

3.12.1 INTRODUCTION

This section presents existing noise levels at and surrounding the project site, summarizes relevant regulations and policies, and analyzes the anticipated noise impacts of implementing the Proposed Action and its alternatives.

Sources of information used in this analysis include:

- Sierra Vista Specific Plan EIR prepared by the City of Roseville;
- Westbrook Specific Plan Amendment Initial Study prepared by the City of Roseville;
- Westbrook Property Technical Noise Section prepared by J.C. Brennan & Associates, October 2011; and
- Placer County General Plan Noise Element.

3.12.2 AFFECTED ENVIRONMENT

3.12.2.1 Characteristics of Environmental Noise

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is amplitude of sound waves combined with the reception characteristics of the ear. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). The human ear does not respond uniformly to sounds at all frequencies, being less sensitive to very low and high frequencies than to medium frequencies that correspond with human speech. The A-weighted noise level (or scale) better corresponds to the human ear's subjective perception of sound levels. This A-weighted sound level is called the noise level and is measured in units of dB(A). Changes in noise levels of less than 3 dB(A) are not typically noticed by the human ear (U.S. Department of Transportation 1980). Individuals extremely sensitive to changes in noise may notice changes in noise levels from 3 to 5 dB(A). A 5 dB(A) increase is readily noticeable, while the human ear perceives a 7 dB(A) increase in sound level to be a doubling of sound.

Noise sources are classified into two types: (1) point sources, such as pieces of stationary equipment; and (2) line sources, such as roadways with large numbers of point sources (motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6.0 dB(A) for each doubling of distance from the source to the receptor at an acoustically "hard" site, such as paved roads, and 7.5 dB(A) at an acoustically "soft" site, such as grass-covered soil or soft sand (U.S. Department of Transportation 1980). For example, a 60 dB(A) noise level measured at 50 feet (15 meters) from a point source at an acoustically hard site would be 54 dB(A) at 100 feet (30 meters) from the source and 48 dB(A) at 200 feet (61 meters) from the source. Sound generated by a line source typically attenuates at a rate of 3.0 dB(A) and 4.5 dB(A) per doubling of distance from the source to the receptor for a hard and soft site, respectively (U.S. Department of Transportation

1980). Sound levels can also be attenuated by man-made or natural barriers. Solid walls, berms, or elevation differences typically reduce noise levels by 5 to 10 dB(A) (U.S. Department of Transportation 1980).

The Equivalent Noise Level (Leq), the day-night sound level (Ldn), and the Community Noise Equivalent Level (CNEL) average varying noise exposures over time and quantify the results in terms of a single numeric descriptor. Leq is the average A-weighted sound level measured over a given time interval. Leq can be measured over any period, but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods. Ldn is the energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring during the period from 10:00 PM to 7:00 AM. CNEL is the average A-weighted sound level measured over a 24-hour period and is adjusted to account for increased sensitivity of some individuals to noise levels during the evening and nighttime hours. A CNEL noise measurement is obtained by adding 5 dB(A) to sound levels occurring during the evening from 7:00 PM to 10:00 PM, and 10 dB to sound levels occurring during the nighttime from 10:00 PM to 7:00 AM. The 5 and 10 dB “penalties” are applied to account for peoples’ increased sensitivity during the evening and nighttime hours. The logarithmic effect of these additions is that, for example, a 60 dB(A) 24-hour Leq would result in a CNEL of 66.7 dB(A).

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.

3.12.2.2 Existing Noise Conditions in Project Area

Vehicle Traffic Noise

Motor vehicle traffic is a major contributor to the existing noise environment in the vicinity of the project site along Baseline Road, Fiddymment Road, and Pleasant Grove Boulevard. As shown in **Table 3.12-1, Existing Traffic Noise Levels**, noise levels along all existing roadways equal or exceed the City of Roseville General Plan residential noise standards of 60 Ldn in the vicinity of the project area, except for the segment of Sunset Boulevard West, west of Fiddymment Road.

**Table 3.12-1
Existing Traffic Noise Levels**

Roadway	Segment	Traffic Noise Level, Ldn (dB)	Distance to Contours (feet)		
			70 dB Ldn	65 dB Ldn	60 dB Ldn
Baseline	West of Watt	65.9	54	116	249
Baseline	East of Watt	67.4	68	146	314
Baseline	East of Walerga	65.4	49	106	227
Baseline	East of Cook-Riolo	65.9	53	115	247
Fiddymment	South of Athens	60.0	22	47	101
Walerga	South of Baseline	65.1	47	102	219
Watt	South of Baseline	61.6	28	59	128
PFE	East of Watt	61.1	26	55	119
Sunset	West of Fiddymment	55.2	10	22	48
Athens	East of Fiddymment	61.2	26	55	119

Source: J.C. Brennan & Associates 2011

Aircraft Noise

McClellan Airfield is located approximately 5.5 miles (8.9 kilometers) south of the project site. The County of Sacramento Department of Economic Development owns and oversees McClellan Airfield. The airfield is available for both daytime and nighttime use. The airfield could experience 70,000 or more flight operations, defined as a take-off or landing, per year. While McClellan is no longer a military facility, military air traffic including helicopters and U.S. Coast Guard cargo planes continue to use the airfield. The other types of flights that may use McClellan are small jets and other general aviation planes.

Aviation activity associated with McClellan Airfield has the potential to occur over the project site. To address single-event noise levels due to aircraft over-flights, J.C. Brennan & Associates conducted continuous and short-term noise level measurements and observations of aircraft flyovers on May 27 to 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. **Table 3.12-2, Summary of McClellan Overflight Individual Aircraft Noise Levels**, shows a summary of the aircraft flyovers at each noise level measurement site.

**Table 3.12-2
Summary of McClellan Overflight Individual Aircraft Noise Levels**

Observed Events (May 27 and May 29, 2009)			
Aircraft	Number of Events	High (dB, SEL)	Low (dB, SEL)
Site D*			
Single-Engine Propeller	7	70.4	62.8
Turbo-Engine Propeller	0	--	--
Business Jet	1	67.7	67.7
Helicopter	1	64.4	64.4
C-130	5	78.5	63.4
Commercial Jet	--	--	--
Site 6*			
Single-Engine Propeller	5	71.2	59.7
Turbo-Engine Propeller	0	--	--
Business Jet	0	--	--
Helicopter	2	62.9	60.4
C-130	1	74.7	74.7
Commercial Jet	--	--	--
Unattended Recorded Events (May 28, 2009)			
Time of Day	Number of Events	High (dB, SEL)	Low (dB, SEL)
Daytime (7:00 AM to 10:00 PM)	57	78.4	60.6
Nighttime (10:00 PM to 7:00 am)	19	76.9	63.8

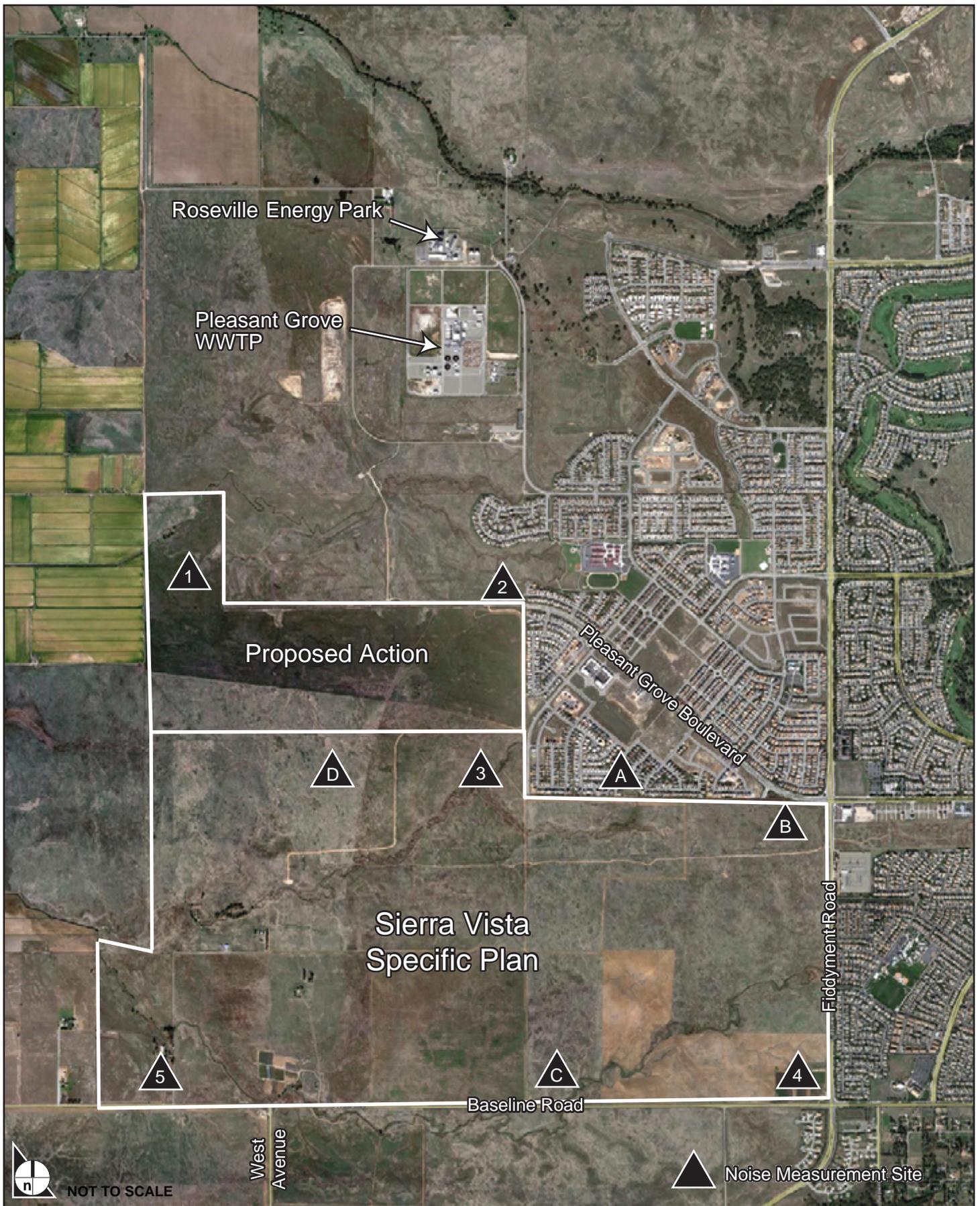
Source: J.C. Brennan & Associates 2011

* Refer to Figure 3.12-1, Noise Measurement Sites, for locations.

Non-Transportation Noise

Existing non-transportation noise sources in the project area consist primarily of activities associated with the City of Roseville Pleasant Grove Wastewater Treatment Plant (PGWWTP) and the City of Roseville Energy Park located approximately 0.5 to 1 mile north of the project site.

Based on observations and noise measurements conducted at the project site, the existing PGWWTP and City of Roseville Energy Park located 0.5 mile northwest of the project site was not observed to be a significant source of noise experienced at the project site. Ambient noise level measurements conducted in the northwestern corner of the project site indicated that the PGWWTP and Energy Park produced noise levels that were barely audible, in the range of 37 to 38 dB (J.C. Brennan & Associates 2011).



SOURCE: J.C. Brennan & Associates, Inc., October 2011

FIGURE 3.12-1



Noise Measurement Sites

Noise-Sensitive Land Uses in the Project Vicinity

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 Fiddymment Road. The developed portion of the Westpark residential development, which is part of the West Roseville Specific Plan (WRSP), is also located east of the project site. The WRSP is currently under construction, and includes existing and future sensitive receptors along the northern project boundary.

To characterize existing ambient noise levels in the project vicinity, J.C. Brennan & Associates conducted short-term and continuous (24-hour) noise level measurements at various locations on and adjacent to the Westbrook project site, as shown in **Figure 3.12-1, Noise Measurement Sites**. The noise level measurements were conducted between April 20 and 21, 2009. **Table 3.12-3, Existing Ambient Noise Levels**, shows a summary of the noise measurement results.

**Table 3.12-3
Existing Ambient Noise Levels**

Site	Location	24-hr Ldn*	Daytime (7:00 AM to 10:00 PM)			Nighttime (10:00 PM to 7:00 AM)		
			Leq*	L50*	Lmax*	Leq*	L50*	Lmax*
Continuous (24-hour) Noise Measurements								
A	Backyard – 1240 Kirkhill Drive, NE SVSP project boundary.	49.3	43.5	37.1	60.1	42.7	40.4	52.9
B	SVSP project site, 175 feet west of Fiddymment Road centerline.	66.4	61.5	59.1	76.8	59.7	52.6	75.2
C	SVSP project site, 150 feet north of Baseline Road centerline.	64.5	59.3	55.4	72.7	57.9	47.4	71.3
D	Central SVSP project site/southern boundary of Westbrook Project site.	51.8	47.5	37.7	64.8	44.9	37.5	51.1
Short-Term (10-hour) Noise Measurements								
1	NW corner of Westbrook Project site, approximately 0.75 mile south of WWTP.	NA	40.6	39.6	54.2	40.1	40.0	45.1
2	NE corner of Westbrook Project site at existing terminus of Pleasant Grove Boulevard.	NA	46.7	41.5	61.5	36.0	35.7	44.4
3	North SVSP project boundary/southern Westbrook project boundary, at existing terminus of Market Street.	NA	37.6	36.9	42.0	36.0	35.7	44.4
4	SE corner of SVSP site, near intersection of Baseline Road and Fiddymment Road.	NA	70.8	67.7	80.2	62.3	53.8	77.4
5	SW corner of SVSP site, north of Baseline Road.	NA	68.0	55.0	82.6	63.9	42.5	84.2

Source: J.C. Brennan & Associates 2011

* Average measured hourly noise levels, dB(A)

NA Not Applicable

3.12.3 REGULATORY FRAMEWORK – APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

3.12.3.1 Federal Laws, Regulations, Plans, and Policies

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

3.12.3.2 State Laws, Regulations, Plans, and Policies

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 that 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.

3.12.3.3 Local Plans, Policies, and Ordinances

City of Roseville General Plan

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

- Goal 1:** Protect City residents from the harmful and annoying effects of exposure to excessive noise.
- Goal 2:** Protect the economic base of the City by preventing incompatible land uses from encroaching upon existing or planned noise-producing uses.
- Policy:** **Transportation Noise:** 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 (presented below as **Table 3.12-4**). Noise mitigation measures may be required to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table IX-1.
- Policy:** **Fixed Noise Source:** 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 (presented below as **Table 3.12-5**). Require proposed fixed noise sources adjacent to noise-sensitive uses to be mitigated so as not to exceed the noise level performance standards of Table IX-3.

Policy: **General:** 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.

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

**Table 3.12-4
City of Roseville Maximum Allowable Noise Exposure for Transportation Noise Sources**

Land Use	Outdoor Activity Areas ¹	Interior Spaces	
	(Ldn/CNEL, dB)	Ldn/CNEL, dB	Leq, dB ²
Residential	60 ³	45	--
Transient Lodging	60 ³	45	--
Hospitals and 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	--	--

Source: City of Roseville, 2020 General Plan, Table IX-1 of the Noise Element

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 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.

**Table 3.12-5
City of Roseville Performance Standards for Non-Transportation Noise Sources**

Noise Level Descriptor	Daytime (7:00 AM to 10:00 PM)	Nighttime (10:00 PM to 7:00 AM)
Hourly Average (Leq)	60 ³	45
Maximum Level (Lmax)	60 ³	45

Source: City of Roseville, 2020 General Plan, Table IX-1 of the Noise Element

Note: 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.

City of 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 AM and 7:00 PM Monday through Friday, and between the hours of 8:00 AM and 8:00 PM Saturday and Sunday; however, 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 schoolchildren.

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 8:00 AM and 10:30 PM Sunday through Thursday and between the hours of 8:00 AM and 11:00 PM on Fridays and Saturdays, and City recognized holidays. Noise shall not exceed 80 dB(A), Lmax at the property line of the site of the event.

3.12.4 SIGNIFICANCE THRESHOLDS AND ANALYSIS METHODOLOGY

3.12.4.1 Significance Thresholds

Council on Environmental Quality (CEQ) guidance requires an evaluation of a proposed action's effect on the human environment. The U.S. Army Corps of Engineers (USACE) has determined that the Proposed Action or its alternatives would result in significant effects related to noise if the Proposed Action or an alternative would:

- expose persons to or generate noise levels in excess of standards established in the City of Roseville Municipal Code Noise Ordinance;
- expose persons to or generate excessive ground-borne vibration or ground-borne noise levels;
- result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project (For purposes of this EIS, a substantial increase is defined by the USACE as an increase of 3 dB or more. Changes in noise levels of less than 3 dB are generally not perceptible.);
- be located in the vicinity of a public airport, public use airport or private airstrip and expose people residing or working in the project area to excessive noise levels; or
- result in a cumulative unmitigated significant increase in noise levels over levels that would exist without the project.

3.12.4.2 Analysis Methodology

Construction noise analysis uses data compiled for various pieces of construction equipment at a representative distance of 50 feet (15 meters), which is representative of the minimum likely distance from a residential receptor. **Table 3.12-6 Typical Construction Equipment Noise** presents noise levels produced by commonly used construction equipment at 50 feet (15 meters) from the source.

**Table 3.12-6
Typical 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
Pneumatic Tools	85

Source: Federal Highway Administration, FHWA-HEP-05-054, January 2006

The Federal Highway Administration Highway (FHWA) Traffic Noise Prediction Model (FHWA RD-77-108) was used to estimate existing and projected noise levels due to traffic. 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 predicts hourly Leq values for free-flowing traffic conditions. To predict traffic noise levels in terms of Ldn, it is necessary to adjust the input volume to account for the day/night distribution of traffic. Inputs to the FHWA model included average daily traffic volumes and truck usage, and vehicle speeds on the local area roadways. The predicted increases in traffic noise levels on the local roadway network for baseline and future with project conditions are presented in terms of Ldn at a standard distance of 100 feet from the centerline of the roadway.

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.

3.12.5 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

Impact NOISE-1 Construction Noise and Vibration

No Action Certain construction activities would generate noise levels in excess of City of Roseville noise standards that could adversely affect on- and off-site receptors. This represents a **significant direct** effect. Although mitigation is proposed to reduce this effect, it would not be completely avoided in the case of the construction of the on-site well. A residual **significant direct** effect would remain after mitigation. **No indirect** effects would occur.

Alt.

Construction activities on the project site would generate noise levels that would affect existing residential receptors east of the project site. If the approved West Roseville Specific Plan and the planned Sierra Vista Specific Plan projects are built out prior to the development of the Westbrook project site, construction noise associated with the No Action Alternative could also affect future residences to the north and south of the project site, respectively. 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 noise generated during the construction of later phases of development.

Noise levels typical of construction equipment, as indicated in **Table 3.12-6**, range from 76 to 90 dB at a distance of 50 feet (15 meters) from the noise source. Construction of infrastructure projects can generate noise levels of approximately 90 dB at a distance of 50 feet (15 meters) from the noise source (City of Roseville 2010). Well drilling, which requires around-the-clock drilling, typically for periods of approximately two weeks, could result in significant effects while nearby residents are trying to sleep. No pile driving or other unusual construction practices besides well drilling are proposed. Construction activities would be temporary in nature and, with the exception of well drilling, are anticipated to occur during normal daytime working hours (City of Roseville 2010). Noise would also be generated 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 AM to 7:00 PM Monday through Friday, and 8:00 AM to 8:00 PM Saturday and Sunday, and requires appropriate sound muffling devices be installed on construction equipment. These municipal code requirements ensure that construction noise is limited to the daytime hours, and that equipment noise is minimized. Compliance with the City's Noise Ordinance would minimize significant effects.

However, noise from infrastructure projects such as construction of the on-site well and the maintenance of those facilities would result in potentially **significant direct** effects because the activities would occur during hours outside of the normal construction hours allowed by the Noise Ordinance.

Mitigation Measure NOISE-1 would address this potentially significant noise effect of the No Action Alternative. This measure includes provisions that require equipment warm-up areas, water tanks, and equipment storage areas to be located in an area as far away from existing residences as feasible. The measure also requires well drilling to occur prior to construction of the adjacent subdivision. If construction timing for the well occurs after subdivision construction, and if well construction is located within 1,000 feet (305 meters) of an occupied residence, then measures to reduce noise will include hanging flexible sound control curtains around the drilling apparatus and the drill rig whenever feasible.

Mitigation Measure NOISE-1 is the same as Mitigation Measure 4.6-1 in the Sierra Vista Specific Plan EIR. The USACE assumes that the City would impose this mitigation measure to address this potentially significant effect of the No Action Alternative. However, because construction-related noise associated with the on-site well would occur outside of hours considered acceptable under the City's Noise Ordinance, the City concluded in the Sierra Vista Specific Plan EIR that this mitigation measure would not reduce the effect to less than significant (City of Roseville 2010). The USACE also finds that, for the same reason, a residual **significant direct** effect from construction of the on-site well and maintenance of the well facilities would remain after mitigation. **No indirect** effects would occur.

**Proposed
Action, Alts.
1 through 5**

The Proposed Action and all of the on-site alternatives would construct a moderate scale, mixed-use development on the project site. As the distance to sensitive receptors would be similar and well drilling would be required, as with the No Action Alternative, the Proposed Action and all of the on-site alternatives would result in **significant direct** effects related to construction noise and vibration based on the significance criteria listed above. **No indirect** effects would occur.

Mitigation Measure NOISE-1 would address this effect. As noted above, this measure is the same as Mitigation Measure 4.6-1 in the Sierra Vista Specific Plan EIR and was adopted by the City of Roseville at the time of Westbrook project approval and will be enforced by the City. The USACE assumes that the City of Roseville would impose the same mitigation measure on all of the on-site alternatives to address this effect. However, because

construction-related noise of the on-site well would occur outside of hours considered acceptable under the City's Noise Ordinance, this mitigation measure would not reduce the effect to less than significant. The USACE finds that a residual **significant direct** effect would remain after mitigation. **No indirect** effects would occur.

Off-Site Alt. The Off-Site Alternative would construct a moderate scale, mixed-use project on the alternative site located approximately 3 miles (4.8 kilometers) northeast of the project site. Construction activities on the alternative site would generate noise levels that could affect existing residences to the south. In addition, because construction would likely occur in phases, some on-site residential uses built during the early phases of the development would be exposed to noise generated during the construction of later phases of development on the alternative site. Therefore, **direct** construction noise effects would be **significant** based on the significance criteria listed above.

Mitigation Measure NOISE-1, which is the same as Mitigation Measure 4.6-1 in the Sierra Vista Specific Plan EIR, would address this effect. The USACE assumes that the City of Roseville would impose this mitigation measure on the Off-Site Alternative. For the same reasons presented above, this mitigation measure would not reduce the effect to less than significant. The USACE finds that a residual **significant direct** effect would remain after mitigation. **No indirect** effects would occur.

Mitigation Measure NOISE-1: Construction Noise Policies
(Applicability – No Action, Proposed Action, and All Alternatives)

- *Construction activities shall comply with the requirements of the City of Roseville Noise Ordinance.*
- *Locate fixed construction equipment such as compressors and generators as far as possible from sensitive receptors. Shroud or shield all impact tools, and muffle or shield all intake and exhaust ports on power construction equipment.*
- *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.*
- *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 City, if located within 1,000 feet (305 kilometers) of an occupied residence.*

Impact NOISE-2 Noise from On-Site Activities

No Action Alt. Noise associated with commercial uses on the project site would potentially result in **significant indirect** effects on sensitive receptors. With implementation of mitigation measures, the **indirect** effects of commercial noise would be reduced to **less than significant**. Although noise from schools would be audible to nearby residents, the **indirect** effect would be considered **less than significant** because people in urban areas are used to temporary noise effects from schools, which generally occur during weekday work hours and reflect typical activities of school children. Mitigation is not required. **Indirect** noise effects from neighborhood parks would be **significant** but with mitigation, the **indirect** effects would be reduced to **less than significant**. **No direct** effects would occur.

Commercial Uses

Within the project site, commercial uses would be located adjacent to low, medium, and high density residential uses in the southeast corner of the site, along La Sierra Drive south of Pleasant Grove Boulevard, and between Silver Spruce Drive and Westbrook Boulevard south of Pleasant Grove Boulevard. Noise sources associated with commercial uses could include, but are not limited to, commercial loading docks associated with grocery stores, on-site truck circulation, rooftop heating and ventilation equipment, and trash pickup. These sources could generate noise levels that would be perceptible to nearby residences. No specific site designs are proposed for commercial uses at this time; therefore, noise levels cannot be estimated with any specificity. However, based on noise levels that are typically generated by the activities in commercial centers, indoor and outdoor noise levels at residences located more than 150 feet (46 meters) from commercial uses would not be expected to exceed noise standards (City of Roseville 2010). However, the 60 dB exterior and 45 dB interior noise standards could be exceeded if homes were closer than 150 feet (46 meters) from a commercial development. This represents a potentially **significant indirect** effect.

Mitigation Measure NOISE-2a would address this potential significant effect of the No Action Alternative. This mitigation measure includes 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 (46 meters) of commercial uses. With implementation of these or other effective design measures identified in site-specific acoustical analyses for the commercial developments on the project site, noise levels associated with commercial uses are expected to meet the acceptable noise level criteria. This mitigation measure also requires that an acoustic analysis be performed to demonstrate that the measures selected for each commercial development within 150 feet (46 meters) of residences would ensure that City noise standards are met.

Mitigation Measure NOISE-2a is the same as Mitigation Measure 4.6-2 in the Sierra Vista Specific Plan EIR. The USACE assumes that the City would impose this mitigation measure on the No Action Alternative. By reducing noise from commercial uses, the Sierra Vista Specific Plan EIR determined that this mitigation measure would reduce the effect to less

than significant (City of Roseville 2010). The USACE agrees with the conclusion in the Sierra Vista Specific Plan EIR and finds that with this mitigation, this **indirect** effect would be reduced to **less than significant**. **No direct** effects would occur.

Schools

The No Action Alternative would include one elementary school at the intersection of Sierra Trail Drive and Mountain Glen Drive. The school would be located adjacent to residential areas. The noise sources associated with school sites are generally associated with outdoor sports and play areas. Other noise sources could include heating and ventilation equipment, parking lot noise, and bells that indicate the start or end of class periods. Noise sources from outdoor school sports areas generally include crowd and player noise, and public address systems. On average, noise at games and outdoor sporting events is around 60 dB Leq at a distance of 100 feet (30 meters) from the source or effective noise center of playing fields (City of Roseville 2010). 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 effects from schools, which generally occur during weekday work hours and reflect typical activities of schoolchildren (City of Roseville 2010). Therefore, **indirect** noise effects from the school would be **less than significant**. Mitigation is not required. **No direct** effects would occur.

Parks

The No Action Alternative would include four neighborhood parks that would be adjacent to residential and open space uses. 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. 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.

Children playing at neighborhood parks could be considered potentially significant noise sources which may adversely affect adjacent noise-sensitive land uses. Typical noise levels associated with groups of approximately 50 children playing at a distance of 50 feet (15 meters) generally range from 55 to 60 dB Leq, with maximum noise levels ranging from 70 to 75 dB. It is expected that the playground areas would be used during daytime hours. Therefore, noise levels from the playgrounds would need to comply with the City of Roseville 50 dB Leq and 70 dB Lmax exterior noise level standards at the nearest residential uses. Based upon the typical noise level data discussed above, the 50 dB Leq noise contour would be located approximately 158 feet from the center of playgrounds. The 70 dB Lmax contour would be located approximately 90 feet from the center of playgrounds (J.C. Brennan & Associates 2011).

Given the proximity of most parks to residential uses, the potential for exceedance of the

City of Roseville noise standards exists depending on the orientation and proximity of the play areas to the nearest residences, the number of children using the play areas at a given time, and the types of activities the children are engaged in. This **indirect** effect is potentially **significant**.

If park areas are separated from residential uses by local roadways, mitigation would not be required. However, where neighborhood parks abut residential uses, a 6-foot tall sound wall, or 160-foot setback to play areas, as required by **Mitigation Measure NOISE-2b**, would reduce the effects to less than significant. This measure is excerpted from Mitigation Measure 4.6-3 in the Sierra Vista Specific Plan EIR. The USACE assumes that the City would impose this mitigation measure on the No Action Alternative. By reducing noise from parks, the Sierra Vista Specific Plan EIR determined that this mitigation measure would reduce the effect to less than significant (City of Roseville 2010). The USACE agrees with the conclusion in the Sierra Vista Specific Plan EIR and finds that with mitigation, this **indirect** effect would be reduced to **less than significant**. **No direct** effects would occur.

**Proposed
Action, Alts.
1 through 5**

The Proposed Action and all of the on-site alternatives would construct a moderate scale, mixed-use development on the project site and would include all of the noise sources (commercial uses, one elementary school adjacent to residential uses, and neighborhood parks) described above for the No Action Alternative. Noise associated with commercial uses and the neighborhood parks on the project site under the Proposed Action and all of the on-site alternatives would result in potential **indirect significant** effects on sensitive receptors due to the proximity of on-site residential uses to these noise sources. Under all of the on-site alternatives, with mitigation, **indirect** noise effects from commercial uses and the neighborhood parks would be reduced to **less than significant**. **Indirect** noise effects from the school would be **less than significant**. Mitigation is not required.

Commercial Uses

Similar to the No Action Alternative, no specific site designs have been proposed for commercial uses at this time; therefore, noise levels cannot be estimated with any specificity at this time. However, as shown in the land use plans for the Proposed Action and each of the on-site alternatives, commercial uses would be located adjacent to moderate or high density residential uses in the southeast corner of the site, along La Sierra Drive south of Pleasant Grove Boulevard, and between Silver Spruce Drive and Westbrook Boulevard south of Pleasant Grove Boulevard (in the cases of Alternatives 1 through 3). Due to the proximity of commercial uses, noise levels are expected to exceed City standards for residential uses. This represents an **significant indirect** effect based on the significance criteria listed above and for the same reasons presented above for the No Action Alternative.

Mitigation Measure NOISE-2a would address this effect. As noted above, this mitigation measure is the same as Mitigation Measure 4.6-2 in the Sierra Vista Specific Plan EIR which was adopted by the City of Roseville at the time of Westbrook project approval and will be

enforced by the City. The USACE assumes that the City of Roseville would impose the same mitigation measure on all of the on-site alternatives to address this effect. For the same reasons presented above for the No Action Alternative, the USACE finds that this **indirect** effect would be reduced to **less than significant**. **No direct** effects would occur.

Schools

The noise at the nearest sensitive receptors generated by school activities under the Proposed Action and the on-site alternatives would be similar to that described above for the No Action Alternative because the residential uses would be at similar distances from the on-site elementary school. Noise from normal school operations under the Proposed Action and on-site alternatives would be exempt from the City of Roseville noise level thresholds. Therefore, **indirect** noise effects from school-related activities would be **less than significant** under the Proposed Action and all on-site alternatives based on the significance criteria listed above and for the same reasons presented above for the No Action Alternative. Mitigation is not required. **No direct** effects would occur.

Parks

Similar to the No Action Alternative, given the proximity of parks to residential uses, there is potential for exceedance of the City of Roseville noise standards under the Proposed Action and all of the on-site alternatives, which would result in a **significant indirect** effect.

Mitigation Measure NOISE-2b would address this effect. As noted above, this measure is excerpted from Mitigation Measure 4.6-3 in the Sierra Vista Specific Plan EIR which was adopted by the City of Roseville at the time of Westbrook project approval and will be enforced by the City. The USACE assumes that the City of Roseville would impose the same mitigation measure on all of the on-site alternatives to address this effect. By reducing park-related noise levels at the nearest sensitive receptors, this mitigation measure would reduce the **indirect** effect to **less than significant**. **No direct** effects would occur.

Off-Site Alt. The Off-Site Alternative would construct a moderate scale, mixed-use community on the alternate site that would also include commercial uses, industrial uses, one elementary school adjacent to residential uses, and neighborhood parks. An open space buffer of at least 100 feet would separate on-site residential uses from existing industrial uses near the alternative site.

Commercial and Industrial Uses

Similar to the No Action Alternative, no specific site designs are proposed for commercial and industrial uses at this time; therefore, noise levels cannot be estimated with any specificity. However, based on noise levels that are typically generated by the activities in commercial centers or industrial areas, if commercial or industrial activities are located closer than 150 feet from residential uses, the noise levels that the residential uses could be exposed to could potentially exceed City standards for residential uses. This represents a

significant indirect noise effect based on the significance criteria listed above and for the same reasons presented above for the No Action Alternative. The USACE assumes that the City of Roseville would impose **Mitigation Measure NOISE-2a** on the Off-Site Alternative and finds that the measure would reduce the **indirect** effect to **less than significant**. **No direct** effects would occur.

Schools

The noise at the nearest sensitive receptors generated by school activities under this alternative would be similar to the No Action Alternative. Noise from normal school operations under the Off-Site Alternative would be exempted from the City of Roseville noise level thresholds. Therefore, **indirect** noise effects from school-related activities would be **less than significant** under this alternative based on the significance criteria listed above and for the same reasons presented above for the No Action Alternative. Mitigation is not required. **No direct** effects would occur.

Parks

Given the proximity of parks to residential uses, depending on the orientation and proximity of the play areas to the nearest residences, noise from the neighborhood parks could result in an exceedance of the City of Roseville noise standards at the nearby residences, which would be a **significant indirect** effect. The USACE assumes that the City of Roseville would impose **Mitigation Measure NOISE-2b** on the Off-Site Alternative and finds that the mitigation measure would reduce the **indirect** effect to **less than significant**. **No direct** effects would occur.

Mitigation Measure NOISE-2a: Commercial Noise Controls
(Applicability – No Action, Proposed Action, and All Alternatives)

For commercial uses within 150 feet (46 meters) of residential uses, the applicants 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 lots, HVAC equipment and light truck deliveries, then 6- to 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 rooftops 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 (1.8 to 2.4 meters) in height. Circulation routes for trucks shall be located a minimum of 30 feet (9 meters) 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 (30 meters) from residential property lines, an acoustical evaluation shall be submitted to verify compliance with the City of Roseville Noise Level Performance Standards.

Mitigation Measure NOISE-2b:**Attenuate Park Noise****(Applicability – No Action, Proposed Action, and All Alternatives)**

- Activities at the proposed community-wide park shall be scheduled to occur during daytime hours (7:00 AM to 10:00 PM).
- 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.
- Wood fencing, or 160-foot (49 meters) setbacks adjacent to active recreation areas, shall be included in the project design where neighborhood parks abut residential uses.

Impact NOISE-3 Increase in Traffic Noise at Buildout (Year 2025)**No Action
Alt.**

Traffic-related noise from the No Action Alternative would exceed City of Roseville noise standards that could adversely affect on-site and off-site sensitive receptors. This would result in **significant indirect** effects. With mitigation, the **indirect** effect on on-site sensitive receptors would be reduced to **less than significant**. No feasible mitigation measures are available to fully address the effect on off-site sensitive receptors. The **indirect** effect would be **significant**. **No direct** effects would occur.

On-Site Exterior Noise Levels with Project Traffic

Traffic noise was not separately modeled for the No Action Alternative. However, as shown below in **Table 3.12-7, Year 2025 + Project Traffic Noise Levels at Proposed Residential Uses**, traffic noise levels along Pleasant Grove Boulevard, Santucci Boulevard, and Westbrook Drive are projected to exceed the City's General Plan noise standard of 60 dB Ldn with the traffic added by the Proposed Action. Although the No Action Alternative would generate substantially fewer vehicle trips (30 percent) than the Proposed Action, the exterior noise standard of 60 dB Ldn for residential areas is expected to be exceeded under the No Action Alternative and project site residents would be exposed to excessive noise levels. This would result in a **significant indirect** effect.

To address exterior noise effects on residential receptors on-site, the No Action Alternative would implement **Mitigation Measure NOISE-3**, which includes requirements for masonry walls and/or landscaped berms to create barriers between noise sources and receptors. This measure is the same as Mitigation Measure 4.6-4 in the Sierra Vista Specific Plan EIR. The USACE assumes that the City of Roseville would impose the same mitigation measure on the No Action Alternative to address this effect. By requiring the creation of barriers between noise sources and receptors, this mitigation measure would reduce the **indirect**

effect to **less than significant**. **No direct** effects would occur.

On-Site Interior Noise Levels with Project Traffic

Traffic from the No Action Alternative would have a **less than significant indirect** effect on interior noise levels on the project site. The City of Roseville interior noise level standard is 45 dB Ldn. Generally, new construction practices consistent with the California Building Code (CBC) would result in an exterior to interior noise reduction of 25 to 30 dB Ldn. The CBC construction practices would be a part of the project. As shown in **Table 3.12-7**, traffic noise levels along project site major roadways would be 66 to 67 dB. With construction that is consistent with the CBC, these noise levels would reduce to below the 45 dB Ldn standard inside the residences on the project site. **No direct** effects would occur.

Off-Site Exterior and Interior Noise Levels with Project Traffic

Table 3.12-8, Year 2025 Traffic Noise Levels below shows the noise levels expected to result with the addition of traffic that would be generated by the Proposed Action. As shown in the table, although background traffic would cause noise levels exceeding 60 dB Ldn along several off-site roadways, the incremental traffic added by the Proposed Action would cause an imperceptible (less than 3 dB) increase in noise. Because the No Action Alternative would add substantially less traffic to these roadways, the increase in both exterior and interior noise levels at the residences near the roadways would be even smaller (less than 1 dB). Nonetheless, any contribution to an area where the exterior noise levels exceed the City's noise standards is considered a **significant indirect effect**. However, traffic noise effects at existing noise-sensitive areas are difficult to mitigate. The measures that would be needed to reduce noise levels to 60 dB Ldn in residential areas include a combination of setbacks, berms, landscaping, and masonry walls. Relative elevations of the roadways and elevations of building pads affect the ability to reduce noise levels. 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. Therefore, with respect to off-site receptors, feasible measures are not available to adequately reduce the contributions of the No Action Alternative to traffic noise, and this would be a **significant indirect effect**. **No direct** effects would occur.

Proposed Action The Proposed Action would also result in **significant** effects from traffic-related noise at on-site and off-site sensitive receptors. With mitigation, the **indirect** effect to on-site sensitive receptors would be reduced to **less than significant**. No feasible mitigation measures are available to fully address the effect to off-site sensitive receptors. There would be a residual **significant indirect** effect. **No direct** effects would occur.

On-Site Exterior Noise Levels with Project Traffic

Traffic from the Proposed Action would have a significant effect on exterior noise levels. The predicted traffic noise levels at residential uses that would be located adjacent to major roadways within the project site are shown in **Table 3.12-7, Year 2025 + Project Traffic Noise Levels at Proposed Residential Uses**.

The estimated noise levels along most of the study roadways would exceed the exterior noise level standard of 60 dB Ldn for residential uses, which is a **significant** effect. To address this effect, the Proposed Action would implement **Mitigation Measure NOISE-3**, which includes requirements for the construction of masonry walls and/or landscaped berms to create barriers between noise sources and receptors. **Table 3.12-7** shows the approximate heights of sound walls that would be required to achieve compliance, assuming flat site conditions where roadway elevations, base of wall elevations, and building pad elevations are approximately equivalent.

Table 3.12-7
Year 2025 + Project Traffic Noise Levels at Proposed Residential Uses

Roadway	Segment	Approximate Residential Setback (feet)*	ADT	Predicted Traffic Noise Levels (Ldn)				
				No Wall	6-foot Wall	7-foot Wall	8-foot Wall	9-foot Wall
Pleasant Grove	East of Westbrook	100	24,716	67	61	60	59	57
Pleasant Grove	West of Westbrook	100	25,026	67	61	60	59	58
Santucci	South of Mountain Glen Drive	116	24,062	66	60	59	58	57
Westbrook	South of Mountain Glen Drive	100	20,438	66	60	59	58	57

Source: J.C. Brennan & Associates 2011

* Measured 100 feet from centerline of the roadway.

Note that the noise levels reported in **Table 3.12-7** are estimated at the setbacks reported in the table and can over- or under-estimate actual noise levels depending on a number of factors.¹ Therefore, based on the estimated numbers, unless all proposed sound walls are at

¹ Factors that influence noise levels include ground absorption, air absorption, topography, atmospheric conditions such as wind and temperature gradients, and distance between noise source and receptors. At worst case, noise levels can be predicted within about 1 to 2 dB accuracy at distances of 500 to 1,000 feet or less from a source without complex topography.

least 9 feet (2.7 meters) high, there is no assurance that noise levels will decline to levels at or below 60 dB Ldn. To address this, **Mitigation Measure NOISE-3** requires a site-specific acoustical study to be conducted to determine the appropriate height and location of the sound wall.

Mitigation Measure NOISE-3 is the same as Mitigation Measure 4.6-4 in the Sierra Vista Specific Plan EIR and was adopted by the City of Roseville at the time of Westbrook project approval and will be enforced by the City. By requiring a site-specific acoustical study, the Sierra Vista Specific Plan EIR determined that this mitigation measure would reduce the effect to less than significant (City of Roseville 2010). The USACE agrees with the conclusion in the Sierra Vista Specific Plan EIR and finds that with mitigation, this **indirect** effect would be reduced to **less than significant**. **No direct** effects would occur.

Interior Noise Levels with Project Traffic

As noted above, the City of Roseville interior noise level standard is 45 dB Ldn, and generally, new construction practices consistent with the CBC would result in an exterior to interior noise reduction of 25 to 30 dB Ldn. The CBC construction practices would be a part of the project. As shown in **Table 3.12-7**, traffic noise levels along project site major roadways would be 66 to 67 dB. With construction that is consistent with the CBC, these noise levels would reduce to below the 45 dB Ldn standard inside the residences. The **indirect** effect would be **less than significant**. Mitigation is not required. **No direct** effects would occur.

Off-Site Interior and Exterior Noise Levels with Project Traffic

Existing traffic noise currently exceeds 60 dB Ldn on many roadways in the vicinity of the project site. As shown in **Table 3.12-8, Year 2025 Traffic Noise Levels under Background plus Proposed Action Conditions**, traffic noise levels in 2025 are projected to exceed the City's General Plan noise standard of 60 dB Ldn on nine roadway segments in the vicinity, without the traffic added by the Proposed Action. Buildout of the Proposed Action would contribute additional traffic to these roadways, which would further increase the noise levels anywhere from 0.0 to 2.3 dB Ldn. Although the increases would not be perceptible, any contribution to noise levels that exceed City noise standards would be a **significant indirect** effect.

As noted above, measures that would reduce noise levels to 60 dB Ldn in residential 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, and substantial traffic noise effects at existing noise-sensitive areas are generally difficult to mitigate. Some areas may already have noise barriers, or new noise barriers may be infeasible or ineffective. Therefore, with respect to off-site receptors, feasible measures are not available to adequately reduce the contributions of the Proposed Action to traffic noise. The **indirect** effect would be **significant**. **No direct** effects would occur.

**Table 3.12-8
Year 2025 Traffic Noise Levels under Background plus Proposed Action Conditions**

Roadway	Segment	Traffic Noise Levels (Ldn dB(A)) ¹			Distance to Contours (feet) Year 2025			Distance to Contours (feet) Year 2025 + Project		
		Year 2025	Year 2025 + Project	Change	70 dB Ldn	65 dB Ldn	60 dB Ldn	70 dB Ldn	65 dB Ldn	60 dB Ldn
Baseline	West of Watt	70.4	72.5	2.1	107	230	496	148	319	686
Baseline	East of Watt	71.0	72.8	1.8	116	250	538	153	331	712
Baseline	East of Walerga	71.3	71.4	0.1	123	265	571	124	266	574
Baseline	East of Cook-Riolo	70.0	70.1	0.1	101	217	467	101	218	470
Watt	South of Baseline	67.6	68.2	0.6	69	149	321	76	165	355
Walerga	South of Baseline	67.4	68.6	1.2	67	145	313	81	174	375
PFE	East of Watt	63.2	63.7	0.5	35	76	164	38	82	177
Fiddymment	South of Athens	69.8	69.8	0.0	97	209	450	98	210	453
Sunset	West of Fiddymment	54.3	56.5	2.3	9	19	42	13	27	59
Athens	East of Fiddymment	67.7	68.6	0.9	70	151	326	81	174	375

Source: J.C. Brennan & Associates 2011

* Measured 100 feet from centerline of the roadway.

Alts. 1 through 5

All of the on-site alternatives would construct a moderate scale, mixed-use development on the project site. As discussed in **Section 3.14, Transportation and Traffic**, all of the on-site alternatives would result in substantially lower (13 to 49 percent) trip generation than the Proposed Action. The trip distribution on study area roadways would be similar to that of the Proposed Action. Due to the lower number of trips generated under the alternatives, the traffic related noise effects on on-site and off-site receptors would be lower than under the Proposed Action, but exterior noise levels under 2025 conditions would still exceed the 60 dB Ldn noise standard for residential uses.

To address exterior noise effects on residential receptors on the project site, Alternatives 1 through 5 would also implement **Mitigation Measure NOISE-3**, which includes requirements for masonry walls and/or landscaped berms to create barriers between noise sources and receptors. As noted above, this measure is the same as Mitigation Measure 4.6-4 in the Sierra Vista Specific Plan EIR. The USACE assumes that the City of Roseville would impose the same mitigation measure on all of the on-site alternatives to address this effect. By requiring the creation of barriers between noise sources and receptors, this mitigation measure would reduce the **indirect** effect to **less than significant**.

With respect to off-site existing receptors, for the same reasons presented above for the No Action Alternative and the Proposed Action, feasible measures are not available to adequately reduce the contributions of these alternatives to traffic noise, and this would remain a **significant indirect** effect. **No direct** effects would occur.

Off-Site Alt. The Off-Site Alternative would result in **significant indirect** effects from traffic-related noise at on-site and off-site sensitive receptors. With mitigation, the **indirect** effect to on-site sensitive receptors would be reduced to **less than significant**. No feasible mitigation measures are available to fully address the effect to off-site sensitive receptors. The **indirect** effect would be **significant**. **No direct** effects would occur.

On-Site Exterior Noise Levels with Project Traffic

The Off-Site Alternative would be built out over time and 2025 is the earliest year by which buildout could occur and produce the highest traffic levels. Traffic noise was modeled for the Off-Site Alternative (see **Appendix 3.12**). As shown below in **Table 3.12-9**, traffic noise levels in 2025 are projected to exceed the City's General Plan noise standard of 60 dB Ldn on the two major roadway segments, with or without the traffic added by the Off-Site Alternative. The projected traffic noise level along West Sunset Boulevard west of Industrial Avenue under 2025 conditions without the project is 66.4 dB Ldn. This would increase by 0.9 dB to 67.3 dB Ldn with implementation of the Off-Site Alternative. Traffic noise levels along North Foothills Boulevard south of Athens Avenue are projected to be 66.1 dB Ldn under 2025 conditions with and without the traffic added by the Off-Site Alternative.

To address exterior noise effects on residential receptors on site, the Off-Site Alternative would implement **Mitigation Measure NOISE-3**, which includes requirements for masonry walls and/or landscaped berms to create barriers between noise sources and receptors. This measure is the same as Mitigation Measure 4.6-4 in the Sierra Vista Specific Plan EIR. The USACE assumes that the City of Roseville would impose the same mitigation measure on the Off-Site Alternative to address this effect. By requiring the creation of barriers between noise sources and receptors, this mitigation measure would reduce the **indirect** effect to **less than significant**. **No direct** effects would occur.

Table 3.12-9
Year 2025 Traffic Noise Levels at Off-Site Alternative

Roadway	Segment	Traffic Noise Levels (dB Ldn)		
		Year 2025	Year 2025 + Project	Change
Sunset	West of Industrial	66.4	67.3	0.9
Foothills	South of Athens	66.1	66.1	0.0

Source: Impact Sciences 2012

Interior Noise Levels with Project Traffic

As noted above, the City of Roseville interior noise level standard is 45 dB Ldn. Generally, new construction practices consistent with the CBC would result in an exterior to interior noise reduction of 25 to 30 dB Ldn. The CBC construction practices would be a part of the project. Exterior noise levels at the nearest residences along the major roadways on the alternative site would be approximately 66.1 to 67.3 dB Ldn, as shown in **Table 3.12-9, Year 2025 Traffic Noise Levels at Off-Site Alternative**. These levels would attenuate to less than 45 dB Ldn with standard construction. Therefore, traffic noise from the Off-Site Alternative would not exceed 45 dB Ldn in interior spaces. **No direct** effects would occur.

Off-Site Exterior and Interior Noise Levels with Project Traffic

Noise levels along other roadways in the vicinity of the alternative site were not specifically modeled. However, as with the No Action Alternative and the Proposed Action, it is anticipated that noise levels along major roadways will exceed the City's exterior noise standard of 60 dB for residential areas as a result of regional growth. As with the No Action Alternative and the Proposed Action, feasible measures are not available to adequately reduce the traffic noise effect at all locations, and this would remain a **significant indirect** effect. **No direct** effects would occur.

Mitigation Measure NOISE-3:**Traffic Noise Attenuation***(Applicability – No Action, Proposed Action, and All Alternatives)*

- *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. Table 4.6-10 data from the Sierra Vista Specific Plan EIR prepared by the City of Roseville 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.*
- *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.*
- *Tentative map applications for residential uses located along Fiddymont Road shall be required to include an analysis of interior noise levels. The report shall be prepared 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.*

Impact NOISE-4 Aviation Noise

No Action Alt., Proposed Action, Alts. 1 through 5 McClellan Airport's most recent Airport Land Use Compatibility Plan (formerly known as Comprehensive Land Use Plans) 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 different. These changes have resulted in a smaller area exposed to high levels of aircraft noise and a smaller area required for aircraft safety zones. The Sacramento Area Council of Governments (SACOG), which acts as the Sacramento County Airport Land Use Commission, is in the process of updating the Airport Land Use Compatibility Plan (City of Roseville 2010). The 60 dB CNEL noise contour at full capacity is located south of Elverta Road, approximately 4 miles (6.4 kilometers) south of the project site. Therefore, exterior noise levels from aircraft operations are not predicted to exceed the City of Roseville 60 dB Ldn/CNEL exterior noise 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. This **indirect** effect is considered **less than significant**. Mitigation is not required. **No direct** effects would occur.

Off-Site Alt. The Off-Site Alternative would construct a moderate scale, mixed-use project on the alternative site located approximately 3 miles (4.8 kilometers) northeast of the project site. The 60 dB CNEL noise contour for McClellan Airfield at full capacity is located south of Elverta Road. Therefore, exterior noise levels from aircraft operations are not expected to exceed City's 60 dB Ldn exterior noise standard or the 45 dB Ldn/CNEL interior noise standard on the alternative site. This **indirect** effect is considered **less than significant**. Mitigation is not required. **No direct** effects would occur.

3.12.6 RESIDUAL SIGNIFICANT IMPACTS

Impact NOISE-1 and **Impact NOISE-3** would remain **significant and unavoidable** under the Proposed Action and all alternatives after mitigation. **Impacts NOISE-2** and **NOISE-4** would either be **less than significant** or would be reduced to less than significant with mitigation.

3.12.7 CUMULATIVE IMPACT

Cumulative Impact NOISE-1 Construction and Operational Noise Effects

No Action Alt., Proposed Action, Alts. 1 through 5 *Construction Noise*

Noise impacts would result from operation of construction equipment and from noise generated by vehicular traffic traveling to and from a construction site. The magnitude of the impact would depend on the type of construction activity, the noise level associated with each piece of construction equipment, the duration of construction, availability of noise barriers, and the distance between the source of the noise and receptors. Potential sources of

cumulative construction noise include construction activities related to development under the West Roseville Specific Plan to the north, the Regional University to the west, and Sierra Vista Specific Plan to the south.

It is unlikely that construction activities within the project site, West Roseville Specific Plan, Sierra Vista, and Regional University would be close enough to a particular sensitive receptor to create a substantial combined noise level. Furthermore, construction within the West Roseville Specific Plan, Sierra Vista, and the project site would comply with the City Noise Ordinance. As discussed earlier, the construction of any project that occurs within the City would be limited to the hours of 7:00 AM and 7:00 PM Monday through Friday and 8:00 AM to 8:00 PM Saturday and Sunday. The County also limits construction to daytime hours, similar to the City. Also, any periods in which more than one project would be under construction in proximity to the same sensitive receptor would likely be very short, and would only occur during the hours mentioned above. For these reasons, the cumulative impact would **less than significant** and the contribution of the Proposed Action and the on-site alternatives to the cumulative impact would be **less than significant**.

Stationary Source Noise

It is not expected that urban uses within the study area would be exposed to or generate, multiple sources of stationary noise that would be close enough to each other to exceed noise thresholds. The sources of noise within the project site, and surrounding new developments such as West Roseville Specific Plan, Sierra Vista, and Regional University, would include schools, parks, and commercial areas. No industrial or heavy manufacturing uses are proposed under the on-site alternatives, including the Proposed Action, or any of the other foreseeable projects that could cumulate and affect a sensitive receptor. Therefore, there would be **no cumulative** noise impact from multiple stationary sources.

Traffic Noise

Section 3.12 presents the traffic noise impacts that would result in 2025 at the buildout of the Proposed Action. The 2025 noise analysis represents a cumulative noise analysis as it takes into account traffic from not just the Proposed Action but also other past, present and reasonably foreseeable future development. The analysis indicates that the traffic added by the Proposed Action would result in noise levels along certain roadway segments that would exceed City General Plan traffic noise standards. This cumulative effect would be significant. **Mitigation Measure NOISE-3** requires new development on the project site to include noise barriers, masonry walls, setbacks, and other feasible measures to reduce noise impacts in residential areas of the project site. With the implementation of this measure, the Proposed Action's contribution to this cumulative impact to on-site receptors would be rendered less than significant. Traffic noise was not separately modeled for the No Action Alternative or Alternatives 1 through 5. Because of comparable or lower traffic volumes associated with the No Action Alternative and Alternatives 1 through 5, these alternatives

would generate a similar or smaller traffic noise increase but the resulting cumulative noise levels would still exceed standards and the effect would be **significant**. With the implementation of **Mitigation Measure NOISE-3**, the effect would be reduced to **less than significant**.

Similarly, cumulative traffic, including traffic associated with the on-site alternatives, including the Proposed Action, would increase ambient noise levels along off-site roadways and despite installation of noise barriers where feasible, it is unlikely that the significant noise impact would be eliminated at all affected locations off-site. The cumulative impact on off-site receptors near major roadways would remain **significant** and the contribution from the Proposed Action and on-site alternatives to the cumulative impact would be **significant**.

Off-Site Alt. The contribution of the Off-Site Alternative to cumulative traffic noise effects on off-site receptors would be similar to that of the No Action Alternative, Proposed Action, and Alternatives 1 through 5 as the alternative would develop a similar, moderate-scale community on the alternative site. Based on the significance criteria listed above and for the same reasons presented for the No Action Alternative, Proposed Action, and Alternatives 1 through 5, the cumulative traffic noise impact on off-site receptors would remain **significant** as mitigation is not available at all affected locations to reduce the effect to less than significant. Cumulative impacts from construction noise would be **less than significant** and there would be no cumulative impact related to noise from stationary sources for the same reasons presented above for the No Action Alternative, Proposed Action, and Alternatives 1 through 5.

3.12.8 REFERENCES

City of Roseville. 2010. *Sierra Vista Specific Plan Final Environmental Report*.

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