CHAPTER 6 NOISE

6.1 INTRODUCTION

The proposed Fiddyment Ranch Specific Plan Amendment 3 project would amend the existing West Roseville Specific Plan (WRSP) by changing the land use and zoning designations for some parcels and by changing development densities within the project area. The project would result in the development of 1,905 additional residential units and 7.27 additional acres of commercial land uses compared with the development evaluated in the WRSP EIR. Other changes proposed to the land uses within the Fiddyment Ranch project area include minor adjustments in acreage for parks, open space, public/quasi-public, and roadway rights-of-way. The noise impacts of the overall WRSP were evaluated in the WRSP EIR. This Subsequent Draft EIR chapter addresses the potential for the proposed project to increase the severity of noise impacts evaluated in the WRSP EIR or to create new noise impacts.

Information for the noise impacts analysis in this chapter was based upon information within the following documents:

- *City of Roseville General Plan,* 2010 as amended
- *City of Roseville Noise Ordinance*
- *Creekview Specific Plan FEIR,* 2011
- *Transportation Impact Analysis,* DKS Associates, 2011
- *Environmental Noise Assessment, Fiddyment Ranch,* j.c. brennan & associates, 2011
- *Sierra Vista Specific Plan FEIR*, 2010
- *West Roseville Specific Plan*, 2004, as amended 2010
- *West Roseville Specific Plan FEIR*, 2004

The Transportation Impact Analysis prepared by DKS Associates is presented in Appendix B to this Draft Subsequent EIR and the Environmental Noise Assessment prepared by j.c. brennan & associates is presented in Appendix C. All of the above listed documents are available for review during normal business hours at:

City of Roseville Permit Center
311 Vernon Center
Roseville, California

Comments related to noise were received in response to the Notice of Preparation (NOP) (Appendix A). These comments are included in Appendix A of this EIR. The comments requested that analysis be provided regarding noise exposure at the project site from the McClellan Airfield; that the EIR provide analysis of the noise associated with truck traffic on Fiddyment Road, particularly construction truck traffic; and that the EIR evaluate the increase in noise levels caused by the proposed project's increased residential density. No issues related to noise were raised during the NOP Scoping Meeting.

6.2 ENVIRONMENTAL SETTING

Characteristics of Environmental Noise

Fundamentals of Acoustics

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that disrupts or interferes with normal human activities. Although exposure to high noise levels over an extended period has been demonstrated to cause hearing loss, the principal human response to noise is annoyance. The response of individuals to similar noise events is diverse and is influenced by the type of noise, the perceived importance of the noise, its appropriateness in the setting, the time of day, 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 a number of variables including frequency and intensity. Frequency describes the sound's pitch 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. Because of the logarithmic nature of the decibel unit, sound levels cannot be added or subtracted directly.

A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB. Sound levels above approximately 120 dB begin to be felt inside the human ear as discomfort and eventually pain at still higher levels. The minimum change in the sound level of individual events that an average human ear can detect is approximately 3 dB, while a change of approximately 10 dB is usually perceived by the average person as a doubling (or halving) of the sound's loudness.

Hertz 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. A particular tone which makes the drum vibrate 100 times per second generates a sound pressure wave that is oscillating at 100 Hz; this pressure oscillation is perceived as a tonal pitch of 100 Hz. Sound frequencies between 20 Hz and 20,000 Hz are within the range of sensitivity of the human ear.

Sound from a tuning fork (a pure tone) contains a single frequency. In contrast, most sounds one hears in the environment consist of a broad band of frequencies differing in sound level. The method commonly used to quantify environmental sounds consists of evaluating all of the frequencies of a sound according to a weighting system that reflects the fact 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 decibel level measured is called the A-weighted sound level (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 which de-emphasizes low and high frequencies of sound in a manner similar to the human ear.

Although the A-weighted sound level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of noise from several sources that creates a relatively steady

background noise in which no particular source is identifiable. A single descriptor called the equivalent sound level (L_{eq}) represents the "equivalent" constant sound level that would have to be produced by a given source to equal the fluctuating level measured. L_{eq} is the mean A-weighted sound level during a measured time interval. In addition, it is often desirable to know the acoustic range of the noise source being measured. This is accomplished through the L_{max} and L_{min} indicators. They represent the maximum and minimum noise levels measured.

Another sound measure known as the Day-Night Average Noise Level (L_{dn}) is defined as the A-weighted average sound level for a 24-hour day. It is calculated by adding a 10 dBA penalty to sound levels in the night (10:00 p.m. to 7:00 a.m.) to compensate for the increased sensitivity to noise during the quieter evening and nighttime hours. The L_{dn} is used by agencies such as the U.S. Department of Housing and Urban Development (HUD), the State of California, and Placer County to define acceptable land use compatibility with respect to noise. Sound levels of typical noise sources and environments are provided in *Table 6.1* to provide a frame of reference.

Table 6.1
Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	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.

Existing Noise Conditions in Project Area

The proposed project would affect ±910 acres in the northern portion of the ±1,678-acre Fiddyment Ranch area of the WRSP Specific Plan. Some development has already occurred within Fiddyment Ranch. This includes major infrastructure including roads, landscape corridors, drainage improvements and utilities. At the time the Notice of Preparation was circulated, more than 500 houses had been built, and construction in two residential neighborhoods was ongoing. This development had occurred within the Phase 1 area of

Fiddyment Ranch, which is south of Pleasant Grove Creek. In the Phase 2 area, some residential units had been completed and others were under construction in two residential neighborhoods. No work had been initiated on the Phase 3 portion of the development. Phases 2 and 3 are both located north of Pleasant Grove Creek.

The existing ambient noise environment in the immediate project vicinity is defined primarily by traffic noise on Fiddyment Road, aircraft overflights, and distant industrial noise from the Roseville Energy Park (REP), which is a 160-megawatt power generation facility with two gas-fired turbine generators and one steam turbine generator.

Ambient Noise Assessment Methodology

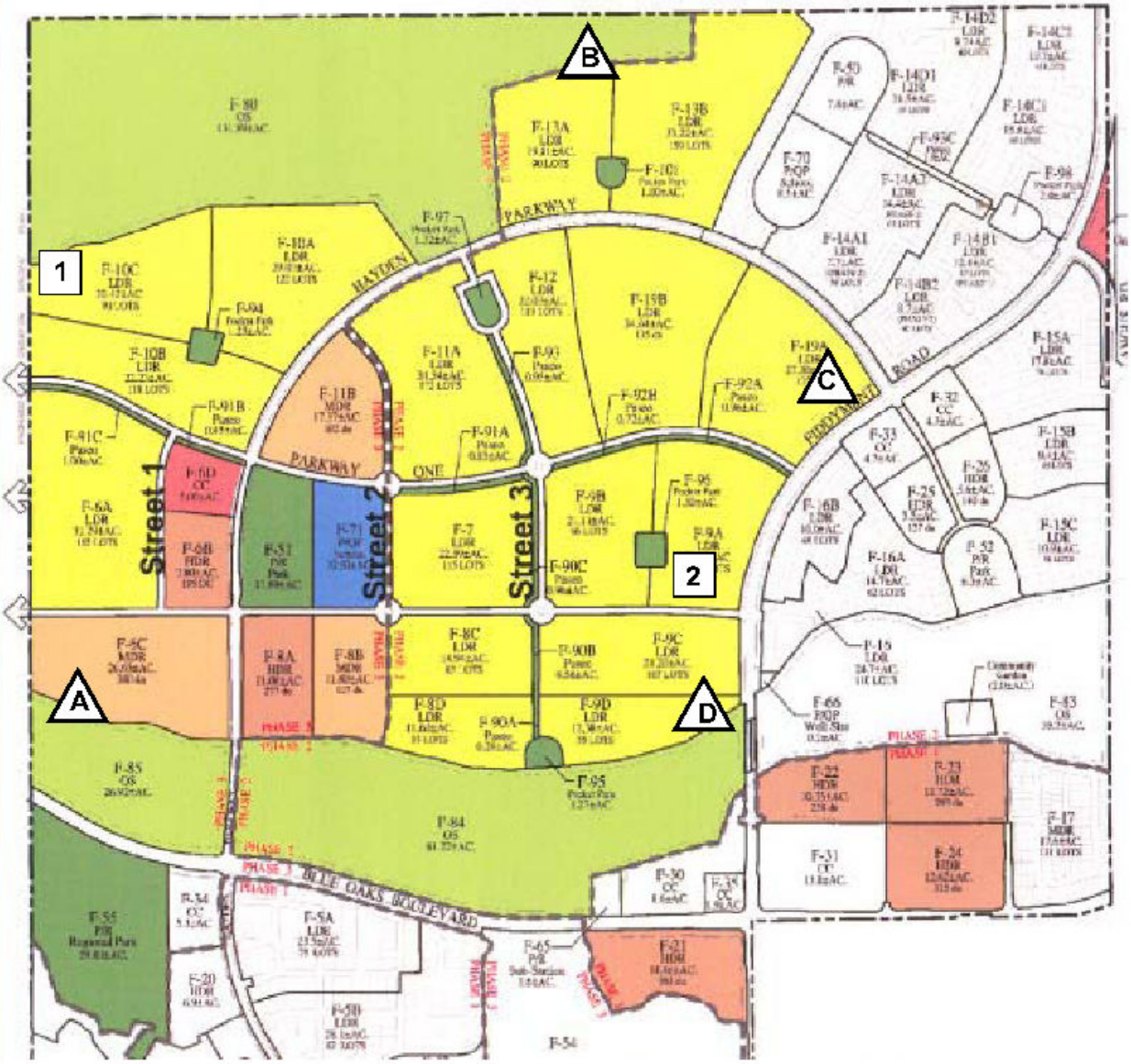
To quantify the existing ambient noise environment in the project vicinity, j.c. brennan & associates, Inc., conducted four continuous 24-hour noise level measurements and two short-term noise level measurements on July 30-31, 2008. They also collected noise measurements at the REP in October 2010. The noise measurement locations within the project site are shown on *Figure 6-1*.

Table 6.2 provides existing background noise measurement data. The sound level meters were programmed to collect hourly noise level intervals at each site during the survey. The maximum value (L_{max}) represents the highest noise level measured during an interval. The average value (L_{eq}) represents the energy average of all of the noise measured during an interval. The median value (L_{50}) represents the sound level exceeded 50 percent of the time during an interval.

Table 6.2
Summary of Existing Background Noise Measurement Data

Site	Location	Ldn (dB)	Average Measured Hourly Noise Levels, dB					
			Daytime (7am-10pm)			Nighttime (10pm-7am)		
			Leq	L50	Lmax	Leq	L50	Lmax
Continuous 24-Hour Noise Level Measurements								
A	Southwest Corner of Project Site	52.8	47.8	44.8	62.0	46.1	44.6	53.3
B	Northern Border of Project Site	46.0	41.2	33.8	60.5	39.3	34.5	53.5
C	Eastern Portion of Project Site	58.3	55.2	51.5	70.3	50.9	44.7	64.8
D	Southeast Corner of Project Site	53.8	49.4	45.0	63.8	46.9	40.9	60.8
Short-Term Noise Level Measurements								
1	Northwest Corner of Project Site	NA	31.7	30.0	43.8	@ 1:15 p.m. 7/30/08		
		NA	34.9	34.2	49.3	@ 9:37 a.m. 7/31/08		
2	Southeastern Portion of the Project Site	NA	43.1	33.0	62.0	@ 1:43 p.m. 7/30/08		
		NA	46.1	43.4	57.1	@ 10:04 a.m. 7/31/08		

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



△ : Continuous Noise Measurement Site

□ : Short Term Noise Measurement Site

north fork associates	±	Not to Scale Source: j.c. brennan & associates	**Figure 6-1** **Conceptual Land Use Plan and Noise Locations** *Fiddyment Ranch* **City of Roseville, CA**

Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters were used for the ambient noise level measurement survey. 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).

To assess noise levels generated by traffic on roadways in the project vicinity, j.c. brennan & associates, Inc. used the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108). The Model is based on reference noise factors for automobiles, medium trucks, and heavy trucks. It considers variables such as vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the project site. The FHWA Model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. Traffic volumes for existing conditions were obtained from DKS Transportation Consultants. Truck percentages and vehicle speeds on the local area roadways were estimated from field observations. *Table 6.3* shows the existing traffic noise levels in terms of L_{dn} at a reference distance of 100 feet from the centerlines of the existing project-area roadways identified in the traffic study (existing conditions). This table also shows the distances to existing traffic noise contours.

Table 6.3
Traffic Noise Levels and Distances to Contours

Roadway	Segment	Ldn at 100 feet	Distance to Ldn contours		
			70 dB	65 dB	60 dB
Fiddyment	North of Hayden North	53.5	8	17	37
Fiddyment	Hayden North to Blue Oaks	60.0	22	47	101
Fiddyment	Blue Oaks to Hayden South	63.5	37	79	170
Fiddyment	Hayden South to Pleasant Grove	66.2	55	120	258
Fiddyment	Pleasant Grove to Baseline	66.4	57	123	266
Blue Oaks	West of Fiddyment	46.1	3	5	12
Blue Oaks	Fiddyment to Del Web	62.0	29	63	135
Blue Oaks	Del Web to Foothills	67.7	71	152	328
Hayden (South)	West of Fiddyment	52.2	6	14	30

Notes: Distances to traffic noise contours are measured in feet from the centerlines of the roadways.
Source: FHWA-RD-77-108 with inputs from DKS Associates, and j.c. brennan & associates, Inc. 2010.

6.3 REGULATORY SETTING

Federal Regulations

There are no federal regulations related to noise that apply to the proposed project.

State Regulations

Title 24 of the California Code of Regulations establishes standards governing interior noise levels that apply to all new multifamily residential units (hotels, motels, apartments, condominiums, and other attached dwellings) in California. These standards require that acoustical studies be performed prior to construction at residential building locations where the

existing exterior L_{dn} exceeds 60 dBA. Such acoustical studies are required to establish mitigation measures that will limit maximum L_{dn} noise levels to 45 dBA in any habitable room.

Local Regulations

City of Roseville General Plan

The City of Roseville General Plan Noise Element includes the following goals and policies related to noise exposure.

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.

These goals are supported by several policies that establish performance standards and maximum allowable noise levels.

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. Noise mitigation measures may be required to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table IX-1 (included as *Table 6.4* below).

Policies - Fixed Noise Source

6. Allow the development of new noise-sensitive uses (which include, but are not limited to, residential, school, and hospitals) only where the noise level due to fixed (non-transportation) noise sources satisfies the noise level standards of Table IX-3 (included as *Table 6.5* below). Noise mitigation may be required to meet Table IX-3 performance standards.
7. Require proposed fixed noise sources adjacent to noise-sensitive uses to be mitigated so as not to exceed the noise level performance standards of Table IX-3.

Policies - General

9. Where noise mitigation measures are required to achieve the standards of Tables IX-1 and IX- 3, the emphasis of such measures should be placed on site planning and project design. These measures may include, but are not limited to, building orientation, setbacks, landscaping, and building construction practices. The use of noise barriers, such as soundwalls, 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.
10. Regulate construction-related noise to reduce impacts on adjacent uses consistent with the City's Noise Ordinance.

Table 6.4
Maximum Allowable Noise Exposure for Transportation Noise Sources

Land Use	Outdoor Activity Areas[1] Ldn/CNEL, dB	Interior Spaces	
		Ldn/CNEL, dB	Leq, dB[2]
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.

Table 6.5
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, 2025 General Plan.

As noted below, a General Plan Amendment is proposed to the standards shown in Table 6.5 for municipal power plants to allow an increase by up to 10 dB(A), but not exceeding 55 dB(A) Leq.

City of Roseville Municipal Code

The City of Roseville Noise Ordinance, Chapter 9.24 of the Municipal Code establishes noise level criteria for sensitive receptors. The criteria are identical to the performance standards in the General Plan Noise Element shown in *Table 6.5* above. The Noise Ordinance also establishes

exemptions for certain activities. The following exemptions which are pertinent to the proposed project are included below.

9.24.030 Exemptions

Sound or noise emanating from the following sources and activities are exempt from the provisions of the noise ordinance:

- Sound sources typically associated with residential uses (e.g., Children at play, air conditioning and similar equipment, but not including barking dogs).
- Sound sources associated with property maintenance (e.g., lawn mowers, edgers, blowers, pool pumps, power tools, etc.), provided such activities take place between the hours of 8:00 a.m. and 9:00 p.m.
- The normal operation of public and private schools typically consisting of classes and other school-sponsored activities.
- 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 shall be fitted with factory installed muffling devices and that all construction equipment shall be maintained in good working order.

9.24.120 Sound Limits for Industrial Properties

Notwithstanding the provisions of Section 9.20.100 included in Table IX-3, it is unlawful for any person to create any sound, or to allow the creation of any sound, on property with an industrial zoning designation that is owned, leased, occupied or otherwise controlled by such person where an industrial land use shares a common property line with a sensitive receptor or is separated from a sensitive receptor by a roadway, which causes the exterior sound level when measured at the property line of any affected sensitive receptor to exceed the ambient sound level by seven dBA, or exceed the sound level standards as set forth in Table 1(*Table 6.5* of this document) by seven dBA, whichever is greater.

9.24.130 Sound Limits for Events on Public Property

Notwithstanding the provisions of Section 9.24.100, sound sources associated with outside activities on public property (e.g. athletic events, sporting events, fairs, and entertainment events) between the hours of 8:00 a.m. and 10:30 p.m., Sunday through Thursday, and between the hours of 8:00 a.m. and 11:00 p.m. on Fridays, Saturdays, and city-recognized holidays, shall not exceed 80 dBA, Lmax at the property line of the property on which the event is being held.

Determination of a Significant Increase in Noise Levels

Another means of determining a potential noise impact is to assess a person's reaction to changes in noise levels due to a project. The values in *Table 6.6* are 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 6.6
Subjective Reaction to Noise Level Changes

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.

6.4 IMPACTS

Significance Criteria

Potential impacts associated with noise have been evaluated using criteria identified in Appendix G of the CEQA Guidelines. The analysis conducted for the Initial Study determined that with respect to the following significance criteria the potential impacts of proposed project were adequately evaluated in the WRSP EIR and are not evaluated further in this Draft Subsequent EIR:

- Expose people to excessive groundborne vibration or groundborne noise levels;
- Create a substantial temporary or periodic increase in ambient noise levels in the project vicinity; and
- Expose people to excessive noise associated with a private airstrip.

The analysis below considers whether the project would have a significant noise impact by resulting in any of the following conditions:

- 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 *Table 6.4* and *Table 6.5* (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, as defined by *Table 6.6*; and
- Exposure of people residing or working in the project area to excessive aviation related noise levels associated with current and future operations at McClellan Airfield.

Project Impacts

IMPACT 6.1:	Expose Existing Sensitive Receptors To Excessive Traffic Noise Levels
APPLICABLE POLICIES AND REGULATIONS:	City of Roseville General Plan Noise Element
SIGNIFICANCE WITH POLICIES AND REGULATIONS:	Less than Significant
MITIGATION MEASURES:	None
SIGNIFICANCE AFTER MITIGATION:	Less Than Significant

Implementation of the proposed project would result in an increase of average daily vehicle trips in the project area. The increased traffic volumes would not result in a noticeable (4 dB or greater) increase in traffic noise along roadways at sensitive receptors in and within the vicinity of the project site. This is considered to be a less than significant impact.

The increase in traffic volumes was evaluated by using the FHWA Traffic Noise Prediction Model, which is based upon the CALVENO reference noise emission factors for automobiles, medium trucks and heavy trucks, and considers vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. Average daily traffic volumes were provided by the project traffic consultant. 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 existing and future scenarios which would result from the project are provided in terms of L_{dn} at a standard distance of 100 feet from the centerlines of the project-area roadways.

Table 6.7 demonstrates that under the Existing Conditions and Existing Plus Project conditions, that the proposed project would result in traffic noise level increases of more than 4 dB along Fiddyment Road from Blue Oaks Boulevard to the north access of Hayden Parkway. However, there are no existing noise-sensitive receivers along this roadway segment. In addition, no land uses are located along these segments of Fiddyment Road which would exceed the City of Roseville noise level criteria. In addition, traffic noise levels along Blue Oaks would increase more than 4 dB west of Fiddyment and from Fiddyment to Del Webb. Currently there are no residences along Blue Oaks west of Fiddyment. The portion of Blue Oaks Boulevard from Fiddyment to Del Webb currently has residential development adjacent to Blue Oaks. However, this development currently includes sound walls and mitigation which anticipated increases in traffic noise as part of the project design. In addition, no residences would be exposed to traffic noise levels exceeding the allowable 75 dB L_{dn} exterior noise level standard.

Table 6.8 demonstrates that under the 2025 Conditions and the 2025 Plus Project Conditions, that the project will not contribute more than a +0.3 dB increase in traffic noise levels. In addition, no residences will be exposed to traffic noise levels exceeding the allowable 75 dB L_{dn} exterior noise level standard. Therefore, this impact is considered less than significant.

Table 6.7
Predicted Existing No Project and Existing Plus Project Traffic Noise Levels

Roadway	Segment	Distance[1]	Traffic Noise Levels (dBA, Ldn)			Distance to Ldn Contours Existing (feet)			Distance to Ldn Contours Existing Plus Project (feet)		
			Existing	Existing Plus Project	Change	70 dB	65 dB	60 dB	70 dB	65 dB	60 dB
Fiddyment	North of Hayden North	100	53.5	54.8	+1.3	8	17	37	10	21	45
Fiddyment	Hayden North to Blue Oaks	100	60.0	65.1	**+5.1**	22	47	101	47	101	218
Fiddyment	Blue Oaks to Hayden South	100	63.5	65.4	+1.9	37	79	170	49	106	229
Fiddyment	Hayden South to Pleasant Grove	100	66.2	66.8	+0.6	55	120	258	61	132	285
Fiddyment	Pleasant Grove to Baseline	100	66.4	66.9	+0.5	57	123	266	62	134	289
Blue Oaks	West of Fiddyment	100	46.1	62.5	**+16.4**	3	5	12	32	69	148
Blue Oaks	Fiddyment to Del Webb	100	62.0	66.5	**+4.5**	29	63	135	58	125	270
Blue Oaks	Del Web to Foothills	100	67.7	69.0	+1.3	71	152	328	86	185	398
Hayden (South)	West of Fiddyment	100	52.2	54.0	+1.8	6	14	30	9	18	40

[1]Distances are measured in feet from the centerline of the roadway.
Bold indicates an increase in traffic noise levels of greater than 4 dB.
Source: FHWA-RD-77-108 with inputs from DKS Associates, Caltrans and j.c. brennan & associates, Inc.

Table 6.8
Predicted 2025 No Project and 2025 Plus Project Traffic Noise Levels

Roadway	Segment	Distance[1]	Traffic Noise Levels (dBA, Ldn)			Distance to Ldn Contours 2025 (feet)			Distance to Ldn Contours 2025 Plus Project (feet)		
			2025	2025 Plus Project	Change	70 dB	65 dB	60 dB	70 dB	65 dB	60 dB
Fiddyment	North of Hayden North	100	61.3	61.6	+0.3	26	57	122	28	60	128
Fiddyment	Hayden North to Blue Oaks	100	67.7	68.0	+0.3	70	152	327	73	157	339
Fiddyment	Blue Oaks to Hayden South	100	68.5	68.5	0	79	171	369	80	172	371
Fiddyment	Hayden South to Pleasant Grove	100	70.8	70.8	0	113	244	526	113	244	525
Fiddyment	Pleasant Grove to Baseline	100	69.5	69.5	0	93	201	432	93	200	430
Blue Oaks	West of Fiddyment	100	67.5	67.6	+0.1	68	146	315	70	150	323
Blue Oaks	Fiddyment to Del Webb	100	69.7	69.9	+0.2	95	205	443	99	213	460
Blue Oaks	Del Web to Foothills	100	72.0	72.1	+0.1	135	291	628	138	297	640
Hayden (South)	West of Fiddyment	100	55.5	55.4	-0.1	11	23	50	11	23	49

[1]Distances are measured in feet from the centerline of the roadway.
Source: FHWA-RD-77-108 with inputs from DKS Associates, Caltrans and j.c. brennan & associates, Inc.

IMPACT 6.2:	Expose Future Sensitive Receptors Within The Project Site To Excessive Traffic Noise Levels
APPLICABLE POLICIES AND REGULATIONS:	City of Roseville General Plan Noise Element
SIGNIFICANCE WITH POLICIES AND REGULATIONS:	Significant
MITIGATION MEASURES:	Mitigation Measure 6.2a
SIGNIFICANCE AFTER MITIGATION:	Less Than Significant

Proposed residential land uses located adjacent to any of the major project-area arterial roadways may be impacted by exterior noise levels exceeding 60 dB L_{dn} and interior noise levels exceeding 45 dB L_{dn}. The analysis below shows that residential uses would be developed within areas exposed to projected future traffic noise levels in excess of the applicable noise standards. This is considered a significant impact.

The analysis of traffic noise levels was conducted for the internal street system of the project site, and along portions of Fiddyment Road and Blue Oaks Boulevard adjacent to the project's proposed residential land uses. The FHWA traffic noise prediction model was used to predict CIP 2025 Plus Project traffic noise levels in these locations where cumulative traffic volumes are 4,000 ADT or more. Where cumulative traffic volumes were less than 4,000 ADT, it was assumed that the traffic noise levels would comply with the City exterior noise level criterion of 60 dB L_{dn} and the interior noise level criterion of 45 dB L_{dn}. *Table 6.9* identifies the predicted traffic noise levels at the proposed residential uses which have the outdoor activity area adjacent to the major project-area roadways.

Table 6.9
Future Traffic Noise Levels At Proposed Residential Uses

Roadway	Segment	Receiver Type[1]	Approximate Distance to Outdoor Activity Area[2]	Predicted Traffic Noise Levels, L_{dn} No Mitigation
Hayden	Blue Oaks to Collector One	MDR/HDR	75	**64.9 dB**
Hayden	Collector One to Parkway One	MDR/LDR	75	**61.8 dB**
Hayden	North/South Collector to Fiddyment	LDR	75	**61.8 dB**
Collector One	North/South Collector to Fiddyment	LDR	75	**63.4 dB**
Parkway One	West of Hayden	LDR	75	**60.9 dB**
Fiddyment	Hayden North to Blue Oaks	LDR	100	**68.0 dB**
Blue Oaks	West of Fiddyment	HDR	100	**67.6 dB**

1 LDR – Low Density Residential. MDR – Medium Density Residential. HDR – High Density Residential.
2 Distances are measured in feet from the centerlines of the roadways to the assumed outdoor activity areas.
Bold indicates predicted traffic noise levels greater than the 60 dB Ldn criteria.
Source: FHWA-RD-77-108 with inputs from DKS Associates, and j.c. brennan & associates, Inc.

As shown in *Table 6.9*, traffic noise levels on Hayden Parkway, portions of Collector One (Crawford Parkway), Parkway One (Holt Parkway), Blue Oaks Boulevard and Fiddyment Road

are predicted to have traffic noise levels greater than the 60 dB L_{dn} exterior noise level standard. No residential receivers are expected to be exposed to roadway traffic noise levels in excess of 70 dB L_{dn}. Typical residential construction practices result in a 25 dB noise attenuation from exterior to interior spaces. Therefore, interior noise levels are expected to comply with the 45 dB L_{dn} interior noise level criterion.

The degree by which traffic noise levels will exceed the City of Roseville exterior noise level standard will depend on the proximity of the proposed noise-sensitive uses to the major roadways within the project vicinity, and the individual noise generation of those roadways. A barrier analysis was conducted in order to determine the noise level reduction required to achieve the City's 60 dB L_{dn} exterior noise level standard for each of the roadway segments shown in *Table 6.9*. Based upon the barrier analyses, the residential uses adjacent to Fiddyment Road and Blue Oaks Boulevard would require an 8-foot tall property line sound wall to reduce traffic noise levels within compliance of the 60 dB L_{dn} standard. The barrier analyses for Hayden Parkway, Collector One (Crawford Parkway) and Parkway One (Holt Parkway) indicate that a barrier height of 6-feet would be required to reduce traffic noise levels within compliance with the 60 dB L_{dn} standard, assuming relatively flat site conditions. *Mitigation Measure 6.2a* requires construction of these barriers where relatively flat site conditions exist or completion of site-specific traffic noise levels analyses as part of the processing of each Fiddyment Ranch tentative map that includes residential development adjacent to Fiddyment Road, Hayden Parkway, Collector One (Crawford Parkway) and Parkway One (Holt Parkway) and construction of barriers at the appropriate heights. With implementation of this measure, future residents of the project site would not exposed to substantial noise levels, and this impact would be reduced to a less than significant level.

IMPACT 6.3:	**Expose Future Sensitive Receptors Within The Project Site To Excessive Noise Levels Associated With The Roseville Energy Park**
APPLICABLE POLICIES AND REGULATIONS:	City of Roseville General Plan Noise Element
SIGNIFICANCE WITH POLICIES AND REGULATIONS:	Less than Significant
MITIGATION MEASURES:	None
SIGNIFICANCE AFTER MITIGATION:	Less Than Significant

The REP is located approximately 2,000 feet southwest of the Fiddyment Ranch Specific Plan Amendment 3 project area. Noise levels generated by REP operation adjacent to the western boundary of the Fiddyment Ranch area were measured between Monday October 18, 2010 and Thursday October 21, 2010. Based upon those noise level measurements, portions of Fiddyment Ranch will be exposed to noise levels ranging between 45 dB L_{eq} and 48 dB $L_{eq.}$ Louder noise levels are typically associated with startup of the REP or during periods of peak operations. *Figure 6-2* identifies the 45 dB L_{eq} and 50 dB L_{eq} noise contours associated with the REP. As shown in that figure, portions of parcels F6-A (LDR), F6-C (MDR), F-85 (OS), F-55 (P/R), F-34 (CC), F-20 (HDR), F-86 (OS), and F-56 (P/R) are located within the 45 dB L_{eq} noise contour. No other portions of the Fiddyment Ranch area would be exposed to noise levels exceeding 45 dB L_{eq}. Note that *Figure 6-2* uses the existing land use plan for Fiddyment Ranch, which shows

parcels F-6A and F-6C as parcel F-6 (LDR). Of the parcels located partially within the 45 dB noise contour, only parcels F6-A (LDR), F6-C (MDR), F-85 (OS), and F-55 (P/R) are affected by the proposed Fiddyment Ranch Specific Plan Amendment 3 project. No changes to land use or zoning designations or parcel sizes are proposed for the other parcels located partially within the 45 dB noise contour. The westernmost edge of parcel F-55 (P/R) is located within the 50 dB L_{eq} noise contour.

The City of Roseville General Plan standards for exposure to stationary sources of noise establish a maximum allowable noise level of 45 dB L_{eq} during nighttime hours and 50 dB L_{eq} during daytime hours. With measured noise levels reaching 48 dB L_{eq}, the portions of the Fiddyment Ranch area within the 45 dB L_{eq} noise contour for the REP would be exposed to noise levels that exceed the City's standards. Because residential uses are proposed within a noise contour that exceeds the General Plan standards, this is considered a significant impact.

As discussed in **CHAPTER 3 PROJECT DESCRIPTION**, 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 a maximum noise level of 55 dB. With this amendment, the noise levels experienced within the Fiddyment Ranch area would be consistent with the General Plan standards, and this impact would be considered less than significant.

Also as discussed in **CHAPTER 3 PROJECT DESCRIPTION**, future residential buyers and renters would 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.

IMPACT 6.4:	**Expose Future Sensitive Receptors Within The Project Site To Excessive Aviation-Related Noise Levels**
APPLICABLE POLICIES AND REGULATIONS:	City of Roseville General Plan Noise Element
SIGNIFICANCE WITH POLICIES AND REGULATIONS:	Less than Significant
MITIGATION MEASURES:	None
SIGNIFICANCE AFTER MITIGATION:	Less Than Significant

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

McClellan Airfield's most recent Airport Land Use Compatibility Plan was updated in 1987 when McClellan 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 has 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. Sacramento County Airports indicates that the project site is also subject to overflight activity from Sacramento International and Beale Air Force Base.

Figure 6-3 indicates that the 60 dB CNEL "Theoretic Capacity" noise contour for McClellan Airfield would remain south of Elverta Road. Therefore, noise levels at the project site from aircraft operations are not predicted to exceed the City of Roseville noise level standards of 60 dB L_{dn}/CNEL for exterior noise and 45 dB L_{dn}/CNEL for interior noise. However, aircraft overflights of the project site can occur throughout daytime and nighttime hours. This represents a potentially significant potential for sleep disturbance.

For the 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 1997 research conducted by the Federal Interagency Committee on Aviation Noise (FICAN) research. 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 provided by the Sacramento County Airport System.

During the seven days of monitoring aircraft operation noises by the Sacramento County Airport System on the Creekview site, directly west of the Fiddyment site, only one nighttime (10:00 p.m. to 7:00 a.m.) event having an SEL of 75 dB or greater occurred. The event occurred on December 14, 2006 at 12:49 a.m. with an SEL of 82.6 dB.

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 the windows closed, the interior SEL would be approximately 57.6 dB. Based upon the ANSI procedures, the maximum percent awakened would be approximately 2.6 percent. FICAN explained that, "because the adopted curve represents the upper limit of the data presented, it should be interpreted as predicting the maximum percent of the exposed population expected to be behaviorally awakened, or the maximum percent awakened" (FICAN 1997).

While there is a potential for annoyance to future residents in the Fiddyment Ranch area, the maximum percent awakened is considered to be fairly low. This impact is considered less than significant. As noted in **CHAPTER 3 PROJECT DESCRIPTION**, property disclosures will be provided to all residential property within Fiddyment Ranch to ensure that future sensitive receptors are aware of this potential noise source.

6.5 MITIGATION MEASURES

Expose Existing Sensitive Receptors To Excessive Traffic Noise Levels

This impact is determined to be Less than Significant. No mitigation measures are necessary.

Expose Future Sensitive Receptors Within The Project Site To Excessive Traffic Noise Levels

Mitigation Measure 6.2a: Future residential development adjacent to Fiddyment Road, Blue Oaks Boulevard, Hayden Parkway, Collector One (Crawford Parkway), and Parkway One (Holt Parkway) shall include a property line sound wall to reduce traffic noise levels in compliance with the 60 dB L_{dn} standard. If site conditions are such that base of wall, roadway centerline and building pads are all the same elevation, the required height of the sound walls adjacent to Fiddyment Road and Blue Oaks Boulevard is 8 feet and the required height of the sound walls adjacent to Hayden Parkway, Collector One (Crawford Parkway), and Parkway One (Holt Parkway) is 6 feet. This also assumes a typical setback of 75 feet from the roadway centerline to the barrier, and a setback of 20 to 25 feet from the barrier to the building façade. If site conditions are such that base of wall, roadway centerline and building pads are not all the same elevation, or the setbacks are significantly different than those assumed in the barrier analysis, an analysis of traffic noise barrier effectiveness shall be completed for each Fiddyment Ranch tentative map that includes residential development adjacent to these roadways. The analysis shall be conducted by a qualified acoustical consultant and shall specify the measures required to achieve compliance with the City of Roseville 60 dB L_{dn} exterior noise level standard at the outdoor activity areas.

Expose Future Sensitive Receptors Within The Project Site To Excessive Noise Levels Associated With The Roseville Energy Park

This impact is determined to be Less than Significant. No mitigation measures are necessary.

Expose Future Sensitive Receptors Within The Project Site To Excessive Aviation-Related Noise Levels

This impact is determined to be Less than Significant. No mitigation measures are necessary.