4.6 NOISE

4.6.1 INTRODUCTION

This section evaluates the potential noise impacts due to and upon development of the SVSP project, describes the existing noise environment within the SVSP 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,* 2004 as amended
- City of Roseville *Noise Ordinance*
- California Department of Transportation*, Airport Land Use Handbook*
- J.C. Brennan & Associates, Inc. *Sierra Vista Noise Study*, June 2009
- DKS Associates, *Sierra Vista Specific Plan Traffic Study*, June 2009
- *West Roseville Specific Plan FEIR*, February 2004

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 several 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.

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), but 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 the 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, while 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 assumed to be equivalent to 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

Motor vehicle traffic is a major contributor to the existing noise environment in the vicinity of the project along Baseline and Fiddyment Road.

Aircraft

McClellan Airfield is located approximately 4.25 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. The public airfield features a 10,600 foot lighted runway approved for day/night use, and 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

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

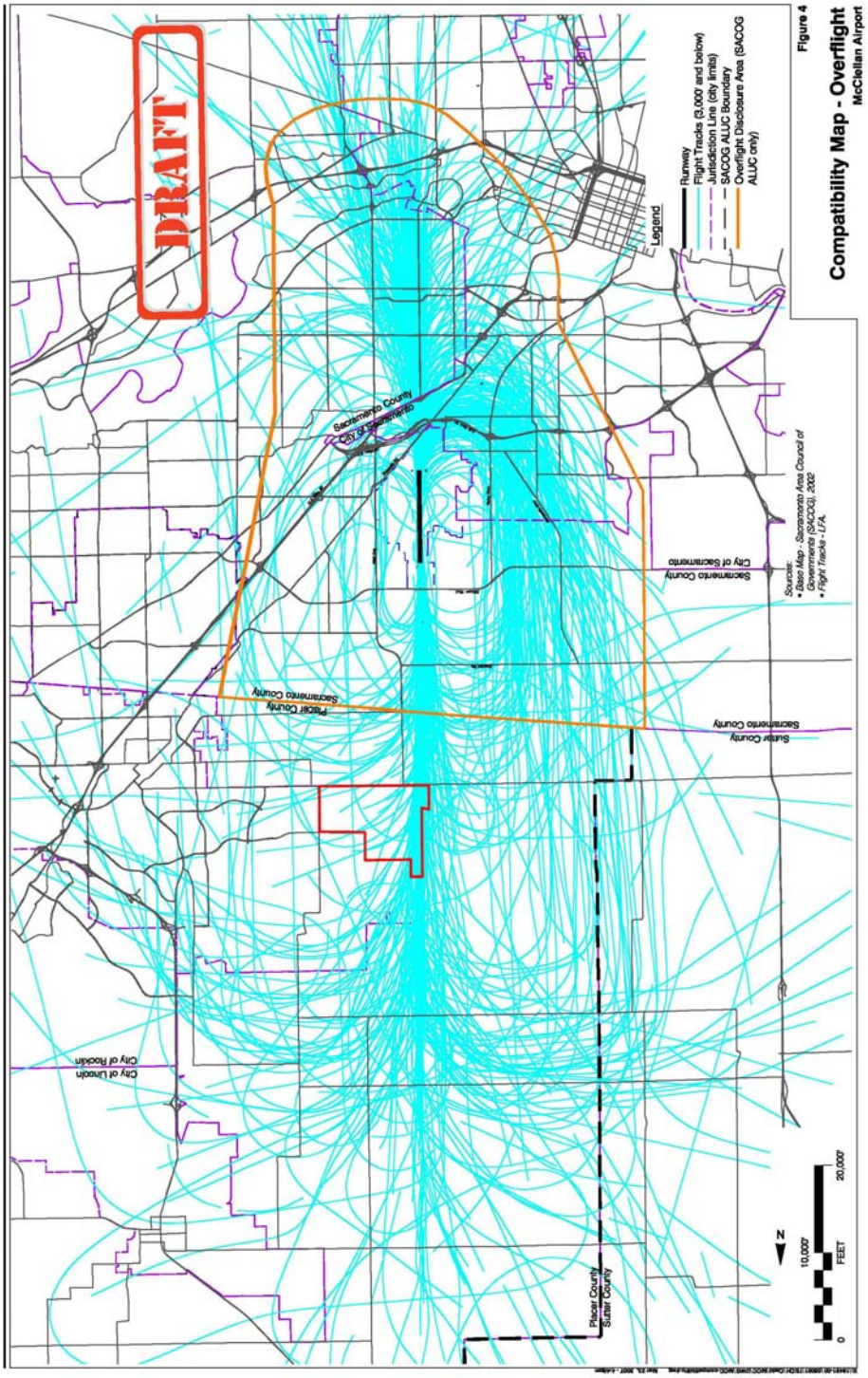
Noise Source (at a given distance)	Scale of A-Weighted Sound Level in Decibels	Noise Environment	Human Judgment of Noise Loudness
Military jet take-off with after-burner (50 feet), civil-defense siren (100 feet)	140, 130	Aircraft carrier flight deck	
Commercial jet take-off (200 feet)	120	Thunderclap	Threshold of pain 32 times as loud[1]
Pile driver (50 feet)	110	Rock music concert	Average human ear discomfort 16 times as loud[1]
Ambulance siren (100 feet), newspaper press (5 feet), power lawn mower (3 feet)	100		Very loud 8 times as loud[1]
Motorcycle (25 feet), propeller plane flyover (1,000 feet), diesel truck, 40 miles per hour (50 feet)	90	Boiler room printing press plant	Likely damage, 8-hour exposure 4 times as loud[1]
Garbage disposal (3 feet)	80		Possible damage, 8-hour exposure 2 times as loud[1]
Passenger car, 65 miles per hour (25 feet), vacuum cleaner (10 feet)	70	Data processing center, department store	Reference loudness moderately loud[1]
Normal conversation (5 feet), air conditioning unit (100 feet)	60	Private business office, restaurant	1/2 as loud[1]
Light traffic (100 feet)	50	Lower limit of daytime urban ambient sound	1/4 as loud[1]
Bird calls (distant)	40	Quiet urban nighttime	1/8 as loud[1]
Soft whisper (5 feet)	30	Recording studio, library	Very quiet 1/16 as loud[1]
	20	Whistling, rustling leaves	Just audible 1/32 as loud[1]
	10	Breathing	Barely audible 1/64 as loud[1]
	0		Threshold of hearing 1/128 as loud[1]

Source: URS Corporation, 2007.

[1] 1Relative to a reference loudness of 70 decibels

FIGURE 4.6-1

MCCLELLAN OVERFLIGHT TRACKS



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. Typical flight tracks are shown in blue line in Figure 4.6-1. The types and number of flight operations at McClellan are subject to Federal Aviation Administration (FAA) regulations. While SACOG is the Airport Land Use Commission for the airfield, SACOG does not regulate the number and types of aircraft that use the facility.

Non-Transportation

Noise sensitive land uses in the immediate project vicinity consist of single family residential uses located south of Baseline Road, near the intersection of Walerga Road, and along the east side of Fiddyment Road. Several rural residential uses are also located north of Baseline Road, west of the project site. The Westpark residential development as part of the West Roseville Specific Plan (WRSP) is also located north of the project site.

The WRSP is currently under construction, and includes existing and future sensitive receptors along the northern project boundary.

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 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 of which existing land uses in the project vicinity are affected by traffic noise depends on their respective proximity to the

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
Blue Oaks	Fiddyment to Woodcreek	**62.0**	29	63	135
Blue Oaks	Woodcreek to Foothills	**67.7**	71	152	328
Pleasant Grove	West of Fiddyment	**58.6**	17	37	81
Pleasant Grove	Fiddyment to Woodcreek	**63.4**	36	78	169
Pleasant Grove	Woodcreek to Foothills	**67.4**	67	144	309
Junction	Woodcreek to Foothills	**63.2**	35	76	163
Baseline	West of Watt	**65.1**	47	102	219
Baseline	Watt to Walerga	**66.6**	59	128	275
Baseline	Walerga to Junction	**64.3**	42	90	195
Baseline	Junction to Woodcreek	**63.1**	35	75	162
Baseline	Woodcreek to Foothills	**64.9**	46	98	212
Fiddyment	North of Blue Oaks	60.0	22	47	101
Fiddyment	Blue Oaks to Pleasant Grove	**63.5**	37	79	170
Fiddyment	Pleasant Grove to Baseline	**66.4**	57	123	266
Walerga	South of Baseline	**65.1**	47	102	219
Watt	Road "B" to Road "A"	--	--	--	--
Watt	Baseline to Road "B"	--	--	--	--
Watt	South of Baseline	60.6	24	51	110
Westside	North of Pleasant Grove	--	--	--	--
Westside	Pleasant Grove to Road "A"	--	--	--	--
Westside	Road "A" to Road "B"	--	--	--	--

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
Market Drive	Project Site	--	--	--	--
Upland Drive	Project Site	--	--	--	--
Road "B"	Project Site	--	--	--	--

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

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, all existing 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. **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. As a means of addressing single event noise levels due to aircraft over-flights, J.C. Brennan & Associates, Inc. conducted continuous and short-term noise level measurements and observations of aircraft flyovers on May 27-29, 2009. Sound level meters were programmed to collect single event noise level (SEL) data due to aircraft flyovers, as well as overall hourly noise level data. Field observations of aircraft primarily included single engine aircraft and the Coast Guard C-130 turboprop aircraft. Figure 4.6-3 shows the locations of the noise measurements sites in the SVSP project area. Table 4.6-3 shows a summary of the aircraft flyovers at each noise level measurement site.

TABLE 4.6-3

SUMMARY OF MCCLELLAN OVERFLIGHT INDIVIDUAL AIRCRAFT NOISE LEVELS

Aircraft	No. Events	dB, SEL	
		High	Low
Observed Events May 27th & May 29th 2009			
Site D			
SEP	7	70.4	62.8
TEP	0	--	--
Biz Jet	1	67.7	67.7
Helicopter	1	64.4	64.4
C-130	5	78.5	63.4
Com Jet	--	--	--
Site 6			
SEP	5	71.2	59.7
TEP	0	--	--
Biz Jet	0	--	--
Helicopter	2	62.9	60.4
C-130	1	74.7	74.7
Com Jet	--	--	--

Unattended Recorded Events May 28th 2009 – 24 hour Period						
Site D						
Daytime (7:00 a.m. to 10:00 p.m.)				Nighttime (10:00 p.m. to 7:00 a.m.)		
Date	No. Events	High, dB SEL	Low, dB SEL	No. Events	High, dB SEL	Low, dB SEL
May 28, 2009	57	78.4	60.6	19	76.9	63.8
Source: J.C. Brennan & Associates, Inc. – 2009.						

Sites D and Site 6 are shown on Figure 4.6-3.

Instrumentation consisted of a 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.

Existing Roseville Energy Park Noise Levels

Based upon observations and noise measurements conducted at the SVSP project site, the existing Roseville Energy Park (REP) located north of the West Roseville Specific Plan was not observed to be a significant noise producer at the project site. Ambient noise level measurements of the REP indicated that it produced noise levels that were barely audible and in the range of 37-38 dB at Site 1, which is shown on Figure 4.6-3.

Figure 4.6-2 shows the predicted 60 dBA CNEL noise contours for the re-use plan of McClellan Airfield. The noise contour does not extend into Placer County or the Sierra Vista Specific Plan area.

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) noise level measurements at various locations on the project site. Figure 4.6-3 identifies noise measurement locations.

The noise level measurements were conducted between April 20th and 21st, 2009. The noise level measurements were conducted to determine typical background noise levels and for comparison to the project related noise levels. Table 4.6-4 shows a summary of the noise measurement results.

Figure 4.6-4 through 4.6-7 graphically shows results of the continuous noise level measurements. Appendix K provides the complete results of the continuous ambient noise measurements.

FIGURE 4.6-2

AIRPORT 60 dB CNEL NOISE CONTOURS

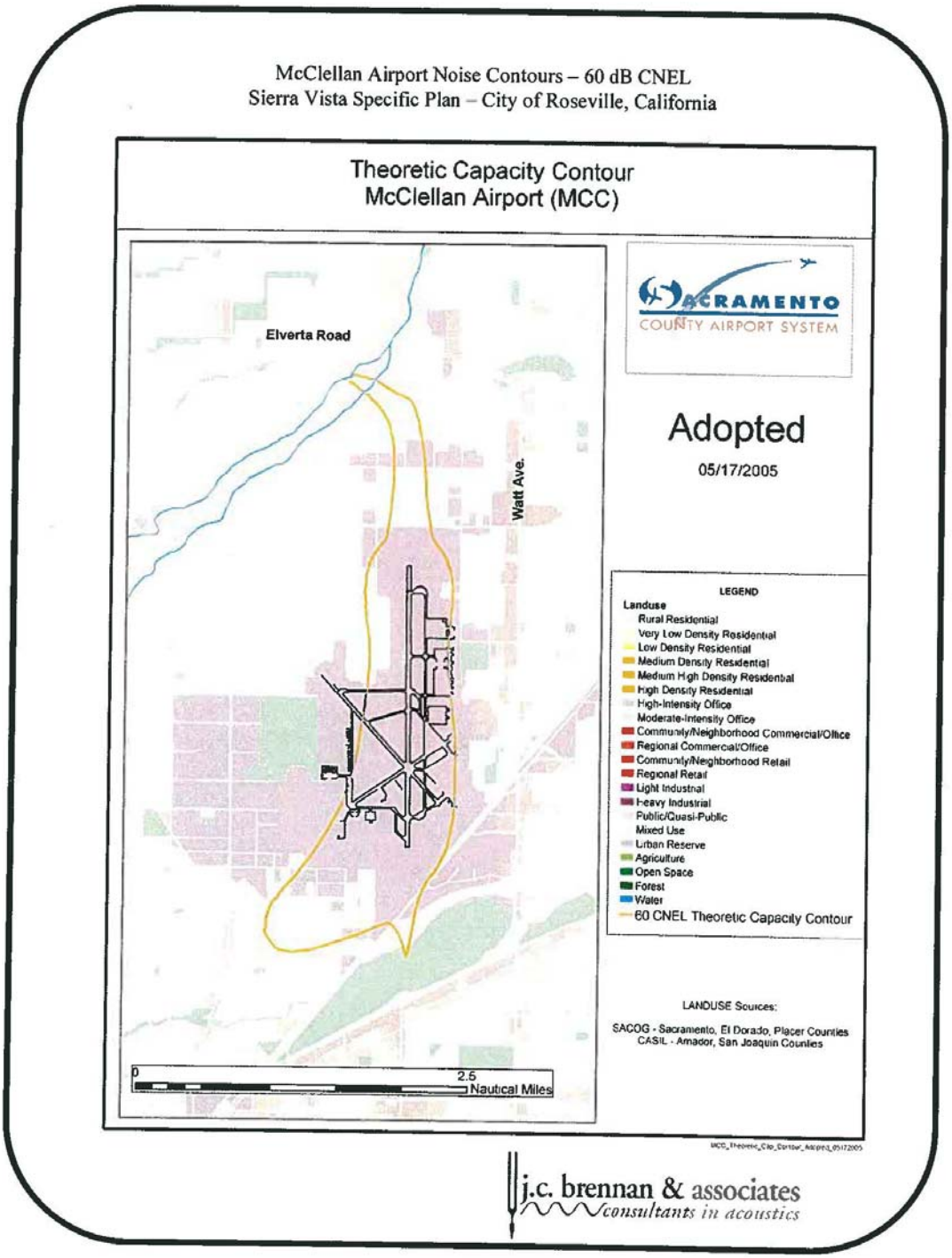


Figure 4.6-2

TABLE 4.6-4

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	Backyard - 1240 Kirkhill Drive, NE project boundary.	April 21, 2009	24 hour	49.3	43.5	37.1	**60.1**	42.7	40.4	52.9
B	Project site, 175 feet west of Fiddyment Road centerline.	April 21, 2009	24 hour	**66.4**	**61.5**	59.1	**76.8**	59.7	52.6	75.2
C	Project Site, 150 feet north of Baseline Road centerline.	April 21, 2009	24 hour	**64.5**	59.3	55.4	**72.7**	57.9	47.4	71.3
D	Central project site	May 28, 2009	24 hour	51.8	47.5	37.7	**64.8**	44.9	37.5	51.1
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**
Short Term Noise Measurements										
1	NW corner of site, approximately 0.75 miles south of WWTP.	April 20-21, 2009	10:00	NA	11:06 a.m.			10:19 p.m.		
					40.6	39.6	54.2	40.1	40.0	45.1
2	NE corner of site, at existing terminus of Pleasant Grove Blvd.	April 20-21, 2009	10:00	NA	11:28 a.m.			10:37 p.m.		
					46.7	41.5	61.5	36.0	35.7	44.4
3	North project boundary, at existing terminus of Market Street.	April 20-21, 2009	10:00	NA	11:51 a.m.			11:03 p.m.		
					37.6	36.9	42.0	36.0	35.7	44.4
4	SE corner of site, near intersection of Baseline Road & Fiddyment Road.	April 20-21, 2009	10:00	NA	12:05 p.m.			11:25 p.m.		
					70.8	67.7	80.2	62.3	53.8	77.4
5	SW corner of site on project site, north of Baseline Road.	April 20-21, 2009	10:00	NA	12:18 p.m.			11:44 p.m.		
					68.0	55.0	82.6	63.9	42.5	84.2

Source - J.C. Brennan & Associates, Inc. 2009

FIGURE 4.6-3

NOISE MEASUREMENT LOCATIONS

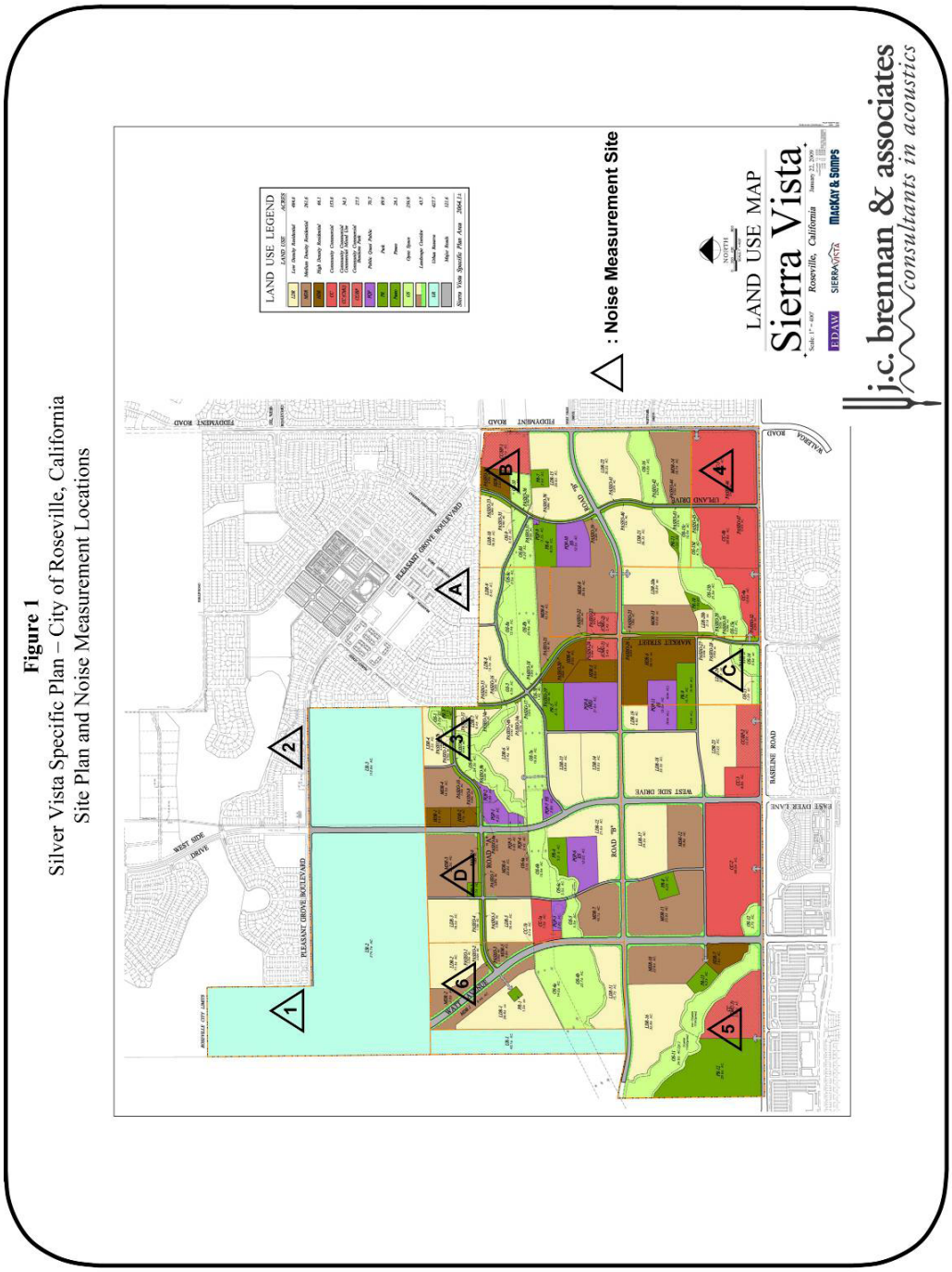


FIGURE 4.6-4
24 HOUR NOISE MEASUREMENTS AT SITE A

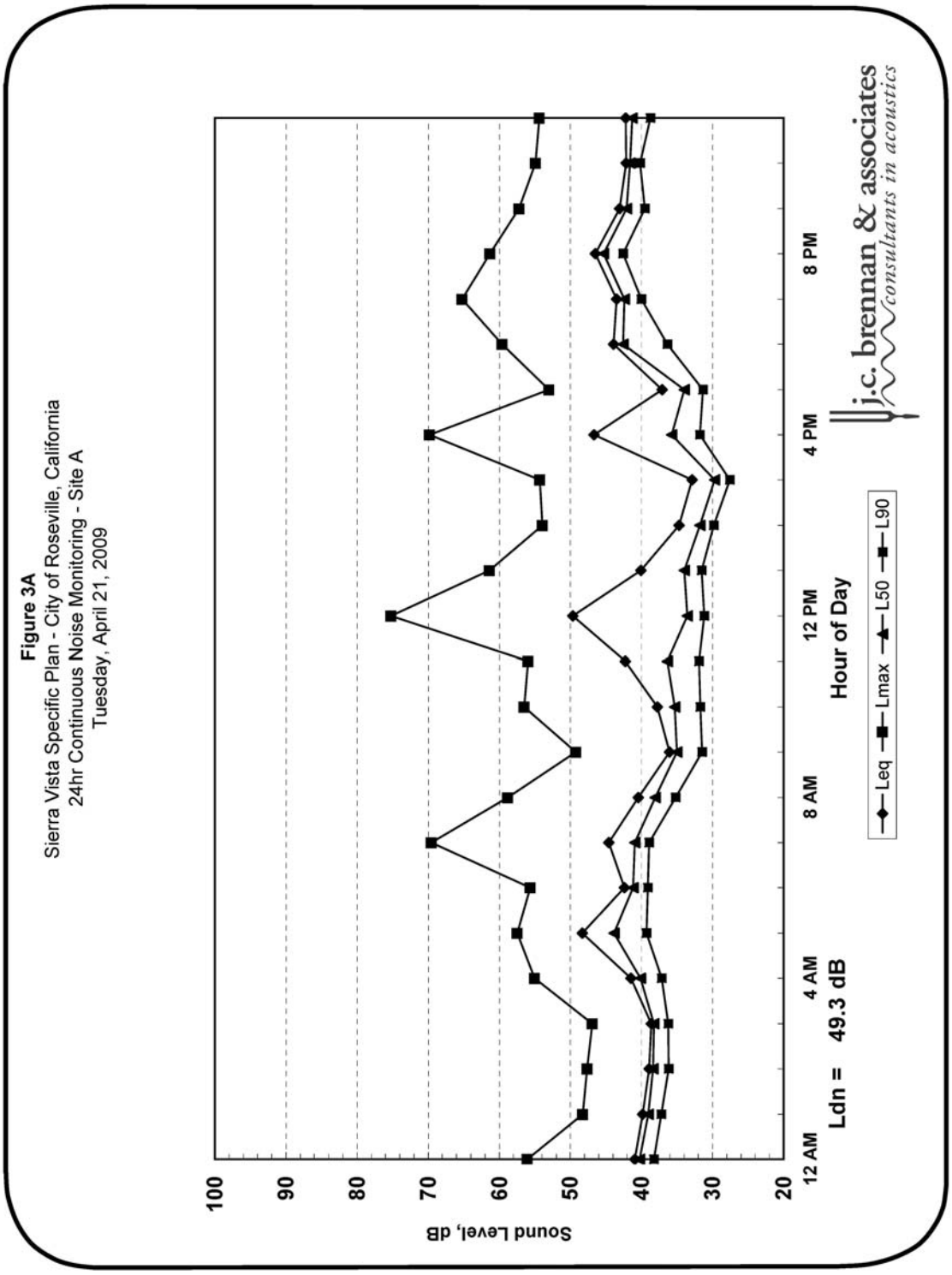


FIGURE 4.6-5
24 HOUR NOISE MEASUREMENTS AT SITE B

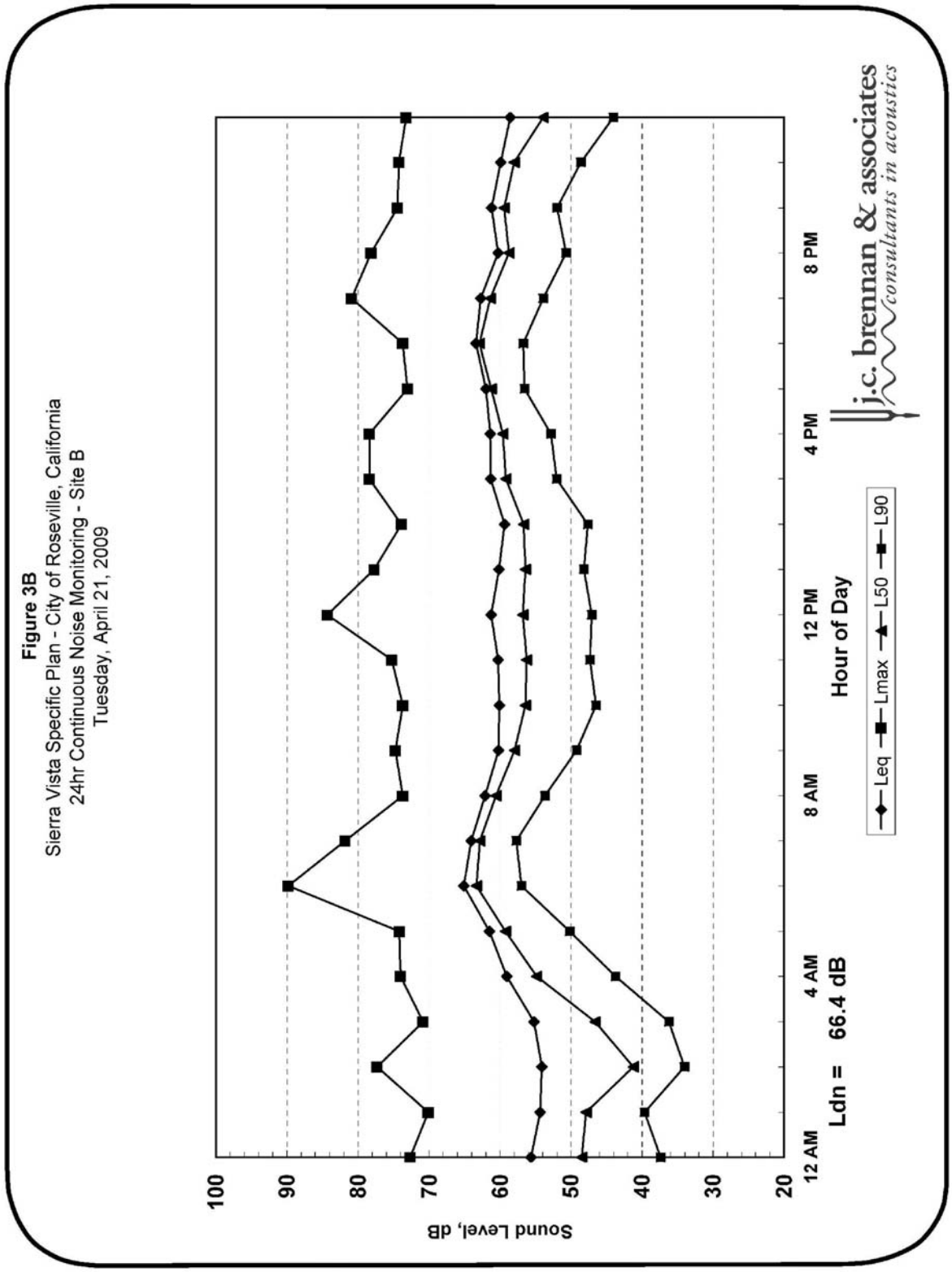


FIGURE 4.6-6
24 HOUR NOISE MEASUREMENTS AT SITE C

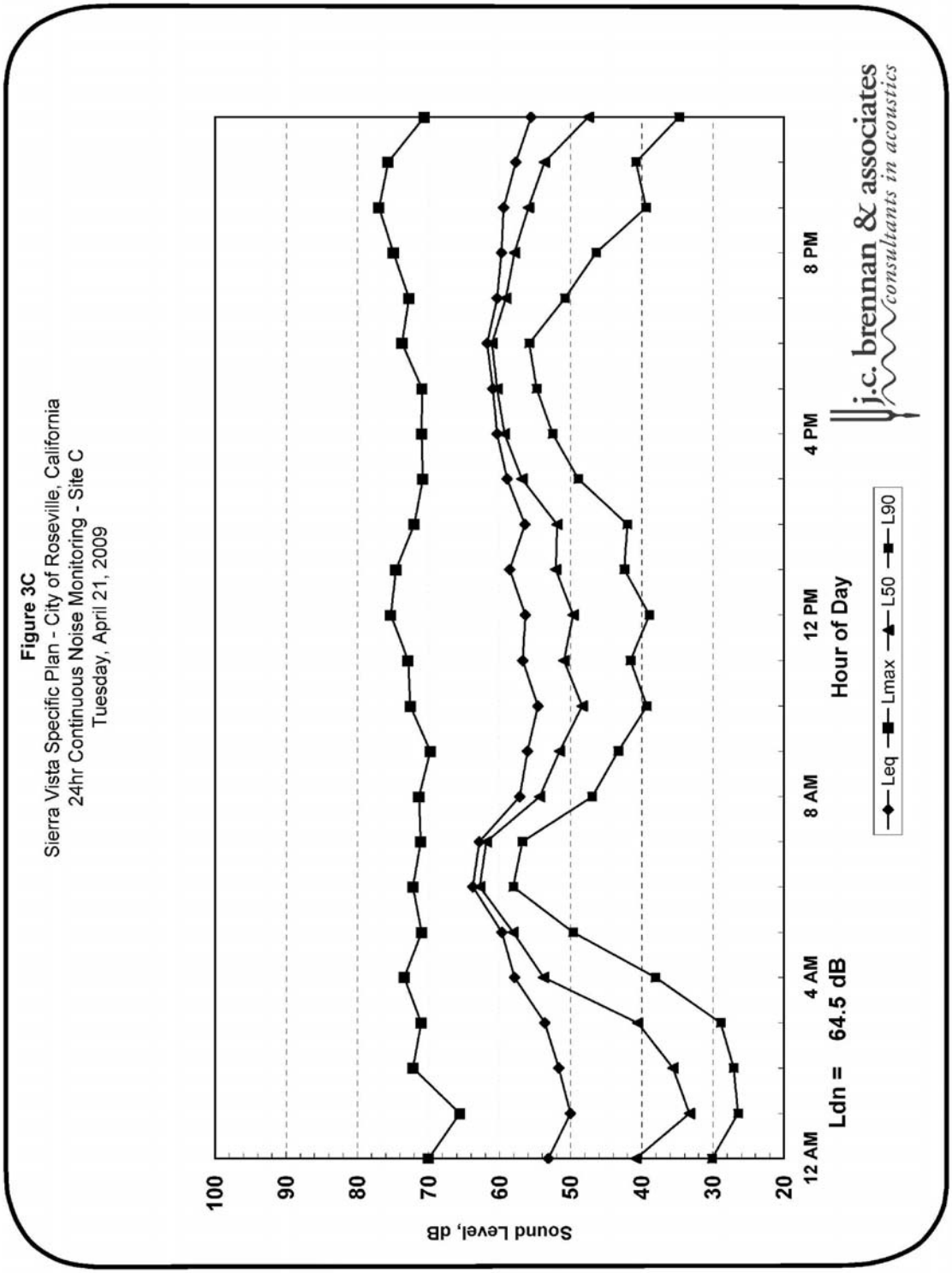
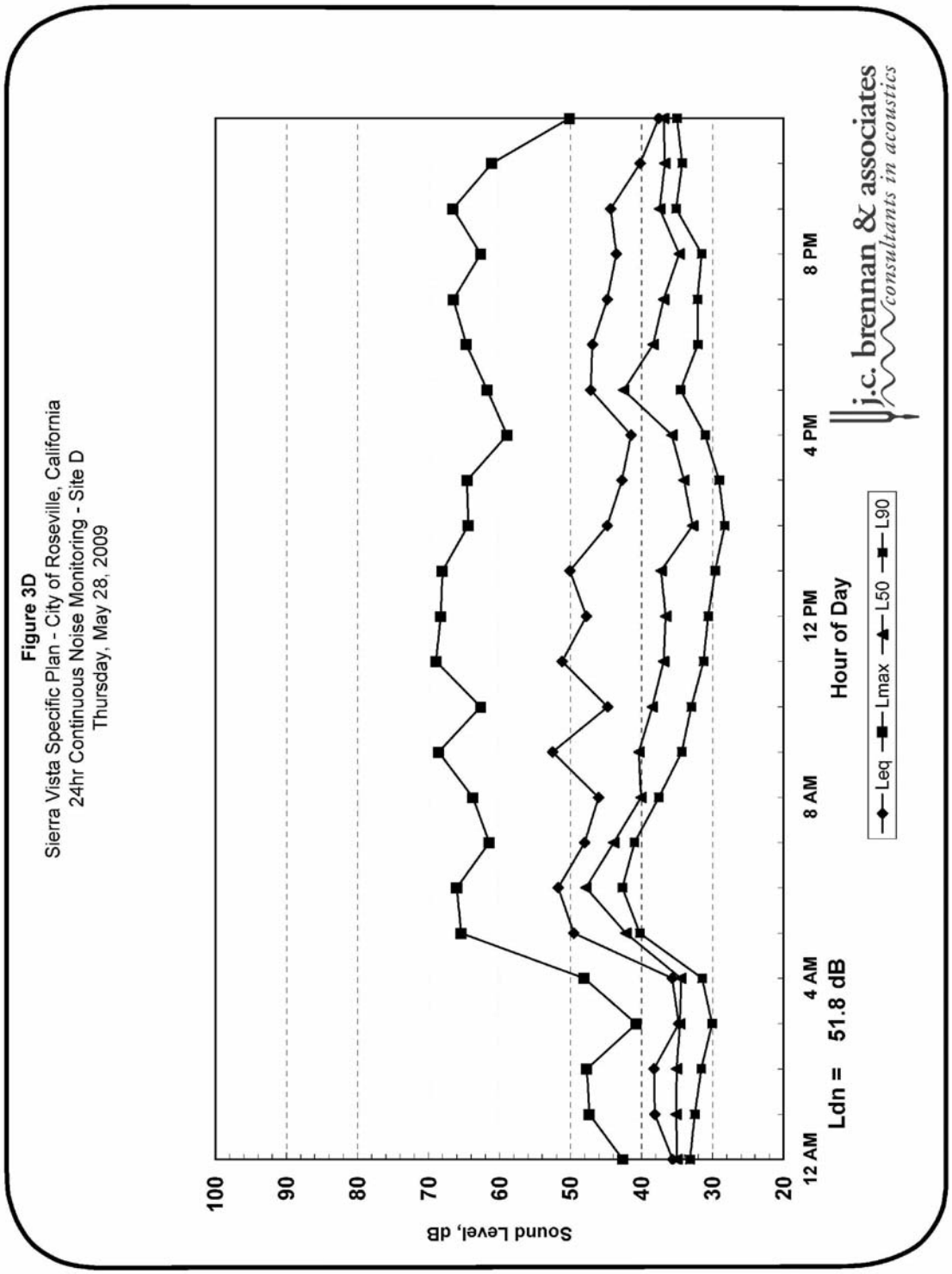


FIGURE 4.6-7
24 HOUR NOISE MEASUREMENTS AT SITE D



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).

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 close, 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 4.6-5 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 4.6-6]. 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.

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 4.6-5

MAXIMUM ALLOWABLE NOISE EXPOSURE TRANSPORTATION NOISE SOURCES

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 65 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, 2020 General Plan.

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

TABLE 4.6-6

PERFORMANCE STANDARDS FOR NON-TRANSPORTATION NOISE SOURCES

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, 2020 General Plan.

(TABLE IX-3 OF THE CITY OF ROSEVILLE GENERAL PLAN NOISE ELEMENT)

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.

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 between the hours of 8 a.m. and 10:30 Sunday through Thursday and 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 due to a project. Table 4.6-7 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 4.6-7

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 4.6-5 and 4.6-6 (General Plan Tables IX-1 and IX-3).
- A substantial 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 existing or proposed major sources of ground-borne vibration or noise associated with the project. There are also no private airstrips in the vicinity of the project area. Therefore, this 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.	
	SVSP	**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 representative distance of 50-feet, which is representative of the minimum likely distance from a residential receptor. Construction activities are discussed relative to the applicable City of Roseville Noise Ordinance policies.

SIERRA VISTA SPECIFIC PLAN

Construction activities would affect residences east and north of the SVSP area, as well as existing residences in the County, south of Baseline Road. 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 Baseline Road and Fiddyment Road would also expose residents in those areas to construction noise.

Activities involved in general construction of residential and commercial buildings would generate typical noise levels indicated in Table 4.6-8, which range from 84 to 89 decibels (dB) at a distance

of 50-feet. In addition, 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 4.6-8

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 potentially **significant** noise impacts because impacts would be occurring during continuous periods exceeding normal construction hours contemplated by the Noise Ordinance.

Mitigation is included in the project to reduce impacts resulting from construction noise, including MM 4.6-1. 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(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 SVSP. Existing residents within the WRSP could be impacted by construction activities along the Urban Reserve northern boundary. 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, which limits the hours of construction and requires sound mufflers, 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	
	SVSP	**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

SIERRA VISTA SPECIFIC PLAN

Internal to the project, commercial uses are located adjacent to residential uses. Commercial uses/noise sources could include, but are not limited to: commercial loading docks associated with such uses as grocery stores, big-box retail stores, on-site truck circulation, rooftop heating and ventilation equipment, and trash pickup. These activities could generate significant noise at nearby residences. No specific site designs are proposed for commercial uses 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).

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 each commercial development within 150-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 within the Urban Reserve area has not been determined, but it is assumed that, similar to the SVSP, 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. WMM 4.5-4 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 HVAAC equipment. This would reduce impacts to a **less than significant** level.

IMPACT 4.6-3	NOISE FROM SCHOOL RELATED ACTIVITIES	
Applicable Policies and Regulations	City of Roseville Municipal Code Section 9.24.030 (D).	
	SVSP	**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

SIERRA VISTA SPECIFIC PLAN

The SVSP includes one middle school and two elementary schools. All of the schools 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. 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. 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 used to 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. At the time specific development is proposed, a school could be proposed and additional entitlements and environmental review would be required. Because it is expected that any school-related noise would occur consistent with the City's Noise Ordinance, noise from development of the Urban Reserve would be **less than significant**.

IMPACT 4.6-4	PARK NOISE	
Applicable Policies and Regulations	City of Roseville Municipal Code Section 9.24.130 Sound limits on public property	
	SVSP	**Urban Reserve**
Significance with Policies and Regulations	Potentially Significant for Community-wide park and Less than significant for neighborhood parks	No impact for Community-wide parks, and Less than significant impact from neighborhood parks
Mitigation Measures:	MM 4.6-3 Attenuate Park Noise	None Required
Significance after Mitigation:	Less Than Significant	No Impact for Community-wide parks, and Less Than Significant from neighborhood parks

SIERRA VISTA SPECIFIC PLAN

Community-wide/City-wide Park

There are two types of park uses proposed within the SVSP; community-wide and neighborhood. Community-wide/City-wide Parks are defined as accommodating a wide variety and higher intensity of recreational uses than neighborhood parks. They are frequently identified as unique recreational centers serving the entire Roseville population. According to the General Plan these facilities are designed to "cluster" active sport elements to serve regional needs such as tournaments, special events and/or tourism to provide more cost effective maintenance practices.

A community-wide park is proposed on the southwest corner of the SVSP that would include ball fields and potentially a public address system to announce games. The park could include:

- Lighted tournament-level ball fields
- Stadium lighted ball fields (3)
- Soccer/multi-sport (football, lacrosse, rugby) lighted all weather fields (3)
- Batting cages
- Restaurants
- Large outdoor spaces or plazas for fairs or other large events.

The closest residential use would be in the Commercial Mixed Use (CMU) center, which could include high density residential uses adjacent to the park to the east, and a low density residential neighborhood approximately 400-feet north of the park. The low density residential neighborhood would be far enough away from the park that noise impacts would not be considered significant. The high density uses could be subjected to significant noise from the park activity as described below.

Outdoor Recreational Noise Impact Assessment:

For softball and baseball games, the focal point of noise generation tends to be in the vicinity of the pitchers mound, with the participants and spectators all centrally located around and generally facing that position. For soccer/rugby games, the focal point is more variable, with considerable excitement generated when the ball is near either goal, but with the sound of the participants generally spread out over the entire field and the sounds of spectators spread out along the sidelines. To provide a representation of the noise generation of these facilities, this analysis assumed that the cumulative noise generation of the softball and baseball fields is centered near the pitchers mounds and center of the noise source for the soccer fields is at the approximate center of the soccer fields.

The softball/baseball fields have effective centers at the pitcher's mound between 550-650 feet from the nearest residential land uses, while the nearest soccer field would be located approximately 530 feet from the nearest residential land uses.

Noise sources associated with recreational games would primarily consist of occasional shouting and cheering of the participants and observers during the contests and practices. J.C. Brennan & Associates, Inc., file data collected at various softball/baseball and soccer venues indicate that average noise levels generated during games are approximately 60 dB Leq at a distance of 100 feet from the focal point or effective noise center of the playing fields.

Based upon the distances listed above, noise levels from the proposed athletic fields are predicted to range between 44-46 dB Leq at the nearest residential receptors. These noise levels would comply with the City of Roseville 50 dB Leq daytime exterior noise level standard, but could exceed the City's 45 dB Leq nighttime noise level standard at the high density residential uses closest to the park site. Therefore, this impact would be considered **potentially significant**.

MM 4.6-3 limits park activities after 10:00 p.m., requires installation of public address systems that comply with the Noise Ordinance, and requires playing fields to be designed so they are screened from the adjacent residential areas. This mitigation would reduce the impact to a **less than significant** level.

Neighborhood Parks

Neighborhood park uses are proposed throughout the plan area, as depicted on Figure 2-1, in Chapter 2, Project Description 12 neighborhood parks are proposed. Neighborhood parks are defined as a landscaped park designed to serve a concentrated population or neighborhood. They are often developed as a recreation facility 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.

Due to their relatively passive nature, 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

While no specific development is proposed at this time, it is unlikely that another citywide park would be required in the Urban Reserve area. Therefore, there would be **no impact** from citywide park noise The Citywide park proposed as part of the SVSP is a substantial distance from the Urban Reserve area; therefore, it would not create significant noise impacts on future Urban Reserve residents. **No impact.**

Development of the Urban Reserve area would require neighborhood parks, consistent with the City's parkland dedication requirements and General Plan standards. Similar to the SVSP, 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 4.6-5	**FIRE STATION NOISE**	
Applicable Policies and Regulations	City of Roseville General Plan Noise Element City of Roseville Noise Ordinance Section 9.24.030 (c and f)	
	SVSP	**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

SIERRA VISTA SPECIFIC PLAN

A new fire station is proposed to be located on the east side of Westside Drive in the SVSP. The station would be adjacent to a proposed residential neighborhood located to the south. Open space would be located to the north, and Westside Drive, a proposed six-lane arterial roadway, would be located to the west. A residential neighborhood is also proposed to be located to the west of Westside Drive.

Fire station noise can be loud due to sirens. However, the noise would be intermittent, and would be limited to emergency response and possible training and maintenance activities. Section 9.24.030 (c) specifically states that: *Safety, warning and alarm devices, including house and car alarms, and other warning devices that are designed to protect the health, safety and welfare are exempt*. Section 9.24.030 (f) also specifically exempts "*emergencies, involving the execution of duties… providing emergency response to the general public, including but not limited to… emergency personnel*." Because these impacts are generally infrequent and are treated by residents of urban areas as part of the urban fabric, noise impacts associated with fire stations within the SVSP are considered **less than significant**.

URBAN RESERVE

No fire stations are proposed in the Urban Reserve area. It is expected that if the Urban Reserve area is developed in the future, it would be served by the fire station on Westside Drive within the SVSP. As described above, the primary noise sources associated with fire stations are intermittent and are exempt under the City of Roseville Noise Ordinance. Therefore, this impact is **less than significant**.

IMPACT 4.6-6	EXISTING PLUS PROJECT INCREASE IN TRAFFIC NOISE	
Applicable Policies and Regulations	City of Roseville General Plan Element	
	SVSP	**Urban Reserve**
Significance with Policies and Regulations	Significant	Significant
Mitigation Measures:	MM 4.6-4 Traffic Noise Attenuation	WMM 4.5-8 On-site Traffic Noise Attenuation and WMM 4.5-10 On-site Traffic Noise Policies
Significance after Mitigation:	Significant and Unavoidable	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 create 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 receiver, 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 ADT traffic volumes which were provided by the project traffic consultant (DKS Associates) and truck usage and vehicle speeds on the local area roadways 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.

SIERRA VISTA SPECIFIC PLAN

For purposes of CEQA, the traffic noise analysis considers two scenarios: (1) existing conditions plus the SVSP, and (2) buildout of the General Plan in 2025 plus the SVSP, discussed under Impact 4.8-7. Table 4.6-9 data indicate that existing traffic noise level increases resulting from the proposed SVSP would range from 0.3 dB to 5.0 dB compared to existing conditions. The largest increase would occur on Watt Avenue south of Baseline Road. This increase would exceed the 4 dB threshold of significance. Further, the one existing roadway segment, Fiddyment Road north of Blue Oaks Boulevard, which has noise levels that meet the General Plan noise standards of 60 dB Ldn under existing conditions, would degrade to a noise contour of 61.2 Ldn with the project. This is considered a **significant impact**.

MM 4.6-4 would reduce traffic impacts by requiring sound attenuation, such as noise barrier walls constructed of concrete panels, concrete masonry units, earthen berms, or any combination of these materials. However, because the increase in traffic from the project would be offsite, there are locations where the construction of sound walls would be infeasible. There are existing areas where a sound wall could obstruct driveway views, there is insufficient right-of-way, and/or the area is located outside the City of Roseville's jurisdiction. Therefore, the project would result in a **significant and unavoidable** traffic noise impact.

TABLE 4.6-9
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
Blue Oaks	Fiddyment to Woodcreek	100	**62.0**	**63.3**	**1.3**	36	77	165
Blue Oaks	Woodcreek to Foothills	100	**67.7**	**68.0**	**0.3**	73	157	339
Pleasant Grove	West of Fiddyment	100	**58.6**	**61.7**	**3.1**	28	61	131
Pleasant Grove	Fiddyment to Woodcreek	100	**63.4**	**67.4**	**4.0**	67	145	312
Pleasant Grove	Woodcreek to Foothills	100	**67.4**	**67.9**	**0.5**	73	156	337
Junction	Woodcreek to Foothills	100	**63.2**	**64.0**	**0.8**	40	86	184
Baseline	West of Watt	100	**65.1**	**68.7**	**3.6**	82	176	380
Baseline	Watt to Walerga	100	**66.6**	**69.3**	**2.7**	90	193	416
Baseline	Walerga to Junction	100	**64.3**	**66.2**	**1.9**	56	120	259
Baseline	Junction to Woodcreek	100	**63.1**	**64.6**	**1.5**	43	94	202
Baseline	Woodcreek to Foothills	100	**64.9**	**66.6**	**1.7**	60	129	277
Fiddyment	North of Blue Oaks	100	60.0	**61.2**	**1.2**	26	56	120
Fiddyment	Blue Oaks to Pleasant Grove	100	**63.5**	**64.9**	**1.4**	46	99	213
Fiddyment	Pleasant Grove to Baseline	100	**66.4**	**67.7**	**1.3**	70	151	325
Walerga	South of Baseline	100	**65.1**	**65.9**	**0.8**	53	114	247
Watt	Road "B" to Road "A"	100	--	58.8	NA	18	39	84
Watt	Baseline to Road "B"	100	--	61.2	NA	26	56	120
Watt	South of Baseline	100	**60.6**	**65.6**	**5.0**	51	110	236
Westside	North of Pleasant Grove	100	--	--	NA	--	--	--
Westside	Pleasant Grove to Road "A"	100	--	41.8	NA	1	3	6
Westside	Road "A" to Road "B"	100	--	60.0	NA	22	46	100
Market Drive	Project Site	100	--	52.2	NA	7	14	30
Upland Drive	Project Site	100	--	53.9	NA	8	18	39
Road "B"	Project Site	100	--	59.7	NA	21	44	95

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 Westside Drive, Watt Avenue, and Pleasant Grove Boulevard, and could experience noise levels above 60 dBA due to traffic. This is considered a potentially **significant** impact. WMM 4.5-8 and WMM 4.5-10 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 4.6-7	**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 Placer County Noise Ordinance Table 9-3, Transportation Noise Sources	
	SVSP	**Urban Reserve**
Significance with Policies and Regulations	Significant	Significant
Mitigation Measures:	No Feasible Mitigation Available.	No Feasible Mitigation Available.
Significance after Mitigation:	Significant and Unavoidable	Significant and Unavoidable

SIERRA VISTA SPECIFIC PLAN

Because the SVSP will be built out over time, this EIR includes an analysis of year 2025 conditions plus the project. As shown in Table 4.6-10, traffic noise levels in 2025 are projected to exceed the City's General Plan noise standard of 60 Ldn on 20 roadway segments in the vicinity, with or without the SVSP. Along five roadway segments, listed below, traffic noise exposure would improve after implementation of the SVSP due to roadway improvements proposed as part of the

project. However, the decrease in noise associated with these improvements would be less than one decibel Ldn. The five roadway segments are:

City of Roseville Roadways:

- Pleasant Grove Boulevard between Fiddyment and Woodcreek
- Fiddyment Road between Blue Oaks and Pleasant Grove
- Watt Avenue, between Future Road "B" and Road "A"
- Watt Avenue Baseline to Future Road "B"

Placer County Roadways:

- Baseline Road, from Watt to Walerga

Along 13 intersections the project would add anywhere from .2 to 4.5 Ldn dBA to the projected noise levels. These 13 intersections include:

City of Roseville Roadways:

- Blue Oaks, between Fiddyment and Woodcreek
- Blue Oaks, Woodcreek to Foothills
- Pleasant Grove, between Foothills and Woodcreek
- Junction, between Woodcreek and Foothills
- Baseline, Junction to Woodcreek
- Fiddyment, north of Blue Oaks
- Fiddyment, Blue Oaks to Pleasant Grove
- Westside, north of Pleasant Grove
- Baseline, Woodcreek to Foothills

Placer County Roadways:

- Baseline, West of Watt
- Baseline, Walerga to Junction
- Walerga, south of Baseline
- Watt, south of Baseline

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, noise consultants). Therefore, traffic noise from the project would not exceed 45 dB Ldn interior. This would be considered a **less than significant** impact.

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 SVSP project, including Fiddyment, Baseline, and Pleasant Grove among others. Buildout of the SVSP will add to traffic on these existing roadways. Measures that would be needed to reduce noise levels to 60 dB Ldn in residential outdoor activity areas include a combination of setbacks, berms, landscaping, and masonry walls. However, relative elevations of the roadways and elevations of building pads affect the ability 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 SVSP's contribution to traffic noise on existing residents within the City of Roseville immediately adjacent to major roadways. Therefore, this impact is considered **significant and unavoidable**.

Placer County Exterior Noise from Project Traffic

Buildout of the SVSP would increase traffic-related noise on roadways in unincorporated Placer County in the vicinity of the SVSP area. In many cases, existing buildings are located in proximity to roadways, such as the rural residential areas along the south side of Baseline Road. Distances from outdoor areas to the roadway centerlines can affect the performance of noise barriers. It may not be possible to locate sound barriers without affecting access and vehicle sight distances. Further, uses south of Baseline are located in Placer County. In addition, the City of Roseville does

not have control over improvements on Placer County roadways. Therefore, this impact is considered **significant and unavoidable**.

TABLE 4.6-10
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 CIP	2025 CIP Plus Project	Change	70 dB Ldn	65 dB Ldn	60 dB Ldn	70 dB Ldn	65 dB Ldn	60 dB Ldn
Blue Oaks	Fiddyment to Woodcreek	100	**69.2**	**69.9**	**0.7**	89	191	412	99	212	457
Blue Oaks	Woodcreek to Foothills	100	**71.9**	**72.1**	**0.2**	135	290	625	138	297	640
Pleasant Grove	West of Fiddyment	100	**67.1**	**66.8**	-0.3	64	137	296	61	132	285
Pleasant Grove	Fiddyment to Woodcreek	100	**67.8**	**69.0**	**1.2**	71	153	330	86	185	399
Pleasant Grove	Woodcreek to Foothills	100	**70.0**	**70.2**	**0.2**	99	214	462	103	221	477
Junction	Woodcreek to Foothills	100	**64.7**	**65.3**	**0.6**	44	95	205	49	105	227
Baseline	West of Watt	100	**70.6**	**71.6**	**1.0**	110	238	512	128	275	593
Baseline	Watt to Walerga	100	**72.5**	**71.7**	-0.8	146	314	677	131	282	607
Baseline	Walerga to Junction	100	**69.8**	**70.2**	**0.4**	97	209	451	104	224	482
Baseline	Junction to Woodcreek	100	**67.6**	**67.8**	**0.2**	69	149	320	72	155	333
Baseline	Woodcreek to Foothills	100	**67.8**	**68.5**	**0.7**	72	155	333	79	170	367
Fiddyment	North of Blue Oaks	100	**68.1**	**68.2**	**0.1**	75	161	346	75	162	349
Fiddyment	Blue Oaks to Pleasant Grove	100	**68.7**	**68.5**	-0.2	81	175	378	80	172	370
Fiddyment	Pleasant Grove to Baseline	100	**71.0**	**69.5**	-1.5	117	252	543	93	200	430

TABLE 4.6-10
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 CIP	2025 CIP Plus Project	Change	70 dB Ldn	65 dB Ldn	60 dB Ldn	70 dB Ldn	65 dB Ldn	60 dB Ldn
Walerga	South of Baseline	100	**68.4**	**68.8**	**0.4**	79	170	366	83	179	387
Watt	Road "B" to Road "A"	100	**67.4**	**66.7**	-0.7	67	145	312	60	130	280
Watt	Baseline to Road "B"	100	**67.4**	**66.9**	-0.5	67	145	312	62	133	287
Watt	South of Baseline	100	**65.6**	**66.6**	**1.0**	51	110	237	60	129	277
Westside	North of Pleasant Grove	100	**61.9**	**66.4**	**4.5**	29	62	134	57	123	266
Westside	Pleasant Grove to Road "A"	100	--	**66.2**	NA	--	--	--	56	120	258
Westside	Road "A" to Road "B"	100	--	**66.1**	NA	--	--	--	55	118	255
Market Drive	Project Site	100	--	53.2	NA	--	--	--	8	16	35
Upland Drive	Project Site	100	--	55.8	NA	--	--	--	11	24	52
Road "B"	Project Site	100	--	60.2	NA	--	--	--	22	48	103

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

URBAN RESERVE

Like the SVSP, future buildout of the Urban Reserve area would increase traffic-related noise on roadways in unincorporated Place County in the vicinity. In many cases, existing buildings are located in proximity to roadways, such as the rural residential areas along the south side of Baseline Road. For example, it may not be possible to locate sound barriers along Baseline Road

without adversely affecting access and vehicle sight distances. Further, uses south of Baseline are located in Placer County. Because the City of Roseville does not have control over improvements on Placer County roadways, this impact is considered **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	
	SVSP	**Urban Reserve**
Significance with Policies and Regulations	Significant	Significant
Mitigation Measures:	MM 4.6-4 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

SIERRA VISTA SPECIFIC PLAN

Traffic noise impacts at future noise sensitive uses within the SVSP area could be significant. Table 4.6-11 shows the predicted traffic noise levels at the SVSP residential uses that would be located adjacent to the major project-area arterial roadways. Table 4.6-11 also 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 SVSP, 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 4.6-11

TRAFFIC NOISE LEVELS AT PROPOSED RESIDENTIAL USES

Roadway	Segment	Approximate Residential Setback, feet1	ADT	Predicted Traffic Noise Levels, Ldn2				
				No Wall	6' Wall	7' Wall	8' Wall	9' Wall
Baseline	Watt to Walerga	215' (LDR 24)	44,800	**67**	**61**	**60**	59	58
Fiddyment	Pleasant Grove to Baseline	100' (Various Res.)	44,300	**70**	64	62	61	**60**
Watt	Road "B" to Road "A"	116' (Various Res.)	23,200	66	60	59	58	56
Watt	Baseline to Road "B"	116' (Various Res.)	24,100	66	60	59	58	57
Westside	Pleasant Grove to Road "A"	100' (Various Res.)	27,400	66	60	59	58	57
Westside	Road "A" to Road "B"	100' (Various Res.)	26,800	66	60	59	58	57
Market Drive	Project Site	62' @ HDR (20' Paseo)	1,900	56	--	--	--	--
		92' (60' Paseo)		54	--	--	--	--
Upland Drive	Project Site	62' @ HDR (20' Paseo)	3,400	59	--	--	--	--
		92' (60' Paseo)		56	--	--	--	--
Road "B"	Project Site	88' (Various Res.)	9,500	61	55	54	53	52

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. 2009.

Additionally, interior noise levels of the proposed residences 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 54 and70 dB Ldn. Noise levels at 2nd/3rd floor levels are typically 2-3 dB louder, or 57 to73 dB Ldn. Therefore, the residential receptors along Fiddyment Road are predicted to be exposed to interior noise levels exceeding 45 dB Ldn at second floor locations. MM 4.6-4 includes requirements for masonry walls and/or landscaped

berms to create barriers between noise sources and receptors. With implementation of MM 4.6-4, noise levels from traffic within the project site would be **less than significant**.

Table 4.6-10 data indicate that noise barriers ranging in height from six to nine 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, onsite traffic noise associated with future development would contribute to increased noise levels. Residential uses could be located near roadways such as Westside Drive, Watt Avenue, and Pleasant Grove Boulevard, and could experience exterior noise levels above 60 dBA due to traffic. This is considered a potentially **significant** impact. WMM 4.5-8 and WMM 4.5-10 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 FOR TRANSPORTATION NOISE SOURCES**	
Applicable Policies and Regulations	City of Roseville General Plan Element Table IX-1 Maximum Allowable Transportation Noise Sources and General Plan Amendment	
	SVSP	**Urban Reserve**
Significance with Policies and Regulations	Significant	Significant
Mitigation Measures:	No Feasible Mitigation Available	No Feasible Mitigation Available
Significance after Mitigation:	Significant and Unavoidable	Significant and Unavoidable

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 14 roadway segments in the vicinity, with or without the SVSP. The SVSP would add anywhere from 0.2 to 4.5 Ldn dBA to the projected noise levels. As indicated above, an increase of less than 3 decibels is barely discernible. However, because the noise levels are above the City of Roseville General Plan Noise Element standards, this impact is considered significant.

Because existing noise levels exceed the City's General Plan Noise Element, a General Plan amendment is proposed as part of the SVSP project approvals. 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 is proposed to be amended to allow noise levels up to 75 Ldn in certain instances. With this General Plan amendment, the project would be consistent with the General Plan.

However, amending the General Plan would result in a change in allowable noise levels along transportation corridors city-wide. As the City becomes increasingly urban, implementing effective and feasible noise mitigation measures along major transportation corridors is becoming more difficult. This would result in a significant and unavoidable noise impact.

TABLE 4.6-12
***PROPOSED REVISIONS TO:* TABLE IX-1 OF THE ROSEVILLE GENERAL PLAN NOISE ELEMENT**
MAXIMUM ALLOWABLE NOISE EXPOSURE TRANSPORTATION NOISE SOURCES

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 ~~65~~ 75 dB Ldn/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, 2020 and 2025 General Plan.

URBAN RESERVE

With the approval of the proposed SVSP project, the General Plan would be amended to change the allowable noise levels along transportation corridors city-wide. As the City becomes increasingly urban, implementing effective and feasible noise mitigation measures along major transportation corridors is becoming more difficult. Development of the Urban Reserve area

would add to noise levels along transportation corridors. This would result in a **significant and unavoidable** noise impact.

IMPACT 4.6-10	MCCLELLAN OVERFLIGHT NOISE	
Applicable Policies and Regulations	Caltrans Airport Land Use Handbook	
	SVSP	**Urban Reserve**
Significance with Policies and Regulations	Significant	Significant
Mitigation Measures:	Condition of Approval for Deed Disclosures	Condition of Approval for Deed Disclosures
Significance after Mitigation:	Significant and Unavoidable	Significant and Unavoidable

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.

SIERRA VISTA 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 noise uses.

McClellan Airport's most recent Airport Land Use Compatibility Plan (formerly known as Comprehensive Land Use Plans or CLUPs) 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 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 uses of the airport changing. A theoretic capacity noise exposure contour was also prepared which identified a capacity of the airfield and assumed full utilization of facilities at McClellan. This analysis addresses the concern that the SVSP planning horizon extends beyond a 20-year forecast, because it is not based on a forecast of actual operations but rather to a scenario in which the airport operates at full capacity.

Figure 4.6-5 indicates that the 60 db CNEL theoretic noise contour for McClellan Airfield would remain 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 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 three days of noise monitoring, aircraft operations averaged approximately 77 dB SEL with several events at approximately 85 dB SEL.

Using an average exterior SEL of 77 dB, and assuming that typical construction practices will achieve an exterior to interior noise level reduction of 30 dB with the windows in the closed position, the interior SEL would be approximately 52 dB. Based upon the ANSI procedures, the

maximum percent awakened would be approximately 3.4 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" (FICAN 1997).

While the maximum percent awakened is considered to be fairly low, there is still a potential for annoyance to future residents in the SVSP area. Therefore, this impact is considered **potentially significant**.

A condition of approval would require notice to residents of the potential for over-flights. However, notification alone would not substantially reduce the impacts. No other feasible mitigation is available. Therefore, this would remain a **significant and unavoidable** impact.

URBAN RESERVE

As in the SVSP, 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. Therefore, this impact is considered **potentially significant**. As a condition of approval, future residents would require residents to be notified of the potential for over-flights. However, notification alone would not substantially reduce the impacts. No other feasible mitigation is available. Therefore, this would remain a **significant and unavoidable** 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 to the project, especially to the Urban Reserve areas. The following includes the WRSP mitigation as "WMM" and provides ~~strikeout~~ to language that is being eliminated or <u>underline</u> to denote new language.

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 SVSP and 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 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-SVSP 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-SVSP)***

For all commercial uses within 150 feet of residential uses, the developer shall implement the following or equally effective measures:

- In general, where commercial land uses adjoin residential property lines, the following measures should 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 maintain 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 should 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 **Attenuate Park Noise *(Impact 4.6-4 SPVSP)***

MM 4.6-3(a): Activities at the proposed Communitywide Park shall be scheduled to occur during daytime hours (7:00 a.m. to 10:00 p.m.).

MM 4.6-3(b): Public address (PA) systems shall be designed, installed, and tested to comply with the requirements of the City of Roseville Municipal Code Noise Ordinance at the nearest sensitive receptors.

MM 4.6- 3(c): Wood fencing, or 160 foot setbacks adjacent to active recreation areas, shall be included in the project design where neighborhood parks abut residential uses.

MM 4.6- 4: ***Traffic Noise Attenuation (Impact 4.6-6 and 4.6-8 SVSP)***

MM 4.6-4(a): Masonry walls and/or landscaped berms shall be constructed along the major project-area roadways adjacent to proposed residential uses if acoustical studies warrant sound attenuation, otherwise standard wood fencing is acceptable. Draft EIR Table 4.6-10 data shall be consulted to determine appropriate barrier heights. If the assumptions shown in Table 4.6-10 vary considerably, a detailed analysis of exterior and interior mitigation measures should be conducted when tentative maps become available.

MM 4.6-4(b): 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 4.6-4(c): Tentative map applications for residential uses located along Fiddyment Road would be required to include an analysis of interior noise levels. The 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.

Condition of Approval Disclosure of McClellan Over-flight Noise (Impact 4.6-10 SVSP and Urban Reserve)

McClellan Airport is located approximately 4.25 miles from the southern boundary of the project area. In order to reduce potential conflicts due to noise from aircraft on approach or departure, under 3,000 feet, all residential uses with the plan area shall be provided with a deed disclosure or similar notice approved by the City Attorney regarding the proximity and nature of McClellan aircraft in the vicinity and the potential for over-flight noise.