

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; 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 (US 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 (US 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 (US 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) (US 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

Transportation

Motor vehicle traffic is a major contributor to the existing noise environment in the vicinity of the project site along Baseline Road and Fiddymont Road. As shown in **Table 3.12-1, Existing Traffic Noise Levels**, noise levels along all existing roadways 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 Fiddymont Road, north of Blue Oaks Boulevard.

Aircraft

McClellan Airfield is located approximately 4 miles (6.4 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 US 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, the City of Roseville as part of the Sierra Vista Specific Plan (SVSP) EIR analysis 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 3.12-1
Existing Traffic Noise Levels**

Roadway	Segment	Traffic Noise Level, Ldn (dB)	Distance to Contours (feet)		
			70 dB Ldn	65 dB Ldn	60 dB Ldn
Blue Oaks	Fiddymont to Woodcreek	62.0	29	63	135
Blue Oaks	Woodcreek to Foothills	67.7	71	152	328
Pleasant Grove	West of Fiddymont	58.6	17	37	81
Pleasant Grove	Fiddymont to Woodcreek	63.4	36	78	169
Pleasant Grove	Woodcreek to Foothills	67.4	67	144	309
Junction	Woodcreek to Foothills	63.2	35	76	163
Baseline	West of Watt	65.1	47	102	219
Baseline	Watt to Walerga	66.6	59	128	275
Baseline	Walerga to Junction	64.3	42	90	195
Baseline	Junction to Woodcreek	63.1	35	75	162
Baseline	Woodcreek to Foothills	64.9	46	98	212
Fiddymont	North of Blue Oaks	60.0	22	47	101
Fiddymont	Blue Oaks to Pleasant Grove	63.5	37	79	170
Fiddymont	Pleasant Grove to Baseline	66.5	57	123	266
Walerga	South of Baseline	65.1	47	102	219
Watt	Road "B" to Road "A"	--	--	--	--
Watt	Baseline to Road "B"	--	--	--	--
Watt	South of Baseline	60.6	24	51	110
Westside	North of Pleasant Grove	--	--	--	--
Westside	Pleasant Grove to Road "A"	--	--	--	--
Westside	Road "A" to Road "B"	--	--	--	--
Market Drive	Project Site	--	--	--	--
Upland Drive	Project Site	--	--	--	--
Road "B"	Project Site	--	--	--	--

Source: City of Roseville, 2010.

**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: City of Roseville, 2010.

Noise Receptors in the Project Area and Ambient Noise Levels

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

The City of Roseville conducted short-term and continuous (24-hour) noise level measurements on April 20 and 21, 2009 at various locations on the project site to characterize existing ambient noise levels. **Table 3.12-3, Existing Ambient Noise Levels**, summarizes 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 project boundary	49.3	43.5	37.1	60.1	42.7	40.4	52.9
B	Project site, 175 feet west of Fiddymment Road centerline	66.4	61.5	59.1	76.8	59.7	52.6	75.2
C	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 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 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 site at existing terminus of Pleasant Grove Boulevard	NA	46.7	41.5	61.5	36.0	35.7	44.4
3	North 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 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 site, north of Baseline Road	NA	68.0	55.0	82.6	63.9	42.5	84.2

Source: City of Roseville, 2010.

* 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 Regulations

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

3.12.3.2 State Regulations

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 (see **Table 3.12-4**, below). Noise mitigation measures may be required to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table IX-1.
- 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 (reproduced in **Table 3.12-5**, below). 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 upon 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-3 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.

Placer County General Plan

According to the Placer County General Plan, for transportation-related noise sources (e.g., traffic), the acceptable noise level in outdoor activity areas of residences, transient lodging, hospitals, theaters, and churches is 60 dB CNEL or less. The interior noise level standard is 45 dB CNEL. For non-transportation-related noise sources, the exterior noise level standard for residences and office/professional uses is 60 dB CNEL. For transient lodging and neighborhood/general commercial uses, the standards are 65 and 70 dB CNEL, respectively. The interior noise level standard for most land uses is 45 dB CNEL. (Note: all table references that follow in this subsection refer to tables in the Noise Element of the Placer County General Plan.)

The Placer County General Plan Noise Element includes the following goals and policies related to noise:

- Goal 9.A:** To protect County residents from the harmful and annoying effects of exposure to excessive noise.
- Policy 9.A.1:** The County shall not allow development of new noise-sensitive uses where the noise level due to non-transportation noise sources will exceed the noise level standards of Table 9-1 as measured immediately within the property line of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in Table 9-1.

- Policy 9.A.2:** The County shall require that noise created by new non-transportation noise sources be mitigated so as not to exceed the noise level standards of Table 9-1 as measured immediately within the property line of lands designated for noise-sensitive uses.
- Policy 9.A.3:** The County shall continue to enforce the State Noise Insulation Standards (California Code of Regulations, Title 24) and Chapter 35 of the Uniform Building Code (UBC).
- Policy 9.A.5:** Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table 9-1 at existing or planned noise-sensitive uses, the County shall require submission of an acoustical analysis as part of the environmental review process so that noise mitigation may be included in the project design. The requirements for the content of an acoustical analysis are listed in Table 9-2.
- Policy 9.A.6:** The feasibility of proposed projects with respect to existing and future transportation noise levels shall be evaluated by comparison to Figure 9-1.
- Policy 9.A.8:** New development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources, including airports, which exceed the levels specified in Table 9-3, unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table 9-3.
- Policy 9.A.9:** Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table 9-3 at outdoor activity areas or interior spaces of existing noise-sensitive land uses.
- Policy 9.A.10:** Where noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table 9-3 or the performance standards of Table 9-1, the County shall require submission of an acoustical analysis as part of the environmental review process so that noise mitigation may be included in the project design. At the discretion of the County, the requirement for an acoustical analysis may be waived provided that all of the following conditions are satisfied:
- a. The development is for less than five single-family dwellings or less than 10,000 square feet of total gross floor area for office buildings, churches, or meeting halls;
 - b. The noise source in question consists of a single roadway or railroad for which up-to-date noise exposure information is available. An acoustical analysis will be required when the noise source in question is a stationary noise source or airport, or when the noise source consists of multiple transportation noise sources;
 - c. The existing or projected future noise exposure at the exterior of buildings which will contain noise-sensitive uses or within proposed outdoor activity areas (other than outdoor sports and recreation areas) does not exceed 65 dB Ldn prior to mitigation. For outdoor sports and recreation areas, the existing or projected future noise exposure may not exceed 75 dB Ldn prior to mitigation;

- d. The topography in the project area is essentially flat; that is, noise source and receiving land use are at the same grade; and
- e. Effective noise mitigation, as determined by the County, is incorporated into the project design to reduce noise exposure to the levels specified in Table 9-1 or 9-3.

Such measures may include the use of building setbacks, building orientation, noise barriers, and the standard noise mitigations contained in the Placer County Acoustical Design Manual. If closed windows are required for compliance with interior noise level standards, air conditioning or a mechanical ventilation system will be required.

- Policy 9.A.11:** The County shall implement one or more of the following mitigation measures where existing noise levels significantly impact existing noise-sensitive land uses, or where the cumulative increase in noise levels resulting from new development significantly impacts noise-sensitive land uses:
- a. Rerouting traffic onto streets that have available traffic capacity and that do not adjoin noise-sensitive land uses;
 - b. Lowering speed limits, if feasible and practical;
 - c. Programs to pay for noise mitigation such as low cost loans to owners of noise-impacted property or establishment of developer fees;
 - d. Acoustical treatment of buildings; or
 - e. Construction of noise barriers.
- Policy 9.A.12:** Where noise mitigation measures are required to achieve the standards of Tables 9-1 and 9-3, the emphasis of such measures shall be placed upon site planning and project design.
- The use of noise barriers shall 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.
- Goal 9.B:** To ensure that areas designated for industrial uses pursuant to Goal 1.E. and Policy 1.E.1. are protected from encroachment by noise-sensitive land uses.
- Policy 9.B.1:** The County shall require that new noise-sensitive land uses established next to existing industrial areas be responsible for self-mitigating noise impacts from industrial activities.
- Policy 9.B.2:** The County shall apply noise standards in a manner consistent with encouraging the retention, expansion, and development of new businesses pursuant to Goal 1.N. and Policy 1.N.2.
- Policy 9.B.3:** Because many industrial activities and processes necessarily produce noise which will likely be objectionable to nearby non-industrial land uses, existing and potential future industrial noise emissions shall be accommodated in all land use decisions.
- Policy 9.B.4:** Whenever noise exposure standards herein fall subject to interpretation relative to industrial activities, the benefit of the doubt shall be afforded to the industrial use.

Placer County Municipal Code

The Placer County Code also sets limits for sound and noise affecting sensitive receptors. Sensitive receptor is defined in the Code as a land use in which there is a reasonable degree sensitivity to noise. The Code gives examples of sensitive receptors to be single and multi-family residential uses, frequently used outbuildings, schools, hospitals, churches, rest homes, cemeteries, and public libraries. The Code also gives code enforcement officers the power to judge other sources as being sensitive receptors. Specifically, Section 9.36.060 of the Placer County Code limits exterior noise at the property line of a sensitive receptor to either 5 dB(A) above the ambient sound level or the levels set forth in Table 1 of Section 9.36.060, (shown in **Table 3.12-6** below), whichever is greater.

**Table 3.12-6
Placer County On-Site Sound Level Standards**

Sound Level Descriptor	Daytime (7:00 AM to 10:00 PM)	Nighttime (10:00 PM to 7:00 AM)
Hourly Average (Leq)	55	45
Maximum Level (Lmax)	70	65

Source: Placer County Code Section 9.36.060

The Code also specifies exemptions to the noise standards (Placer County Code Section 9.36.030). Among these exemptions are: (1) noise produced by construction activities between the hours of 6:00 AM and 8:00 PM Monday through Friday, and between the hours of 8:00 AM and 8:00 PM Saturday and Sunday, provided that all construction equipment shall be fitted with factory installed muffling devices and maintained in good working order and (2) noise produced by the normal operation of public and private schools, typically consisting of classes and other school-sponsored activities.

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 US 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 or the noise standards established in the Placer County Noise Ordinance and the Noise Element of the Placer County General Plan;
- 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 (a substantial increase is defined by the USACE as an increase of 3 decibels or more); or

- 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.

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 3.12-7 Typical Construction Equipment Noise** presents noise levels produced by commonly used construction equipment at 50 feet (15 meters) from source.

**Table 3.12-7
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

Proposed Action Construction activities would generate noise levels that could significantly affect on- and off-site receptors. This represents a **significant** effect. Although mitigation is proposed to reduce this effect, it would not be completely avoided. A residual **significant** effect would remain after mitigation.

Construction activities on the project site would generate noise levels that would affect residences east and north of the project site, as well as existing residences in unincorporated Placer County, south of Baseline Road. In addition, because construction would occur in phases, some on-site residential uses built during the early phases of the development would be exposed to noise generated during the construction of later phases of development. Roadway improvements along Baseline Road and Fiddymont Road would also expose residents in those areas to construction noise.

Noise levels typical of construction equipment, as indicated in **Table 3.12-7**, range from 84 to 89 decibels (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. However, pile driving may be necessary for bridge construction, which could result in substantial ground-borne vibration or noise. 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, infrastructure projects such as construction of wells and the maintenance of those facilities would result in potentially **significant** noise effects because the activities would occur during hours outside of the normal construction hours allowed by the Noise Ordinance.

To address this potentially significant noise effect, the Proposed Action would implement

Mitigation Measure NOISE-1. 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 wells occurs after subdivision construction, and if 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 and was adopted by the City of Roseville at the time of project approval and will be enforced by the City. However, because construction-related noise would occur outside of hours considered acceptable under the City's Noise Ordinance, the Sierra Vista Specific Plan EIR determined that this mitigation measure would not 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 a residual **significant** effect would remain after mitigation.

**No Action
Alt., Alts. 1,
2, 3 (On Site)** All of the on-site alternatives would construct a 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 Proposed Action, all of the on-site alternatives would result in **significant** effects related to construction noise and vibration based on the significance criteria listed above.

Mitigation Measure NOISE-1 is proposed to address this effect. As noted above, this measure is the same as Mitigation Measure 4.6-1 in the Sierra Vista Specific Plan EIR. The USACE assumes that the City of Roseville would impose the same mitigation measures on all of the on-site alternatives to address this effect. However, because construction-related noise 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** effect would remain after mitigation.

**Alt. 4
(Off Site)** Alternative 4 would construct a project broadly similar to the Proposed Action on the alternative site located approximately 2 miles (3.2 kilometers) west of the project site in Placer County. In addition, Alternative 4 would require the installation of off-site infrastructure consisting of water, recycled water and sewer lines and roadway improvements. As compared to the project site, there are currently very few residents surrounding the Alternative 4 site. In addition, there are very few residents located in the vicinity of the route of the off-site infrastructure. Since 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. Therefore, the distance to sensitive receptors would be similar and construction noise effects would be **significant** based on the significance criteria listed above.

Mitigation Measure NOISE-1 would be required. The USACE assumes that Placer County would impose a mitigation measure similar to **Mitigation Measure NOISE-1** for the off-site

alternative and would find that the measure would not reduce the effect to less than significant. Accordingly, the USACE also finds that this effect would remain **significant** after mitigation. The USACE acknowledges that it has no authority to require **Mitigation Measure NOISE-1** and cannot guarantee that the County will impose this measure.

Mitigation Measure NOISE-1

Construction Noise Policies

(Applicability – 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

Proposed Action

Noise associated with commercial uses and the community park on the project site would result in potential **significant** effects on sensitive receptors. With implementation of mitigation measures, the effects of commercial noise and community park noise would be reduced to less than significant. Although noise from schools would be audible to nearby residents, the 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. Noise effects from neighborhood parks and fire stations would also be **less than significant**. Mitigation is not required.

Commercial Uses

Within the project site, commercial uses would be located adjacent to residential uses. Noise sources associated with commercial uses could include, but are not limited to, commercial loading docks associated with grocery stores, big-box retail 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. Although 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, the noise standards could be exceeded if homes were closer than 150 feet (46 meters) from a

commercial development (City of Roseville 2010). This represents a **significant** effect.

To address this potential significant effect, the Proposed Action would implement **Mitigation Measure NOISE-2a**, which requires measures such as building orientation, shielding (e.g., berms, masonry walls, landscaping), restriction of delivery hours, and screening of HVAC equipment, to be used to reduce noise levels at residences within 150 feet (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. **Mitigation Measure NOISE-2a** 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. This measure is the same as Mitigation Measure 4.6-2 in the Sierra Vista Specific Plan EIR and was adopted by the City of Roseville at the time of project approval and will be enforced by the City. 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 this effect would be reduced to **less than significant**.

Schools

The Proposed Action would include one middle school and two elementary schools. All of the schools would be located adjacent to residential areas. The noise sources associated with school sites are generally associated with outdoor sports and play areas. Other noise sources could include heating and ventilation equipment, parking lot noise, and bells that indicate the start or end of class periods. Noise sources from outdoor school sports areas generally include crowd and player noise, and public address systems. 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, noise effects from schools would be **less than significant**. Mitigation is not required.

Parks

There are two types of park uses proposed as part of the Proposed Action: community-wide and neighborhood.

Community-Wide Park

Community-wide/City-wide Parks are defined as accommodating a wide variety and higher intensity of recreational uses than neighborhood parks. They are frequently identified as unique recreational centers serving the entire Roseville population. According to the General Plan these facilities are designed to cluster active sport elements to serve regional needs such as tournaments, special events, and/or tourism to provide more cost effective maintenance practices. A community-wide park is proposed on the southwest corner of the project site that would include ball fields and potentially a public address system to announce games. The park could include lighted tournament-level ball fields, stadium lighted ball fields, soccer/multi-sport (football, lacrosse, rugby) lighted all-weather fields, batting cages, restaurants, and large outdoor spaces or plazas for fairs or other large events (City of Roseville 2010).

The nearest residential use would be in the Commercial Mixed Use (CMU) center, which could include high density residential uses adjacent to the park to the east, and a low density residential neighborhood approximately 400 feet (122 meters) north of the park. The low-density residential neighborhood would be distant enough from the park that noise effects would be less than significant. However, the high-density residential uses could be subjected to substantial noise from the park activities.

The softball/baseball fields have effective centers at the pitcher's mound between 550 and 650 feet (168 and 198 meters) from the nearest residential land uses, while the nearest soccer field would be located approximately 530 feet (162 meters) from the nearest residential land uses. Noise sources associated with recreational games would primarily consist of occasional shouting and cheering of the participants and observers during the contests and practices. Average noise levels generated during games are approximately 60 dB Leq at a distance of 100 feet (30 meters) from the focal point or effective noise center of the playing fields (City of Roseville 2010).

Based on the distances presented above, noise levels from the proposed athletic fields are predicted to range between 44 and 46 dB Leq at the nearest residential receptors. These noise levels would be below the City of Roseville 60 dB Leq daytime exterior noise level standard, but could exceed the City's 45 dB Leq nighttime noise level standard at the high density residential uses closest to the park site. This would represent a potential **significant** effect.

To address this effect, the Proposed Action would implement **Mitigation Measure NOISE-2b**, which limits park activities after 10:00 PM, requires installation of public address systems that comply with the Noise Ordinance, and requires playing fields to be designed so they are screened from adjacent residential areas. This measure is the same as Mitigation Measure 4.6-3 in the Sierra Vista Specific Plan EIR and was adopted by the City of Roseville at the time of project approval and will be enforced by the City. 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 this effect would be reduced to **less than significant**.

Neighborhood Parks

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.

Due to their relatively passive nature, noise sources are expected to be intermittent and occur during the day from children playing on playground equipment, or from sports events such as soccer, baseball, or basketball games that occur during the day, and on the weekends. Similar to noise effects described above for schools, noise at games and outdoor sporting events is on average around 60 dB Leq at a distance of 100 feet (30 meters) from the focal point or effective noise center of playing fields (City of Roseville 2010). Based on this, noise levels are predicted to range from 44 to 46 dB Leq at the nearest residential receptors. Therefore, noise effects from neighborhood parks would be **less than significant**. Mitigation is not required.

Fire Station

A new fire station is proposed to be located on the east side of Westbrook Boulevard on the project site. The station would be adjacent to a proposed residential neighborhood located to the south. Open space would be located to the north, and Westbrook Boulevard, a proposed six-lane arterial roadway, would be located to the west. A residential neighborhood is also proposed to be located to the west of Westbrook Boulevard. Fire stations typically generate loud, intermittent noise from sirens and public address systems. These types of noise would be limited to emergency response and possible training and maintenance activities. Section 9.24.030 (c) of the Roseville Municipal Code specifically states that “safety, warning and alarm devices, including house and car alarms, and other warning devices that are designed to protect the health, safety and welfare are exempt.” Section 9.24.030 (f) also specifically exempts “emergencies, involving the execution of duties [...] providing emergency response to the general public, including but not limited to [...] emergency personnel.” Because these noise effects are generally infrequent and are exempt from the City’s Municipal Code, effects from fire station noise would be **less than significant**. Mitigation is not required.

No Action Alt., Alts. 1, 2, 3 (On Site)

All of the on-site alternatives would construct a mixed use development on the project site and would include all of the noise sources (commercial uses, one middle school and two elementary schools adjacent to residential uses, community and neighborhood parks, and a fire station) described above for the Proposed Action. Noise associated with commercial uses and the community park on the project site under all of the on-site alternatives would

result in potential **significant** effects on sensitive receptors. Under all of the on-site alternatives, with mitigation, noise impacts from commercial uses and the community park would be reduced to less than significant. Noise effects from schools, neighborhood parks, and fire stations would be **less than significant**. Mitigation is not required.

Commercial Uses

Similar to the Proposed Action, no specific site designs are proposed for commercial uses at this time; therefore, noise levels cannot be estimated with any specificity and the effectiveness of specific mitigation cannot be determined at this time. However, noise levels are expected to exceed City standards for residential uses. This represents a **significant** noise effect based on the significance criteria listed above and for the same reasons presented above for the Proposed Action.

Mitigation Measure NOISE-2a is proposed to address this effect. As noted above, this measure is the same as Mitigation Measure 4.6-2 in the Sierra Vista Specific Plan EIR. The USACE assumes that the City of Roseville would impose the same mitigation measures on all of the on-site alternatives to address this effect. By reducing noise from commercial uses, this mitigation measure would reduce the effect to **less than significant**. The USACE finds that this effect would be reduced to less than significant.

Schools

The noise at the nearest sensitive receptors generated by school activities would be similar to the Proposed Action under these alternatives. Noise from normal school operations under the on-site alternatives would be exempt from the City of Roseville noise level thresholds. Therefore, noise from school-related activities would be **less than significant** under all on-site alternatives based on the significance criteria listed above and for the same reasons presented above for the Proposed Action. Mitigation is not required.

Parks

Noise levels average 60 dB Leq at a distance of 100 feet (30 meters) from the focal point or effective noise center of playing fields. While the exact locations of playing fields within the parcels designated as parks have not been determined for these alternatives, it is likely that the nearest residential receptors would be located more than 100 feet (30 meters) from playing fields and that the daytime exterior noise levels would fall below the City's standard under these alternatives. However, it is possible that residential uses would be located within the 45 dB Leq noise contour for playing fields, which represents a **significant** noise effect based on the significance criteria listed above and for the same reasons presented above for the Proposed Action.

Mitigation Measure NOISE-2b is proposed to address this effect. As noted above, this measure is the same as Mitigation Measure 4.6-3 in the Sierra Vista Specific Plan EIR. The USACE assumes that the City of Roseville would impose the same mitigation measures on

all of the on-site alternatives to address this effect. By reducing noise from parks construction, this mitigation measure would reduce the effect to **less than significant**. The USACE finds that this effect would be reduced to less than significant.

Fire Station

Similar to the Proposed Action, under these alternatives noise associated with the fire station would occur infrequently and is specifically exempt from the City's noise standards. Therefore, effects from fire station noise would be **less than significant** under all on-site alternatives based on the significance criteria listed above and for the same reasons presented above for the Proposed Action. Mitigation is not required.

Alt. 4 (Off Site)

Alternative 4 would construct a large scale, mixed-use community on the alternate site and therefore would also include commercial uses, one middle school, and two elementary schools adjacent to residential uses, community and neighborhood parks, and a fire station.

Commercial Uses

Similar to the Proposed Action, no specific site designs are proposed for commercial uses at this time; therefore, noise levels cannot be estimated with any specificity but are expected to exceed County standards for residential uses. This represents a **significant** noise effect based on the significance criteria listed above and for the same reasons presented above for the Proposed Action. The USACE assumes that Placer County would impose a mitigation measure similar to **Mitigation Measure NOISE-2a** for the off-site alternative and finds that the measure would reduce the effect to **less than significant**. The USACE acknowledges that it has no authority to require **Mitigation Measure NOISE-2a** and cannot guarantee that the County will impose this measure.

Schools

The noise at the nearest sensitive receptors generated by school activities would be similar to the Proposed Action under this alternative. Noise from normal school operations under Alternative 4 would be exempted from the Placer County noise level thresholds. Therefore, noise 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 Proposed Action. Mitigation is not required.

Parks

Noise levels average 55 dB Leq at a distance of about 150 feet (46 meters) from the focal point or effective noise center of playing fields. While the exact locations of playing fields within the parcels designated as parks have not been determined for this alternative, it is likely that the nearest residential receptors would be located more than 150 feet (46 meters) from playing fields and that the daytime exterior noise levels would fall below the County's 55 dB Leq standard under these alternatives. In the event that residential uses would be located within the 45 dB Leq noise contour for playing fields, there could be **significant**

effects due to nighttime noise based on the significance criteria listed above and for the same reasons presented above for the Proposed Action. The USACE assumes that Placer County would impose mitigation measures similar to **Mitigation Measure NOISE-2b** for the off-site alternative and finds that the measure would reduce the effect to **less than significant**. The USACE acknowledges that it has no authority to require **Mitigation Measure NOISE-2b** and cannot guarantee that the County will impose this measure.

Fire Station

Under Alternative 4, the fire station would be located south of low-density residential uses, and would otherwise be adjacent to open space and community commercial uses. Although noise from the fire station could periodically exceed noise standards at the nearby residential uses, emergency responses are specifically exempt from the County's noise standards. Therefore, effects from fire station noise would be **less than significant** based on the significance criteria listed above and for the same reasons presented above for the Proposed Action. Mitigation is not required.

Off-Site Infrastructure

Off-site infrastructure necessary to serve the alternative site would generate a minimal amount of noise. **No effect** would occur. Mitigation is not required.

Mitigation Measure NOISE-2a

Commercial Noise Controls

(Applicability – 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 – 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)**Proposed
Action**

The Proposed Action would result in **significant** effects from traffic-related noise at on-site and off-site sensitive receptors. With mitigation, the 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 effect would remain **significant**.

Because the Proposed Action would be built out over time and 2025 is the earliest year by which buildout could occur, this EIS includes an analysis of traffic noise that would be generated under year 2025 plus the Proposed Action conditions. As shown in **Table 3.12-8, Year 2025 Traffic Noise Levels**, traffic noise levels in 2025 are projected to exceed the City's General Plan noise standard of 60 dB Ldn on 20 roadway segments in the vicinity, with or without the traffic added by the Proposed Action. The Proposed Action would add anywhere from 0.2 to 4.5 dB Ldn to the noise levels along 13 roadway segments under 2025 conditions. Along five roadway segments, traffic noise would decrease by approximately 1 dB Ldn with the implementation of the Proposed Action. This change would not be perceptible.

Interior Noise Levels with Project Traffic

Traffic from the Proposed Action would have a less than significant effect on interior noise levels under 2025 conditions. The City of Roseville interior noise level standard is 45 dB Ldn. Generally, new construction practices consistent with the California Building Code would result in an exterior to interior noise reduction of 25 to 30 dB Ldn. This would reduce the interior noise levels to below the 45 dB Ldn standard. The effect would be **less than significant**. Mitigation is not required.

On-Site Exterior Noise Levels with Project Traffic

Traffic from the Proposed Action would have a significant effect on exterior noise levels under 2025 conditions. The predicted traffic noise levels at residential uses that would be located adjacent to major roadways within the project site are shown in **Table 3.12-9, Traffic Noise Levels at Proposed Residential Uses**.

**Table 3.12-8
Year 2025 Traffic Noise Levels**

Roadway	Segment	Traffic Noise Levels (Ldn dB(A))			Distance to Contours (feet) 2025 Background			Distance to Contours (feet) 2025 Background + Project		
		2025 Background	2025 Background + Project	Change	70 dB Ldn	65 dB Ldn	60 dB Ldn	70 dB Ldn	65 dB Ldn	60 dB Ldn
Blue Oaks Blvd.	Fiddymment Rd. to Woodcreek Oak Blvd.	69.2	69.9	0.7	89	191	412	99	212	457
Blue Oaks Blvd.	Woodcreek Oaks Blvd. to Foothills Blvd.	71.9	72.1	0.2	135	290	625	138	297	640
Pleasant Grove Blvd.	West of Fiddymment Rd.	67.1	66.8	-0.3	64	137	296	61	132	285
Pleasant Grove Blvd.	Fiddymment Rd. to Woodcreek Oaks Blvd.	67.8	69.0	1.2	71	153	330	86	185	399
Pleasant Grove Blvd.	Woodcreek Oaks Blvd. to Foothills Rd.	70.0	70.2	0.2	99	214	462	103	221	477
Junction Blvd.	Woodcreek Oaks Blvd. to Foothills Rd.	64.7	65.3	0.6	44	95	205	49	105	227
Baseline Rd	West of Watt Ave.	70.6	71.6	1.0	110	238	512	128	275	593
Baseline Rd	Watt Ave. to Walerga Rd.	72.5	71.7	-0.8	146	314	677	131	282	607
Baseline Rd	Walerga Rd, to Junction Blvd.	69.8	70.2	0.4	97	209	451	104	224	482
Baseline Rd	Junction Blvd. to Woodcreek Oaks Blvd.	67.6	67.8	0.2	69	149	320	72	155	333
Baseline Rd	Woodcreek Oaks Blvd. to Foothills Rd.	67.8	68.5	0.7	72	155	333	79	170	367
Fiddymment Rd	North of Blue Oaks Blvd.	68.1	68.2	0.1	75	161	346	75	162	349
Fiddymment Rd	Blue Oaks Blvd. to Pleasant Grove Blvd.	68.7	68.5	-0.2	81	175	378	80	172	370
Fiddymment Rd	Pleasant Grove Blvd. to Baseline Rd.	71.0	69.5	-1.5	117	252	543	93	200	430
Walerga Rd.	South of Baseline Rd.	68.4	68.8	0.4	79	170	366	83	179	387
Santucci Blvd.	Vista Grande Blvd. to Federico Dr.	67.4	66.7	-0.7	67	145	312	60	130	280
Santucci Blvd.	Baseline to Vista Grande Blvd.	67.4	66.9	-0.5	67	145	312	62	133	287
Watt Ave.	South of Baseline Rd.	65.6	66.6	1.0	51	110	237	60	129	277
Westbrook Blvd.	North of Pleasant Grove Blvd.	61.9	66.4	4.5	29	62	134	57	123	266
Westbrook Blvd.	Pleasant Grove Blvd. to Federico Dr.	--	66.2	NA	--	--	--	56	120	258
Westbrook Blvd.	Federico Dr. to Vista Grande Blvd.	--	66.1	NA	--	--	--	55	118	255
Market St.	Project Site	--	53.2	NA	--	--	--	8	16	35
Upland Dr.	Project Site	--	55.8	NA	--	--	--	11	24	52
Vista Grande Blvd.	Project Site	--	60.2	NA	--	--	--	22	48	103

Source: City of Roseville, 2010.

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-3a**, which includes requirements for the construction of masonry walls and/or landscaped berms to create barriers between noise sources and receptors. **Table 3.12-9** 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 3.12-9
Traffic Noise Levels at Proposed Residential Uses

Roadway	Segment	Approximate Residential Setback (feet)	ADT	Predicted Traffic Noise Levels (Ldn)				
				No Wall	6' Wall	7' Wall	8' Wall	9' Wall
Baseline Rd.	Watt Ave. to Walerga Rd.	215	44,800	67	61	60	59	58
Fiddymnt Rd.	Pleasant Grove Blvd. to Baseline Rd.	100	44,300	70	64	62	61	60
Santucci Blvd.	Vista Grande Blvd. to Federico Dr.	116	23,200	66	60	59	58	56
Santucci Blvd.	Baseline Rd. to Vista Grande Blvd.	116	24,100	66	60	59	58	57
Westbrook Blvd.	Pleasant Grove Blvd. to Federico Dr.	100	27,400	66	60	59	58	57
Westbrook Blvd.	Federico Dr. to Vista Grande Blvd.	100	26,800	66	60	59	58	57
Market St.	Project Site	62	1,900	56	--	--	--	--
Upland Dr.	Project Site	62	3,400	59	--	--	--	--
Vista Grande Blvd.	Project Site	88	9,500	61	55	54	53	52

Source: City of Roseville, 2010.

Note that the noise levels reported in **Table 3.12-9** 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 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-3a** requires a site-specific acoustical study to be conducted to determine the appropriate height and location of the

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.

sound wall.

Mitigation Measure NOISE-3a 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 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 this effect would be reduced to **less than significant**.

Off-Site Exterior Noise Levels with Project Traffic – City of Roseville

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**, traffic noise levels in 2025 are projected to exceed the City's General Plan noise standard of 60 dB Ldn on 20 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 in adjacent areas. Furthermore, on Westbrook Boulevard north of Pleasant Grove Boulevard, the Proposed Action would make a substantial contribution to an increase in ambient noise levels.

Measures that would reduce noise levels to 60 dB Ldn in residential outdoor activity areas include a combination of setbacks, berms, landscaping, and masonry walls. However, relative elevations of the roadways and elevations of building pads affect the ability to reduce noise levels, 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 effect would be **significant**.

Off-Site Exterior Noise Levels with Project Traffic – Placer County

Buildout of the Proposed Action would increase traffic-related noise on roadways in unincorporated Placer County to the west and south of the project site. In this area, many of the buildings are located along major roadways, such as the rural residential uses along the south side of Baseline Road. For these receptors, it may not be feasible to build sound barriers without affecting access and vehicle sight distances. Therefore, the increase in exterior noise from traffic would result in a **significant** effect on sensitive receptors located immediately adjacent to major roadways in Placer County.

No Action All of the on-site alternatives would result in **significant** effects from traffic-related noise at
Alt., Alts. 1, on-site and off-site sensitive receptors. With mitigation, the effect to on-site sensitive
2, 3 (On Site) 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 effect would be
significant.

All of the on-site alternatives would construct a 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 lower trip generation than the Proposed Action. The trip distribution on study area roadways would be similar to that of the Proposed Action. Therefore, the traffic related noise effects on on-site and off-site receptors would generally be the same as the Proposed Action.

To address exterior noise effects on residential receptors on site, the alternatives would also implement **Mitigation Measure NOISE-3a**, 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 effect to **less than significant**. The USACE finds that this effect would be reduced to less than significant.

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 outdoor activity 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 these alternatives to traffic noise, and this would be a **significant** effect based on the significance criteria listed above and for the same reasons presented above for the Proposed Action.

**Alt. 4
(Off Site)**

The off-site alternative would result in **significant** effects from traffic-related noise at on-site and off-site sensitive receptors. With mitigation, the effect to on-site sensitive receptors would be reduced to **less than significant**. Mitigation would partially mitigate the effect to off-site sensitive receptors, but not to less than significant. A residual **significant** effect would remain after mitigation.

Alternative 4 would construct a project broadly similar to the Proposed Action on the alternative site located approximately 2 miles (3.2 kilometers) west in Placer County. In addition, Alternative 4 would require the installation of off-site infrastructure consisting of water, recycled water, and sewer lines. The trip distribution on the alternative site roadways would be similar to that of the Proposed Action. Traffic noise from the Alternative 4 site would likely exceed the Placer County noise standard of 55 dB Ldn for exterior noise levels at residential locations on the alternative site, which is considered a **significant** effect based on the significance criteria listed above and for the same reasons presented above for the Proposed Action. Implementation of **Mitigation Measure NOISE-3a** would require

construction of noise barriers in order to attenuate noise from traffic. The USACE assumes that Placer County would impose mitigation measures similar to **Mitigation Measure NOISE-3a** for the off-site alternative and finds that the measure would reduce the effect to **less than significant**. The USACE acknowledges that it has no authority to require **Mitigation Measure NOISE-3a** and cannot guarantee that the County will impose this measure.

With respect to off-site receptors, there are fewer off-site sensitive receptors in the vicinity of the alternative site when compared to the Proposed Action. In addition, traffic from the alternative site would be distributed in a different manner due to its location further west of the project site and traffic-related noise effects could occur at different roadway segments when compared to the Proposed Action. No traffic would be generated by operation of the off-site infrastructure. Given that the number of trips under the alternative is similar to the Proposed Action, noise levels from traffic could exceed the Placer County standards for residential uses. This represents a **significant** effect based on the significance criteria listed above and for the same reasons presented above for the Proposed Action. **Mitigation Measure NOISE-3b** would reduce noise levels at sensitive receptors, where feasible. However, the USACE cannot guarantee that Placer County will impose this measure. Furthermore, feasible measures are not available to adequately reduce the contribution of this alternative to traffic noise that affects sensitive receptors located immediately adjacent to major roadways. The USACE finds that a residual **significant** effect would remain after mitigation. The USACE acknowledges that it has no authority to require **Mitigation Measure NOISE-3b** and cannot guarantee that the County will impose this measure.

Mitigation Measure NOISE-3a

Traffic Noise Attenuation

(Applicability – 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.*

Mitigation Measure NOISE-3b**Traffic Noise Attenuation****(Applicability – Alternative 4)**

- *Tentative map applications for residential uses on the Alternative 4 site shall be required to include an analysis of noise levels at on-site and off-site sensitive receptor locations. The reports shall be conducted by a qualified acoustical engineer and shall specify the measures required to achieve compliance with the Placer County standards for interior and exterior noise levels. Exterior and interior masonry walls and/or landscaped berms shall be constructed if acoustical studies indicate that sound attenuation is required. Data from the acoustical studies shall be consulted to determine appropriate barrier heights.*
- *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.*

Impact NOISE-4 Aviation Noise

Proposed Action, No Action, and Alts. 1, 2, 3 (On Site)	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. Therefore, exterior noise levels from aircraft operations are not predicted to exceed the City of Roseville 60 dB Ldn/CNEL exterior noise level standard on the project site. Additionally, aircraft operations are not predicted to exceed the City's interior standard of 45 dB Ldn/CNEL on the project site. This effect is considered less than significant . Mitigation is not required.
Alt. 4 (Off Site)	Alternative 4 would construct a project broadly similar to the Proposed Action on the alternative site located approximately 2 miles (3.2 kilometers) west in Placer County. Alternative 4 would also require the installation of off-site infrastructure consisting of water, recycled water and sewer lines and roadway improvements. 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 predicted to exceed the Placer County 60 dB Ldn/CNEL exterior noise level standard on the Alternative 4 site. Additionally, aircraft operations are not predicted to exceed the County's interior standard of 45 dB Ldn/CNEL on the Alternative 4 site. This effect is considered less than significant . Mitigation is not required.

3.12.6 RESIDUAL SIGNIFICANT IMPACTS

Impacts NOISE-1 and NOISE-3 would remain **significant and unavoidable** under the Proposed Action and all alternatives after mitigation. All of the other effects would either be **less than significant** or would be reduced to less than significant by the proposed mitigation.

3.12.7 REFERENCES

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

Federal Highway Administration (FHWA). 2006. *FHWA Roadway Construction Noise Model User's Guide*.

Placer County. 1994. *Placer County General Plan Update, Noise Element*.

US Department of Transportation. 1980. *Fundamentals and Abatement of Highway Traffic Noise*.