311 Vernon Street
Roseville, CA 95678

No comments regarding noise were received in response to the Notice of Preparation.

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 the variables including 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 110 dB begin to be felt inside the human ear as discomfort, and eventually pain at 120 dB and higher levels. The minimum change in the sound level of individual events that an average human ear can detect is about 1 to 2 dB. A 3 to 5 dB change is readily perceived. 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.

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 dB, regardless of the

initial sound level. For example: 60 dB + 60 dB = 63 dB, and 80 dB + 80 dB = 83 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 level depends 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.

Hertz (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 broad band of frequencies differing in sound level. The method commonly used to quantify environmental sounds consists of evaluating all frequencies of a sound according to a weighting system that reflects that human hearing is less sensitive at low frequencies and extremely high frequencies than at the 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 noise includes a mixture of noise from distant sources that

creates a relatively steady background noise in which no particular source is identifiable. A single descriptor called the equivalent sound level (Leq) may be used to describe sound that is changing in level. Leq 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 Leq (Lmax) and minimum Leq (Lmin) indicators that represent the root-mean-square maximum and minimum noise levels measured during the monitoring interval. The Lmin 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 (Ldn) describes noise exposure over a 24-hour period. It is calculated by adding a 10-decibel 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 Ldn 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 project's acoustical environment, peak hour noise levels are expressed in terms of Ldn. Sound levels of typical noise sources and

environments are provided in Table 4.6-1, Sound Levels of Typical Noise Sources and Noise Environments, to provide a frame of reference.

Existing Noise Conditions in Project Area

Transportation

Vehicle traffic is the major contributor to existing transportation noise in the project vicinity along Phillip Road. With future improvements, motor vehicle traffic will be a major contributor to the noise environment in the vicinity of the project along Blue Oaks Boulevard, Westbrook Boulevard and Parkway One.

Aircraft

McClellan Airfield is located approximately 7.5 miles south of the project site. Occasional overflights from McClellan Airfield were observed during visits to the project site. The County of Sacramento Department of Economic Developments owns and oversees McClellan Airfield, which features a 10,600 foot lighted runway approved for day/night use, which is shared by the U.S. Cost 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 McClellan 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 McClellan are small jets and other general aviation planes. The types and number of flight operations at McClellan are subject to Federal Aviation Administration (FAA) regulations.

TABLE 4.6-1
SOUND LEVELS OF TYPICAL NOISE SOURCES AND NOISE ENVIRONMENTS

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 1 m (3 ft) Garbage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft)	--70--	Vacuum Cleaner at 3 m (10 ft)
Commercial Area Heavy Traffic at 90 m (300 ft)	--60--	Normal Speech at 1 m (3 ft)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing
Source: Caltrans, Technical Noise Supplement, Traffic Noise Analysis Protocol. October 1998.		

While SACOG is the Airport Land Use Commission for the airfield, it does not regulate the number and types of aircraft that use the facility.

Non-Transportation

Noise sensitive land uses in the project vicinity consist of a rural residential use located within the Urban Reserve at the southeast corner of the site on Phillip

Road. Future residential uses will be located to the east of the project boundary in the West Roseville Specific Plan/Fiddyment Farms area.

City Owned Property

The O'Brien Kennel is operating on a short term lease of property immediately south of the project boundary. The site is zoned Community Commercial.

Major stationary sources of noise for the City-owned property include the Roseville Energy Park (REP) and the Pleasant Grove Waste Water Treatment Plant, both of which are south of the project boundary, south of Phillip Road.

Ambient Noise Assessment Methodology

To determine the existing traffic noise levels at the identified sensitive receivers within the project vicinity, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used with the California Vehicle Noise Emission Levels. The FHWA Model is based upon the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. Traffic volumes were obtained from DKS Associates in the form of ADT traffic volumes. Truck usage and vehicle speeds on the project roadways were estimated from field observations of posted speed limits. Table 4.6-1 shows the predicted existing traffic noise levels in terms of the Ldn descriptor at a standard distance of 100 feet from the centerlines of the existing project-area roadways for existing conditions, as well as distances to existing traffic noise contours. The extent to which existing land uses in the project vicinity are affected by traffic noise depends on their respective proximity to the roadways and their individual sensitivity to noise. Appendix K provides the complete inputs and results to the FHWA model.

As shown in Table 4.6-2, most of the roadways exceed the City of Roseville General Plan noise standards of 60 Ldn in the vicinity of the project area, except for the segment of Fiddyment Road, north of Blue Oaks Boulevard.

TABLE 4.6-2
EXISTING TRAFFIC NOISE LEVELS

Roadway	Segment	Traffic Noise Level, Ldn (dBA)	Distance to Contours (feet) 1		
			70 dB Ldn	65 dB Ldn	60 dB Ldn
Westbrook Drive	North of Blue Oaks	--	--	--	--
Westbrook Drive	South of Blue Oaks	--	--	--	--
Blue Oaks Blvd	West of Westbrook	--	--	--	--
Blue Oaks Blvd	West Park to Hayden	--	--	--	--
Blue Oaks Blvd	Hayden to Fiddyment	--	--	--	--
Blue Oaks Blvd	East of Fiddyment	61.7	28	60	130
Fiddyment Road	North of Blue Oaks	58.9	18	39	85
Fiddyment Road	Blue Oaks to Pleasant Grove	63	34	74	158
Fiddyment Road	South of Pleasant Grove	64.7	44	95	205
Pleasant Grove Blvd	West of Fiddyment	65.2	48	103	222
Pleasant Grove Blvd	East of Fiddyment	64.5	43	93	201

1. Distances are measured from the centerline of the roadway.
-- Roadway does not exist under this scenario.

j.c. Brennan, 2010

Existing Aviation Noise Levels

Aviation activity associated with McClellan Airfield has the potential to occur over the project site. Take off and landings are primarily in a north/south pattern. However, since there is no active tower at McClellan, flight activity can be in any direction, at the discretion of the pilot and the weather. The noise monitoring report developed by the County Airport System indicates that daily CNEL noise levels due to aircraft operations ranged between 38-50 dB CNEL with an average of 42 daily overflights, as shown on Figure 4.6-1. Sound Exposure Levels (SEL) for individual aircraft were also collected and reported.

Existing Roseville Energy Park Noise Levels

The Roseville Energy Park (REP) is located immediately south of the Creekview project site, adjacent to the Pleasant Grove Wastewater Treatment Plan. The REP is a 160-megawatt power generation facility which has two gas-fired turbine generators and one steam turbine generator.

Based upon observations and noise measures conducted at the project site, the existing REP currently generates noise levels that are audible at the project site. The degree of noise varies significantly depending on atmospheric conditions, including wind, humidity, and temperature. The REP operates on an as-needed basis depending on demand and electric rates. The REP could operate nearly year-round or only for 6-months of the year, depending on need. Noise levels may be louder at start up and shut down, and during maintenance operations.

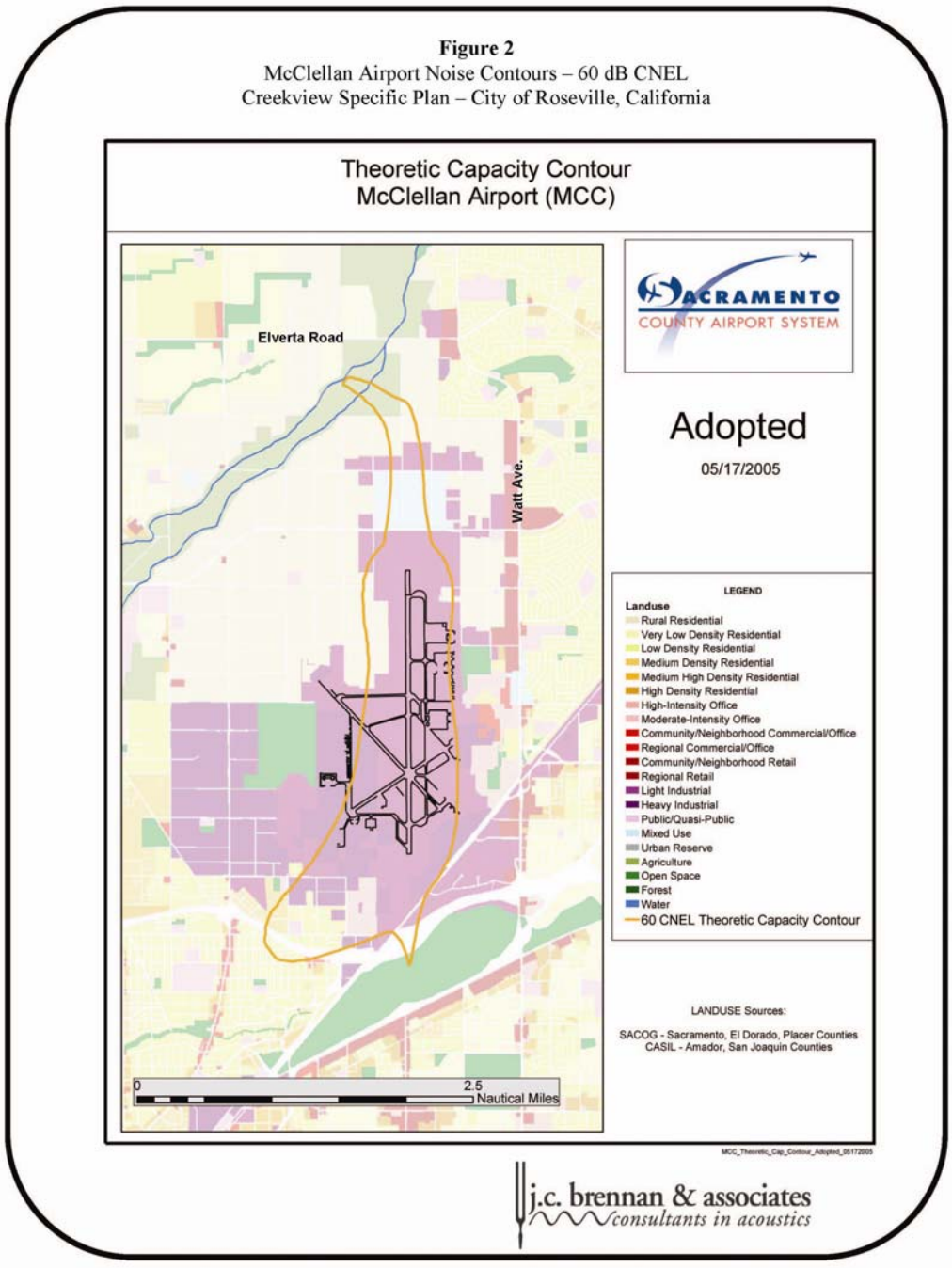
Measured noise levels during REP operation varied between approximately 47-55 dB Leq at the project site.

Existing Ambient Noise Level:

To quantify existing ambient noise levels in the vicinity of the project site, j.c. Brennan & Associates, Inc. staff conducted short-term and continuous (24-hour)

FIGURE 4.6-1

AIRPORT 60 dB CNEL NOISE CONTOURS



noise level measurements at two locations on the project site. Figure 4.6-2 identifies noise measurement locations.

Instrumentation consisted of LDL Model 820 and LDL Model 824 precision integrating sound level meters. The measurement systems were calibrated using a LDL Model CAL200 acoustical calibrator before testing. The measurement equipment meets all of the pertinent requirements of the American National Standards Institute (ANSI) for Type 1 (precision) sound level meters. The noise level measurements were conducted between June 26 and June 29, 2010. The noise level measurements were conducted to determine typical background noise levels and for comparison to the project related noise levels. Table 4.6-3 is a summary of the noise measurement results.

TABLE 4.6-3
EXISTING NOISE MONITORING RESULTS

Site	Location	Date	Duration	Average Measured Hourly Noise Levels, (dBA)						
				24-hr Ldn	Daytime (7:00 am - 10:00 pm)			Nighttime (10:00 pm - 7 am)		
					Leq	L50	Lmax	Leq	L50	Lmax
Continuous (24-hour) Noise Measurements										
A	Creekview Site A	Sat. 6/26/10[1]	24 hour	59	47	36	69	53	44	58
		Sun 6/27/10		57	47	37	69	51	50	59
		Mon. 6/28/10		58	48	35	73	52	50	63
		Tues. 6/29/10		57	48	39	71	50	49	61
B	Creekview Site B	Sat. 6/26/10[1]	24 hour	49	41	37	58	43	42	55
		Sun. 6/27/10		66	49	47	61	60	48	64
		Mon. 6/28/10		57	47	45	60	51	50	58
		Tues. 6/29/10		57	47	46	59	51	50	61

[1] REP was not running on 6/26/10

Source - j.c. brennan & associates, Inc. 2010.

FIGURE 4.6-2

NOISE MEASUREMENT LOCATIONS

Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters were used for the continuous noise level measurement surveys. An LDL model 824 sound level meter was used for each of the short-term noise level measurements. The meters were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4). Appendix K provides the complete results of the continuous ambient noise measurements.

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 State of California Code of Regulations establishes uniform minimum noise insulation performance standards to protect persons within new buildings which house people, including hotels, motels, dormitories, apartment houses and dwellings other than single-family dwellings. Title 24 mandates that interior noise levels attributable to exterior sources shall not exceed 45 dB Ldn or CNEL in any habitable room. Title 24 also mandates that for structures containing noise-sensitive uses to be located where the Ldn 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

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

Goals:

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

Policies – Transportation Noise

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 as Draft EIR Table 4.6-4 below]. Noise mitigation measures may be required to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table IX-1.

Policies – Fixed Noise Source

1. 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 Draft EIR Table 4.6-5]. 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.

Policies – General

1. 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 project.

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

TABLE 4.6-4

MAXIMUM ALLOWABLE NOISE EXPOSURE TRANSPORTATION NOISE SOURCES

(TABLE IX-1 OF THE ROSEVILLE GENERAL PLAN NOISE ELEMENT)

Land Use	Outdoor Activity Areas1 Ldn/CNEL, dB	Interior Spaces	
		Ldn/CNEL, dB	Leq, dB2
Residential	60[3]	45	--
Transient Lodging	60[3]	45	--
Hospitals & Nursing Homes	60[3]	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	60[3]	--	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 Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 75 dB Ldn/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels area 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, 2025 General Plan.

Roseville Municipal Code

The City of Roseville Noise Ordinance, Chapter 9.24 of the 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.

The Noise 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 must be fitted with factory installed muffling devices and that all construction equipment shall be maintained in good working order.

TABLE 4.6-5

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 (Leq)	50 dB	45 dB
Maximum Level (Lmax)	70 dB	65 dB
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, 2025 General Plan.		

Additionally, 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 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, Lmax at the property line of the site of the event.

Determination of a Significant Increase in Noise Levels

Another means of determining a potential noise impact is to assess a person's perception to changes in noise levels. Table 4.6-6 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 probably 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 4.6-6

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: Architectural Acoustics, M. David Egan, 1988.		

4.6.4 IMPACTS

Thresholds of Significance

- Exposure of persons to or generation of noise levels in excess of standards established in the City of Roseville General Plan, specifically, the exterior and interior noise levels listed in Tables 4.6-4 and 4.6-5

(General Plan Tables IX-1 and IX-3).

- A substantial (greater than 3 dBA) permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- Exposure of persons to or generation of excessive ground-borne vibration or ground-borne 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 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 be adopted, within two miles of a public airport or public use airport, exposure of people residing or working in the area to excessive noise levels.
- For a project within the vicinity of a private airstrip exposure of people residing or working in the project area to excessive noise levels.

There are no private airstrips in the vicinity of the project area. Therefore, this topic has been ruled out for further analysis.

IMPACT 4.6-1	SHORT-TERM NOISE GENERATED BY CONSTRUCTION ACTIVITY	
Applicable Policies and Regulations	City of Roseville Noise Ordinance Section 9.24.030.	
	CSP	**Urban Reserve**
Significance with Policies and Regulations	Significant	Significant
Mitigation Measures:	MM 4.6-1 Construction Noise Reduction	WMM 4.5-2 Construction Noise Policies and MM 4.6-1 Construction Noise Reduction
Significance after Mitigation:	Significant and Unavoidable	Significant and Unavoidable

Construction Noise Impact Methodology

Construction noise was analyzed using data compiled for various pieces of construction equipment at a distance of 50-feet, which is representative of the minimum likely distance from a residential receptor. Construction activities are discussed in relation to the applicable City of Roseville Noise Ordinance policies.

CREEKVIEW SPECIFIC PLAN

Construction activities would affect residences east of the CSP area, as well as an existing residence in the Urban Reserve parcel. 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. Improvements along Blue Oaks and Westbrook Boulevard would also expose residents in those areas to construction noise.

Activities involved in general construction of residential and commercial buildings would generate the typical noise levels indicated in Table 4.6-7, which range from 84 to 89 decibels (dB) at a distance of 50-feet. Construction of infrastructure projects can also generate significant noise levels of approximately 90 dB at a distance of 50-feet (J.C. Brennan). Well drilling, which requires around-the-clock drilling, typically for periods of approximately two-weeks, and can create impacts when residents are trying to sleep. No pile driving or other unusual construction practices except for the well drilling is proposed at this time. However, pile driving may be necessary for bridge construction or other facilities, which could result in substantial ground- borne vibration or noise. Construction activities would be temporary in nature. Except for well drilling, construction activities are anticipated to occur during normal daytime working hours.

TABLE 4.6-7
CONSTRUCTION EQUIPMENT NOISE

Type of Equipment	Maximum Level, dB at 50-feet
Backhoe	78
Compactor	83
Compressor (air)	78
Concrete Saw	90
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Jackhammer	89
Pnuematic Tools	85

Source: *Roadway Construction Noise Model User's Guide*. Federal Highway Administration. FHWA-HEP-05-054, January 2006

Noise would also be generated by the project during the construction phase by increased truck traffic on area roadways, particularly trucks transporting heavy materials and equipment to and from construction sites.

The Roseville Noise Ordinance (Section 9.24.030) restricts construction activities to the hours of 7:00 a.m. to 7:00 p.m. Monday through Friday, and 8:00 a.m. to 8:00 p.m. Saturday and Sunday, and requires appropriate sound muffling devices be installed on construction equipment. These measures ensure that construction noise is limited to the daytime, and that equipment noise is minimized. Compliance with the City's Noise Ordinance would ensure that impacts are reduced. However, infrastructure projects such as construction of wells and the maintenance of those facilities would result in **significant** noise impacts because impacts would be occurring during continuous periods exceeding normal construction hours contemplated by the Noise Ordinance.

MM 4.6-1 (a) requires project construction to comply with the City of Roseville Noise Ordinance. MM 4.6-1(b) requires that equipment warm up areas, water tanks, and equipment storage areas be located in an area as far away from existing residences as feasible. MM 4.6-1(c) requires the construction contractor to designate a Coordinator who will receive noise complaints and implement measures to address them. MM 4.6-1(d) requires that well drilling occur prior to construction of the adjacent subdivision. If construction timing for the wells occurs after subdivision construction, then measures to reduce noise shall be used including; hanging flexible sound control curtains around the drilling apparatus, and the drill rig, to the degree feasible, as determined by the Environmental Utilities Director, if located within 1,000-feet of an occupied residence. Even with implementation of MM 4.6-1, there is a potential that noise from construction activities would be significant, because construction-related noise would occur beyond the hours in which such noise is considered acceptable

under the City's Noise Ordinance (i.e., between 7:00 a.m. and 7:00 p.m. on weekdays and 8:00 a.m. and 8:00 p.m. on weekends). Therefore, this is a **significant and unavoidable** impact.

URBAN RESERVE

Development of the Urban Reserve area would result in similar construction-related noise impacts as identified for the CSP. Existing residents within the WRSP area could be impacted by construction activities along the Urban Reserve's eastern boundary or potentially within the CSP. This impact is considered **significant**. Previously adopted WMM 4.5-2 (Construction Noise Policies), which would continue to apply to the Urban Reserve area, requires compliance with the City's Noise Ordinance, limiting the hours of construction and requiring sound mufflers on construction equipment, would reduce the impacts from construction noise.

If well drilling is proposed, MM 4.6-1(d) requires that well drilling occur prior to construction of the adjacent subdivision. If construction timing for the wells occurs after subdivision construction, then measures to reduce noise shall be used, including hanging flexible sound control curtains around the drilling apparatus and the drill rig, to the degree feasible as determined by the Environmental Utilities Director, if located within 1,000-feet of an occupied residence. Even with implementation of MM 4.6-1, there is a potential that noise from construction activities would be significant, because construction-related noise would occur beyond the hours in which such noise is considered acceptable under the City's Noise Ordinance (i.e., between 7:00 a.m. and 7:00 p.m. on weekdays and 8:00 a.m. and 8:00 p.m. on weekends). Therefore, this is a **significant and unavoidable** impact.

IMPACT 4.6-2	COMMERCIAL NOISE SOURCES	
Applicable Policies and Regulations	City of Roseville General Plan Noise Element	
	CSP	**Urban Reserve**
Significance with Policies and Regulations	Significant	Potentially Significant
Mitigation Measures:	MM 4.6-2 Commercial Noise Controls	WMM 4.5-4 Commercial Noise Policies
Significance after Mitigation:	Less Than Significant	Less Than Significant

CREEKVIEW SPECIFIC PLAN

Within the project site, commercial uses are proposed on the northeast corner of Westbrook Boulevard and Blue Oaks Boulevard. Adjacent to this use to the north is a proposed medium density residential area. Commercial uses/noise sources could include, but are not limited to: commercial loading docks associated with such uses as grocery stores, on-site truck circulation, rooftop heating and ventilation equipment, and trash pickup. In addition, there is a bus transfer station proposed as part of the commercial center. This is an area where buses would idle while dropping off/picking up passengers at a transit stop. These activities could generate significant noise at nearby residences. 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. A key design concept of the plan is to provide connectivity between commercial and residential uses so that there are opportunities for access to services without relying on automobiles. Indoor and outdoor noise levels at residences located

more than 150-feet from commercial uses would not be expected to exceed noise standards (j.c. Brennan). This impact is considered **significant**.

MM 4.6-2 requires measures such as building orientation, shielding (e.g., berms, masonry walls, landscaping), restriction of delivery hours, and screening of HVAC equipment, to be used to reduce noise levels at residences within 150-feet of commercial uses. With implementation of these or other effective design measures identified in site-specific acoustical analyses in the commercial developments, noise levels associated with commercial uses are expected to meet the acceptable noise level criteria. MM 4.6-2 requires that an acoustic analysis be performed to demonstrate that the measures selected for the commercial development within 100-feet of residences would ensure that City noise standards are met. Therefore, with mitigation, this is considered a **less than significant** impact.

URBAN RESERVE

The location of future commercial uses (if any) within the Urban Reserve area has not been determined, but it is assumed that, similar to the CSP, commercial and residential uses could be located in proximity to each other. Therefore, noise levels from commercial facilities could exceed City standards at some residences resulting in **potentially significant** impacts. Previously adopted WMM 4.5-4, identified in the WRSP EIR, requires that specific plans and/or other development proposals include policies or conditions that commercial uses located near residential areas must be designed to ensure that the City's standards are met through the use of setbacks, barriers, and other measures. Particular attention shall be given to loading docks, onsite truck circulations, and HVAC equipment. This would reduce potential future noise impacts to a **less than significant** level.

IMPACT 4.6-3	NOISE COMPATIBILITY WITH ROSEVILLE ENERGY PARK	
Applicable Policies and Regulations	City of Roseville Municipal Code Section 9.24.030 (D).	
	CSP	**Urban Reserve**
Significance with Policies and Regulations	Less Than Significant	Less Than Significant
Mitigation Measures:	None Required	None Required
Significance after Mitigation:	Less Than Significant	Less Than Significant

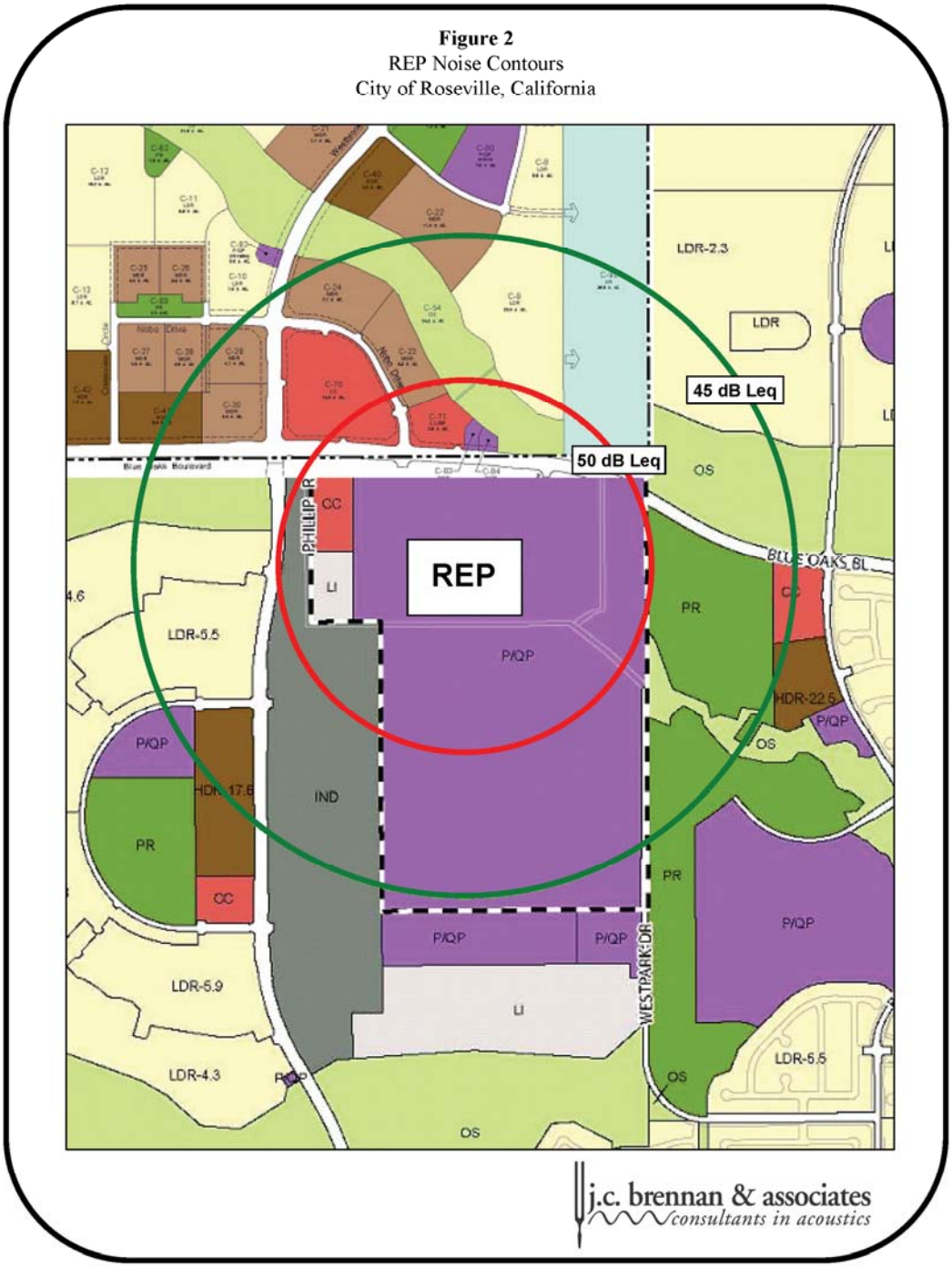
CREEKVIEW SPECIFIC PLAN

The REP is located approximately 800 feet from the southern boundary of the proposed project. Noise monitoring was conducted (j.c. Brennan, 2010) to determine whether there would be impacts to the project during times the REP is operational. Figure 4.6-3 shows the location of the noise contours from the REP.

REP noise levels were observed to vary between approximately 47-55 dB Leq during normal operations. Louder noise levels are typically associated with start up of the REP or during periods of peak operations. Average noise level operations for the REP relative to the project site are presented on Figure 4.6-3. A large portion of proposed residential uses would fall inside the 45 dB Leq noise contour zone, but outside the 50 dB Leq contour zone of the REP. The City of Roseville Noise Ordinance allows up to 52 dB Leq for industrial uses adjacent to residential areas. During most hours, the REP was observed to generate noise levels less than 52 dB Leq at the project site. This is considered a **less than significant** impact.

FIGURE 4.6-3

ROSEVILLE ENERGY PARK NOISE CONTOURS



Peak operations such as during start up or during emergency shut off, or various atmospheric conditions can result in louder noise levels; however the City does not have a single event noise standard.

URBAN RESERVE

Approximately one-half of the Urban Reserve area falls within the 45 dB Ldn or higher contour. The City of Roseville noise ordinance allows up to 52 dB Leq for industrial uses adjacent to residential areas. During most hours the REP was observed to generate noise levels less than 52 dB Leq at the project site. This is considered a **less than significant** impact. Because of the proximity of the REP, all future residential uses are to be informed of the proximity and nature of the REP. This is a **less than significan**t impact.

IMPACT 4.6-4	NOISE FROM SCHOOL RELATED ACTIVITIES	
Applicable Policies and Regulations	City of Roseville Municipal Code Section 9.24.030 (D).	
	CSP	**Urban Reserve**
Significance with Policies and Regulations	Less Than Significant	Less Than Significant
Mitigation Measures:	None Required	None Required
Significance after Mitigation:	Less Than Significant	Less Than Significant

CREEKVIEW SPECIFIC PLAN

The CSP includes one elementary school. The school would be located adjacent to residential areas. The noise sources associated with school sites are generally associated with outdoor sports and play areas. Other noise sources could include heating and ventilation equipment, parking lot noise, and bells that

indicate the start or end of class periods. Noise sources from outdoor school sports areas generally include crowd and player noise, and public address systems. Noise at games and outdoor sporting events is on average around 60 dB Leq at a distance of 100-feet from the focal point or effective noise center of playing fields. Based on this average, noise levels are predicted to range from 44 to 46 dB Leq at the nearest residential receptors. 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.

URBAN RESERVE

No schools are proposed in the Urban Reserve areas at this time and it is likely that none will be needed because the proposed school within the CSP would be adequate to serve future Urban Reserve residents. Therefore, noise from future development of the site as Urban Reserve related to schools would be **less than significant**.

IMPACT 4.6-5	PARK NOISE	
Applicable Policies and Regulations	City of Roseville Municipal Code Section 9.24.130 Sound limits on public property	
	CSP	**Urban Reserve**
Significance with Policies and Regulations	Less than significant	Less than significant
Mitigation Measures:	None Required	None Required
Significance after Mitigation:	Less Than Significant	Less Than Significant

CREEKVIEW SPECIFIC PLAN

Neighborhood Parks

Neighborhood park uses are proposed throughout the plan area, as depicted on Figure 2-1, in Chapter 2, Project Description. 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. Typical improvements are play areas, picnic table, athletic fields, multi-use turf, hard courts, natural areas, pathways, and security lighting. No athletic field lights are provided. Noise sources are expected to be intermittent and occur during the day from children playing on playground equipment, or from sports events such as soccer, baseball or basket ball games that occur during the day, and on the weekends. Similar to noise impacts described above for schools, according the acoustical engineers, j.c. Brennan & Associates, Inc., noise at games and outdoor sporting events is on average around 60 dB Leq at a distance of 100-feet from the focal

point or effective noise center of playing fields. Based on this average, noise levels are predicted to range from 44 to 46 dB Leq at the nearest residential receptors. This is considered a **less than significant** impact for neighborhood noise impacts.

URBAN RESERVE

Development of the Urban Reserve area may require a neighborhood park, consistent with the City's parkland dedication requirements and General Plan standards. Similar to the CSP, noise at neighborhood parks could include children playing on recreation equipment, and noise emanating from sports activities such as soccer, baseball, basketball or other sports. Such noise is expected to result in **less than significant** impact on sensitive receptors that could locate nearby parks.

IMPACT 4.6-6	EXISTING PLUS PROJECT INCREASE IN TRAFFIC NOISE	
Applicable Policies and Regulations	City of Roseville General Plan Element	
	CSP	**Urban Reserve**
Significance with Policies and Regulations	Less Than Significant	Potentially Significant
Mitigation Measures:	None Required	WMM 4.5-8 On-site Traffic Noise Attenuation and WMM 4.5-10 On-site Traffic Noise Policies
Significance after Mitigation:	Less Than Significant	Less than Significant

Traffic Noise Impact Assessment Methodology

To assess noise impacts due to project-related traffic increases on the local roadway network, traffic noise levels are predicted at a representative distance for both short term and future, project conditions. Noise impacts are identified

at existing noise-sensitive areas if the noise levels generated by the project would create a significant increase in existing noise levels.

To describe existing and projected noise levels due to traffic, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. The model is based on the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receptor, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly Leq values for free-flowing traffic conditions. To predict traffic noise levels in terms of Ldn, it is necessary to adjust the input volume to account for the day/night distribution of traffic.

Inputs to the FHWA model included average daily traffic (ADT) traffic volumes from the project traffic analysis and truck usage and vehicle speeds on the local area roadways, which were estimated from field observations. The predicted increases in traffic noise levels on the local roadway network for baseline and future conditions which would result from the project are provided in terms of Ldn at a standard distance of 100 feet from the centerlines of the project-area roadways.

CREEKVIEW SPECIFIC PLAN

For purposes of CEQA, the traffic noise analysis considers two scenarios: (1) existing conditions plus the CSP, and (2) buildout of the General Plan in 2025 plus the CSP. Table 4.6-8 data indicate that several roadways would exceed 60 dB with existing plus project traffic. The change to existing traffic noise level increases resulting from the proposed CSP would range up to 2.7 dB compared to existing conditions. This would be hardly discernable to the human ear. Therefore, the project's contribution to the traffic noise environment is considered a **less than significant** impact.

URBAN RESERVE

Within the Urban Reserve area, onsite traffic noise associated with future development would contribute to increased noise levels. Residential uses could be located near roadways such as Holt Parkway and Blue Oaks Boulevard, and could experience noise levels above 60 dBA due to traffic. This is considered a **potentially significant** impact.

Previously adopted WMM 4.5-8 and WMM 4.5-10 identified in the WRSP EIR, require acoustic analyses demonstrating that a combination of setbacks, barriers, building orientation, and construction techniques would be adequate to ensure that noise levels meet City standards. Compliance with these mitigation measures would reduce noise impacts to sensitive receptors to a **less than significant** level.

TABLE 4.6-8
EXISTING PLUS PROJECT TRANSPORTATION NOISE IMPACTS

Roadway	Segment	Distance (Feet)	Traffic Noise Levels (Ldn dBA)			Distance to Contours (feet) Existing Plus Project		
			Existing	Existing + Project	Change	70 dB Ldn	65 dB Ldn	60 dB Ldn
Westbrook Blvd	North of Blue Oaks	100	--	61.8	--	29	62	133
Westbrook Blvd	South of Blue Oaks	100	--	58.1	--	16	35	75
Blue Oaks Blvd	West of Westbrook	100	--	57.5	--	15	32	68
Blue Oaks Blvd	Westbrook to Westpark	100	--	64.2	--	41	88	189
Blue Oaks Blvd	Westbrook to Hayden	100	--	64.1	--	40	87	187
Blue Oaks Blvd	Hayden to Fiddyment	100	--	64.2	--	41	88	190
Blue Oaks Blvd	East of Fiddyment	100	61.7	64.4	2.7	42	91	195

Roadway	Segment	Distance (Feet)	Traffic Noise Levels (Ldn dBA)			Distance to Contours (feet) Existing Plus Project		
			Existing	Existing + Project	Change	70 dB Ldn	65 dB Ldn	60 dB Ldn
Fiddyment Rd	North of Blue Oaks	100	58.9	59.8	0.9	21	45	97
Fiddyment Rd	Blue Oaks to Pleasant Grove	100	63.0	62.8	-0.2	33	71	154
Fiddyment Rd	South of Pleasant Grove	100	64.7	64.9	0.2	46	98	212
Pleasant Grove	West of Fiddyment	100	65.2	65.3	0.1	48	104	224
Pleasant Grove	East of Fiddyment	100	64.5	64.7	0.2	44	96	206

IMPACT 4.6-7	YEAR 2025 PLUS PROJECT INCREASE IN TRAFFIC NOISE OUTSIDE THE PLAN AREA	
Applicable Policies and Regulations	City of Roseville General Plan Element Table IX-1 Transportation Noise Standards	
	CSP	**Urban Reserve**
Significance with Policies and Regulations	Significant	Potentially Significant
Mitigation Measures:	MM 4.6- 3: Traffic Noise Attenuation	WMM 4.5-8 Onsite Traffic Noise Attenuation and WMM 4.5-10 Onsite Traffic Noise Policies
Significance after Mitigation:	Significant and Unavoidable	Significant and Unavoidable

CREEKVIEW SPECIFIC PLAN

Because the CSP will be built over time, this EIR includes an analysis of year 2025 conditions plus the project. As shown in Table 4.6-9, traffic noise levels in

2025 are projected to exceed the City's General Plan noise standard of 60 Ldn on several roadway segments in the vicinity, with or without the CSP.

City of Roseville Exterior Noise from Project Traffic

As indicated above, existing traffic noise currently exceeds 60 db Ldn on many roadways in the vicinity of the CSP project, including Fiddyment, Blue Oaks, Pleasant Grove and Westbrook Boulevard. Buildout of the CSP will incrementally add traffic to these roadways. The City's General Plan allows transportation noise up to 75 dB as long as all feasible mitigation measures are implemented. The largest noise increase from the project would occur on Blue Oaks Boulevard, west of Westbrook Drive, which would increase noise by 5.4 dB. No sensitive receptors currently exist along this segment, although residential uses are proposed north of Blue Oaks Boulevard as part of the project. This impact is **significant**.

Implementation of MM 4.6-3 includes measures that would be needed to reduce noise levels to 60 dB Ldn in residential outdoor activity areas including a combination of setbacks, berms, landscaping, and masonry walls. However, relative elevations of the roadways and elevations of building pads affect the ability of these measures to reduce noise levels. Significant traffic noise impacts at existing noise-sensitive areas associated with growth of communities are generally very difficult to mitigate. Some areas may already have noise barriers, or new noise barriers may be infeasible from a cost standpoint, or ineffective due to openings in the barriers that are required for roadway or driveway ingress and egress. Feasible measures are not available to reduce the CSP's contribution to traffic noise within the City of Roseville immediately adjacent to major roadways. Therefore, this impact is considered **significant and unavoidable**.

TABLE 4.6-9
2025 PREDICTED PROJECT TRAFFIC NOISE LEVELS

Roadway	Segment	Distance (Feet)	Traffic Noise Levels (Ldn dBA)			Distance to Contours (feet) 2025 CIP			Distance to Contours (feet) 2025 CIP Plus Project		
			2025	2025 Plus Project	Change	70 dB Ldn	65 dB Ldn	60 dB Ldn	70 dB Ldn	65 dB Ldn	60 dB Ldn
Westbrook Blvd	North of Blue Oaks	100	--	60.9	--	--	--	--	25	54	116
Westbrook Blvd	South of Blue Oaks	100	65.7	66.4	0.7	51	111	238	57	123	265
Blue Oaks Blvd	West of Westbrook	100	55.6	61.0	5.4	11	24	51	25	54	116
Blue Oaks	Westbrook to Westpark	100	67.0	67.6	0.6	63	136	294	70	150	323
Blue Oaks Blvd	Westpark to Hayden	100	67.0	67.6	0.6	64	137	295	70	150	323
Blue Oaks Blvd	Hayden to Fiddyment	100	67.9	68.2	0.3	72	155	334	75	163	350
Blue Oaks Blvd	East of Fiddyment	100	68.3	70.1	1.8	77	167	359	101	219	471
Fiddyment Rd	North of Blue Oaks	100	67.2	67.4	0.2	65	141	304	67	144	310
Fiddyment Rd	Blue Oaks to Pleasant Grove	100	67.9	67.8	-0.1	72	155	334	72	154	332
Fiddyment Rd	South of Pleasant Grove	100	68.0	68.0	0.0	73	158	341	73	158	341
Pleasant Grove Blvd	West of Fiddyment	100	69.3	69.3	0.0	89	192	414	90	194	419
Pleasant Grove Blvd	East of Fiddyment	100	69.7	69.8	0.1	95	205	443	97	209	449

1Distances are measured from the centerline of the roadway.
-- Roadway does not exist under this scenario.

Interior Noise from Project Traffic

The City of Roseville interior noise level standard is 45 dB Ldn. Generally, new construction practices consistent with the UBC, would result in an exterior to interior noise reduction of 30 dB Ldn (j.c. Brennan, *2010*). Therefore, traffic noise from the project would not exceed 45 dB Ldn interior. This would be considered a **less than significant** impact.

URBAN RESERVE

Like the CSP, future buildout of the Urban Reserve area would increase traffic-related noise on roadways in the vicinity. There is a potential that buildout of the Urban Reserve could generate additional traffic that would increase transportation noise. This is a **potentially significant** impact. Previously adopted WMM 4.5-8 and WMM 4.5-10, identified in the WRSP EIR, would reduce impacts, but not to a less than significant level. Therefore, this impact is **significant and unavoidable**.

IMPACT 4.6-8	**TRAFFIC NOISE IMPACTS AT FUTURE NOISE SENSITIVE USES WITHIN THE PROJECT AREA**	
Applicable Policies and Regulations	City of Roseville General Plan Element Table IX, Transportation Noise Standards	
	CSP	**Urban Reserve**
Significance with Policies and Regulations	Significant	Potentially Significant
Mitigation Measures:	MM 4.6-3 Traffic Noise Attenuation	WMM 4.5-8 Onsite Traffic Noise Attenuation and WMM 4.5-10 Onsite Traffic Noise Policies
Significance after Mitigation:	Less than Significant	Less Than Significant

CREEKVIEW SPECIFIC PLAN

The FHWA traffic noise prediction model was used to predict the project traffic noise level at the proposed residential land uses adjacent to the arterials within the plan area. Traffic noise impacts at future noise sensitive uses within the CSP area could be significant. Table 4.6-10 shows the predicted traffic noise levels at the CSP residential uses that would be located adjacent to the major project-area arterial roadways. As shown in the table, noise levels would be above 60 dB on Blue Oaks Boulevard, east of Westbrook Drive. This is considered a **significant** impact.

With implementation of MM 4.6-3 requiring traffic noise attenuation, noise can be reduced to a **less than significant** level. Table 4.6-10 indicates the property line noise barrier heights required to achieve compliance with an exterior noise level standard of 60 dB Ldn.

Appendix K provides the complete noise report prepared for the CSP, including inputs to 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 4.6-10

TRAFFIC NOISE LEVELS AT PROPOSED RESIDENTIAL USES

Roadway	Segment	Approximate Residential Setback, feet[1]	ADT	Predicted Traffic Noise Levels, Ldn2	
				No Wall	6' Wall
Westbrook Blvd	North of Blue Oaks	125'	41,500	60	--
Blue Oaks Blvd	West of Westbrook	125'	18,800	60	--
Blue Oaks Blvd	East of Westbrook	125'	24,500	66	60
Other Project Roadways	Holt Parkway, Benchmark Drive and Creekview Plaza etc.	65'	3,500-13,000	61-66	53-59

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 flat site conditions where roadway elevations, base of wall elevations, and building pad elevations are approximately equivalent.

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

Source: FHWA-RD-77-108 with inputs from DKS, and j.c. Brennan & Associates, Inc. 2010.

Additionally, interior noise levels of residential units could exceed the City's 45 dB Ldn interior noise level standard. Modern residential construction typically provides an exterior-to-interior noise level reduction of 30 dB. First floor noise exposures at the residential uses along the project roadways are predicted to range between 64 and 67 dB Ldn. Noise levels at second and third floor levels are typically 2-3 dB louder, or 57 to 73 dB Ldn. MM 4.6-3 includes requirements for masonry walls and/or landscaped berms to create barriers between noise sources and receptors. With implementation of MM 4.6-3, noise levels from traffic within the project site would be **less than significant**.

Table 4.6-10 data indicate that noise barriers of six feet could be used to achieve compliance with the City of Roseville 60 dB Ldn exterior noise level standard for the proposed residential uses.

URBAN RESERVE

Within the Urban Reserve area, on-site traffic noise associated with future development would contribute to increased noise levels. Residential uses could be located near roadways such as Blue Oaks Boulevard or Holt Parkway, and could experience exterior noise levels above 60 dBA due to traffic. This is considered a **potentially significant** impact. Previously adopted WMM 4.5-8 and WMM 4.5-10, identified in the WRSP EIR, require acoustic analyses demonstrating that a combination of setbacks, barriers, building orientation, and construction techniques would be adequate to ensure that noise levels meet City standards. Compliance with these mitigation measures would reduce noise impacts to sensitive receptors to a **less than significant** level.

IMPACT 4.6-9	CONSISTENCY WITH THE GENERAL PLAN NOISE ELEMENT	
Applicable Policies and Regulations	City of Roseville General Plan Element Table IX-1 Maximum Allowable Transportation Noise Sources, Table IX-3 Non-Transportation Noise Sources and General Plan Amendment	
	CSP	**Urban Reserve**
Significance with Policies and Regulations	Significant	Significant
Mitigation Measures:	Proposed General Plan Amendment Table 4.6-11	Proposed General Plan Amendment Table 4.6-11
Significance after Mitigation:	Less than Significant	Less Than Significant

Transportation Noise

As discussed above and shown in Table 4.6-10, traffic noise levels are projected in 2025 to exceed the City's General Plan noise standard of 60 Ldn on several roadway segments in the vicinity, with or without the CSP. The CSP would add anywhere from 0.2 to 5.4 Ldn dBA to the projected noise levels. As indicated above, an increase of less than 3 decibels is barely discernible. Recognizing that in increasingly urban areas it is difficult to maintain noise levels below 60 Ldn, Table IX-1 of the General Plan Noise Element allows noise levels up to 75 Ldn in certain instances. Because no intersection is expected to exceed 75 Ldn the project would be consistent with the General Plan.

REP Noise Impacts

Proposed residential land uses located near the REP may be impacted by exterior noise levels exceeding the City's General Plan for exposure to stationary sources of 45-50 dB Leq or 65-70 dB Lmax. Average noise level operations for the REP to the CSP project area are presented in Figure 4.6-3. As shown on Figure 4.6-3, most of the project site is consistent with the General Plan noise standards for stationary sources of noise. However, there is a portion of the southeast corner of the site, that is within the 52 dB contour, which exceeds the 50 dB daytime and 45 dB nighttime noise standard for non-transportation noise sources. Because residential uses are proposed within a noise contour that exceeds the General Plan, this is considered a **significant** impact. As discussed in the Project Description, future residential buyers and renters will be notified that the REP can operate continuously during daytime and nighttime hours, generating audible noise levels and can emit occasional louder single noise events.

A General Plan Amendment is proposed to Table IX-3, Performance Standards for Non-Transportation Noise Sources or Projects Affected by Non-Transportation Noise Sources (as measured at the property line of noise-sensitive uses). The

amendment would allow noise levels associated with municipal power plants up to 10 dB above the noise standard. With this amendment, the CSP, and portions of the adjacent Fiddyment Farms and Westpark areas of the WRSP would be consistent with the proposed land uses in the General Plan. The General Plan would be amended to change the allowable non-transportation noise for the REP. With the amendment consistency of the project with the General Plan Noise Element would be a **less than significant** impact.

TABLE 4.6-11

***PROPOSED REVISIONS TO:* TABLE IX-3**

OF THE ROSEVILLE GENERAL PLAN NOISE ELEMENT
PERFORMANCE STANDARDS FOR NON-TRANSPORTATION NOISE SOURCES OR PROJECTS AFFECTED BY NON-TRANSPORTATION NOISE SOURCES (AS MEASURED AT THE PROPERTY LINE OF NOISE-SENSITIVE USES).

Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly Leq[1], dB	50	45
Maximum Level, dB	70	65

[1] For municipal power plants consisting primarily of broadband, steady-state noise sources, the hourly (Leq) noise standard may be increased by up to 10 dB(A), but not exceeding 55 dB(A) Leq.

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 conjunctions 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.

URBAN RESERVE

As the City becomes increasingly urban, implementing effective and feasible noise mitigation measures is becoming more difficult. It is expected that a portion of the Urban Reserve uses would fall within an area that would exceed the 45 dB and 50 dB noise contours. This is considered a **significant** impact. If the proposed General Plan Amendment to Table IX-3 is approved as part of the proposed project, the noise levels on the Urban Reserve parcel in closest proximity to the REP would be consistent with the General Plan.

IMPACT 4.6-10	MCCLELLAN OVERFLIGHT NOISE	
Applicable Policies and Regulations	Caltrans Airport Land Use Handbook	
	CSP	**Urban Reserve**
Significance with Policies and Regulations	Less Than Significant	Less Than Significant
Mitigation Measures:	None Required	None Required
Significance after Mitigation:	Less Than Significant	Less Than Significant

Aviation Noise Impact Methodology

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 area.

CREEKVIEW SPECIFIC PLAN

According to Sacramento County Airport staff, the area in the vicinity of McClellan Airfield is subject to frequent large aircraft (over 75,000 pounds) operating under 3,000 feet above ground level. Based on current and historical experience, single event noise occurrences can cause annoyance to residential or other sensitive uses.

McClellan Airfield's most recent Airport Land Use Compatibility Plan (formerly known as Comprehensive Land Use Plans or CLUP) was updated in 1987 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. An Airport Land Use Compatibility Plan Update is underway at the Sacramento Area Council of Governments, which acts as the Sacramento County Airport Land Use Commission.

McClellan Airport's Reuse Plan identified the ways in which the County of Sacramento would envision the uses of the airport changing. 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 4.6-2 indicates that the 60 db CNEL theoretic noise contour for McClellan Airfield is south of Elverta Road. Therefore, exterior noise levels from aircraft operations are not predicted to exceed the City of Roseville 60 dB Ldn/CNEL exterior noise level standard on the project site. Additionally, aircraft operations are not predicted to exceed the City's interior standard of 45 dB LDN/CNEL on the project site.

Sleep Disturbance

For purposes of evaluating the potential for sleep disturbance due to interior noise from aircraft operations over the project site, j.c. Brennan & Associates, Inc. utilized the methods described in ANSI/ASA S12.9-2008/Part 6, along with the 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 sound exposure level (SEL) at the future residential uses on the project site and the number of observed nighttime aircraft events.

During the seven days of noise monitoring, one nighttime (10 p.m. to 7 a.m.) event occurred having a SEL of 75 dB or greater. The event occurred on December 14, 2006 at 12:49 a.m. with an SEL of 82.6.

Using an exterior SEL of 82.6 dB, and assuming that typical construction practices will achieve an exterior to interior noise level reduction of 25 dB with windows closed, the interior SEL would be approximately 57.6 dB. Based on 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

[1] The Federal Interagency Committee on Aviation Noise (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

maximum percent of the exposed population expected to be behaviorally awakened, or the maximum percent awakened" (FICAN 1997).

While the maximum percent awakened is considered to be fairly low, there is still a potential for noise from McClellan Airfield activity to result in annoyance to future residents in the CSP area. This impact is considered **less than significant**. As indicated in the Project Description, future residents will be notified of the proximity of McClellan and the potential for overflights.

URBAN RESERVE

As for the CSP development area, development within the Urban Reserve area would be subject to overflights. While the maximum percent awakened due to airplane overflights would be fairly low, there is still a potential for annoyance to future residents in the Urban Reserve area. Future residents would be notified of the potential for over-flights. This is anticipated to be a **less than significant** impact.

4.6.5 MITIGATION MEASURES

The Project area was included in the program-level analysis of the West Roseville Specific Plan Final EIR. Mitigation adopted by the City Council at time of approval in 2004 is still applicable in the CSP area unless superseded by CSP project-specific mitigation, and will continue to apply to the Urban Reserve area unless noted. This following refers to the previously adopted WRSP mitigation measures as "WMM", and will show either ~~strikeout~~ for language that is being eliminated from the previously adopted WMMs or <u>underline</u> for language that is proposed to be added to the previously adopted WMMs.

WMM 4.5-2 ***Construction Noise Policies (Impact 4.6-1 Urban Reserve)***

Specific plans and/or other development proposals for the ~~Remainder Area~~ Urban Reserve area shall include policies and/or conditions that require equipment warm-up areas, water tanks and equipment storage areas be located a minimum of 150 feet from occupied residences, if feasible, and that noise measures (such as sound control curtains) be used in well-drilling.

WMM 4.5-4 ***Commercial Noise Policies (Impact 4.6-2 Urban Reserve)***

Specific Plans and/or other development proposals for the Urban Reserve area shall include policies and/or conditions that require that commercial areas located adjacent to residential areas are designed to meet City noise standards through the use of setbacks, barriers, and other measures. Particular attention shall be given to loading docks, onsite truck circulations, and HVAAC equipment.

WMM 4.5-8 ***On-site Traffic Noise Attenuation (Impact 4.6-6, 4.6-7, and 4.6-8 Urban Reserve)***

The project developer shall demonstrate through an acoustical study that residences along roadways will be subject to noise levels consistent with the City's standards. The standards could be achieved through a combination of setbacks, soundwalls or other barriers, building orientation or other measures. An acoustical analysis shall be required to demonstrate that these measures will result in acceptable noise levels.

WMM 4.5-10 ***On-site Traffic Noise Policies (Impact 4.6-6, 4.6-7 and 4.6-8 Urban Reserve)***

Specific Plans and/or other development proposals in the ~~Remainder Area~~ Urban Reserve shall include policies and/or conditions that require that residential development adjacent to roadways will be subject to traffic noise levels that fall within City standards. The standards could be achieved through a combination of setbacks, soundwalls or other barriers, building orientation or other measures. An acoustical analysis shall be required to demonstrate that these measures will result in acceptable noise levels.

MM 4.6-1: ***Construction Noise Reduction (Impact 4.6-1-CSP and Urban Reserve)***

MM 4.6-1(a): Construction activities shall comply with the requirements of the City of Roseville Noise Ordinance.

MM4.6-1(b): 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 in-take and exhaust ports on power construction equipment.

MM 4.6-1(c): Designate a construction disturbance coordinator and conspicuously post the Coordinator's contact information around the project site and in adjacent public spaces. The disturbance coordinator will receive all public complaints about construction noise disturbances, and will be responsible for determining the cause of the complaint, and implementing any feasible measures to be taken to alleviate the problem.

MM 4.6-1(d): Well drilling shall occur prior to construction of the adjacent subdivision, to the extent feasible. If construction timing for the wells occurs after subdivision construction, then measures to reduce noise shall include; hanging flexible sound control curtains around the drilling apparatus, and the drill rig, to the degree feasible as determined by the Environmental Utilities Director, if located within 1,000-feet of an occupied residence.

MM 4.6-2: ***Commercial Noise Controls (Impact 4.6-2-CSP)***

For all commercial uses within 150 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:

- Loading docks and truck delivery areas shall be a minimum distance of 30 feet from residential property lines;
- Property line barriers shall be 6 to 8 feet in height. Circulation routes for trucks shall be located a minimum of 30-feet from residential property lines;
- All heating, cooling and ventilation equipment shall be located within mechanical rooms where possible;
- All heating, cooling and ventilation equipment shall be shielded from view with solid barriers;
- Emergency generators shall comply with the local noise criteria at the nearest noise-sensitive receivers;
- In cases where loading docks or truck delivery circulation routes are located less than 100 feet from residential property lines, an acoustical evaluation shall be submitted to verify compliance with the City of Roseville Noise Level Performance Standards.

MM 4.6- 3: ***Traffic Noise Attenuation (Impact 4.6-7 and 4.6-8 CSP)***

MM 4.6-3(a): In areas requiring sound attenuation, noise barrier walls shall be constructed of concrete panels, concrete masonry units, earthen berms, or any combination of these materials. Wood is not recommended for construction due to eventual warping and degradation of acoustical performance.

MM 4.6-3(b): Tentative map applications for residential uses located along Blue Oaks Boulevard, Westbrook Boulevard, Holt Parkway, Benchmark Drive and Creekview Plaza shall include an analysis of interior noise levels. The analysis and report shall be conducted by a qualified acoustical engineer and shall specify the measures required to achieve compliance with the City of Roseville 45 dB Ldn interior noise level standard.

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