15 NOISE AND VIBRATION

This chapter provides an evaluation of the potential noise and vibration effects of implementing the proposed City of Folsom 2035 General Plan (2035 General Plan). As established in the Notice of Preparation for the proposed 2035 General Plan (see Appendix A, *Notice of Preparation)*, urban development and other activities subject to the plan may result in adverse effects to the noise and vibration environment.

The following environmental assessment includes a review of noise and vibration potentially affected by the implementation of the 2035 General Plan, including existing noise and vibration within the City of Folsom. This analysis includes a review of regulations, requirements, plans, and policies applicable to noise and vibration.

The existing condition of the noise and vibration environment in the City of Folsom was determined by a review of the City's 1988 General Plan and Noise Ordinance, and by survey. Potential impacts related to noise and vibration were determined by modeling future noise levels, and comparing potential activities to the existing environment, based on CEQA assessment criteria, and by considering the policies, regulations, and guidelines adopted by the City of Folsom and by federal and state agencies.

15.1 ENVIRONMENTAL SETTING

The environmental and regulatory setting of the 2035 Plan Evaluation Area with respect to noise and vibration resources is described below for both the physical environment and the body of local, state, and federal policies and regulations with respect to noise and vibration.

15.2.1 ACOUSTIC FUNDAMENTALS & TERMINOLOGY

SOUND, NOISE, AND ACOUSTICS

Sound is a process that consists of three components: the sound source, the sound path, and the sound receiver. All three components must be present for sound to exist. Without a source to produce sound or a medium to transmit sound-pressure waves, there is no sound. Sound also must be received; a hearing organ, sensor, or object must be present to perceive, register or be affected by sound or noise. In most situations, there are many different sound sources, paths and receivers, not only one of each.

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound.

Acoustics is the field of science that deals with the production, propagation, reception, effects, and control of sound.

FREQUENCY

A continuous sound can be described by its frequency (pitch) and its amplitude (loudness). Frequency relates to the number of pressure oscillations per second. Low-frequency sounds are low in pitch, like the low notes on a piano, whereas high-frequency sounds are high in pitch, like the high notes on a piano. Frequency is expressed in terms of oscillations, or cycles, per second. Cycles per second are commonly referred to as Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250

Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of hertz. The extreme range of frequencies that can be heard by the healthiest human ears spans from 16 to 20 Hz on the low end to about 20,000 Hz (20 kHz) on the high end.

SOUND PRESSURE LEVEL AND DECIBELS

The amplitude of a sound determines its loudness. Loudness of sound increases and decreases with increasing and decreasing amplitude. Sound-pressure amplitude is measured in units of micro-Newtons per square meter ($\mu N/m^2$), also called micro-Pascals (μPa). One μPa is approximately one-hundred billionth (0.00000000001) of normal atmospheric pressure. The pressure of a very loud sound may be 200 million μPa, or 10 million times the pressure of the weakest audible sound (20 μPa). Because expressing sound levels in terms of μPa would be cumbersome, sound pressure level (SPL) is used to describe in logarithmic units the ratio of actual sound pressures to a reference pressure squared. These units are called bels, named after Alexander Graham Bell. To provide finer resolution, a bel is divided into 10 decibels (dB).

ADDITION OF DECIBELS

Because decibels are logarithmic units, SPL cannot be added or subtracted by ordinary arithmetic means. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB; rather, they would combine to produce 73 dB. When two sounds of equal SPL are combined, they produce a combined SPL 3 dB greater than the original individual SPL. In other words, sound energy must be doubled to produce a 3 dB increase. If two sound levels differ by 10 dB or more, the combined SPL is equal to the higher SPL; the lower sound level would not increase the higher sound level.

A-WEIGHTED DECIBELS

SPL alone is not a reliable indicator of loudness. The frequency of a sound also has a substantial effect on how humans respond. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, the healthy human ear is most sensitive to sounds from 1,000 to 5,000 Hz and perceives a sound within that range as being more intense than a sound of higher or lower frequency with the same magnitude. To approximate the frequency response of the human ear, a series of SPL adjustments is usually applied to the sound measured by a sound level meter. The adjustments, referred to as a weighting network, are frequency-dependent.

The A-scale weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C- and D-scales), but these scales are rarely used in conjunction with highway-traffic noise. Noise levels for environmental noise studies are typically reported in terms of A-weighted decibels (dBA). In environmental noise studies, A-weighted SPLs are commonly referred to as noise levels. Table 15-1 shows typical A-weighted noise levels.

HUMAN RESPONSE TO CHANGES IN NOISE LEVELS

Under controlled conditions in an acoustics laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels when exposed to steady, single-frequency ("pure tone") signals in the midfrequency range. Outside such controlled conditions, the trained ear can detect 2-dB changes in normal environmental noise. However, it is widely accepted that the average healthy ear can barely perceive 3-dB noise level changes for similar sources. A 5-dB change is readily perceptible, and a 10-dB increase is perceived as being twice as loud. As discussed above, doubling sound energy results in a 3-dB increase in sound; therefore, doubling sound energy (e.g., doubling the volume of traffic on a highway) would result in a barely perceptible change in sound level.

Table 15-1 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet flyover at 300 meters (1,000 feet)		
	— 100 —	
Gas lawn mower at 1 meter (3 feet)		
	— 90 —	
Diesel truck at 15 meters (50 feet) at 80 kilometers per hour (50 miles per hour)		Food blender at 1 meter (3 feet)
	— 80 —	Garbage disposal at 1 meter (3 feet)
Noisy urban area, daytime		
Gas lawn mower, 30 meters (100 feet)	— 70 —	Vacuum cleaner at 3 meters (10 feet)
Commercial area		Normal speech at 1 meter (3 feet)
Heavy traffic at 90 meters (300 feet)	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: Caltrans 2009.

NOISE DESCRIPTORS

Noise in the daily environment fluctuates over time. Some fluctuations are minor, but some are substantial. Some noise levels occur in regular patterns, but others are random. Some noise levels fluctuate rapidly, but others slowly. Some noise levels vary widely, but others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most commonly used in noise analysis:

Equivalent sound level (L_{eq}): L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level that in a stated period would contain the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour A-weighted equivalent sound level (L_{eq}[h]) is the energy average of the A-weighted sound levels occurring during a 1-hour period.

Percentile-exceeded sound level (L_x): L_x represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10 percent of the time, L_{90} is the sound level exceeded 90 percent of the time).

Maximum sound level (L_{max}): L_{max} is the highest instantaneous sound level measured during a specified period.

Day-night level (L_{dn}): L_{dn} 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 between 10 p.m. and 7 a.m.

Community noise equivalent level (CNEL): CNEL 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 between 10 p.m. and 7 a.m. and 5 dB added to the A-weighted sound levels occurring between 7 p.m. and 10 p.m.

15.2.2 VIBRATION FUNDAMENTALS AND TERMINOLOGY

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery) or transient in nature (e.g., explosions). Vibration levels can be depicted in terms of amplitude and frequency, relative to displacement, velocity, or acceleration.

Vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well to the stresses experienced by buildings (FTA 2006; Caltrans 2004). PPV and RMS vibration velocity are normally described in inches per second (in/sec).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. The response of the human body to vibration relates well to average vibration amplitude; therefore, vibration impacts on humans are evaluated in terms of RMS vibration velocity. Similar to airborne sound, vibration velocity can be expressed in decibel notation as vibration decibels (VdB). The logarithmic nature of the decibel serves to compress the broad range of numbers required to describe vibration.

Typical outdoor sources of perceptible groundborne vibration include construction equipment, steel-wheeled trains, and traffic on rough roads. Although the effects of vibration may be imperceptible at low levels, effects may result in detectable vibrations and slight damage to nearby structures at moderate and high levels, respectively. At the highest levels of vibration, damage to structures is primarily architectural (e.g., loosening and cracking of plaster or stucco coatings) and rarely results in

damage to structural components. The range of vibration that is relevant to this analysis occurs from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings (FTA 2006).

15.2.3 EXISTING NOISE ENVIRONMENT

NOISE SENSITIVE LAND USES

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the primary intended use of the land. Places where people live, sleep, recreate, worship, and study are generally considered to be sensitive to noise because intrusive noise can be disruptive to these activities. The 1988 General Plan considers the following uses to be noise sensitive land uses within the city of Folsom:

- All residential uses,
- Schools, and
- Long-term care medical facility such as hospitals, nursing, homes, etc.

Figure 3-3 in this Draft PEIR Chapter 3, *Project Description*, shows the location of residential and other land uses in Folsom. Figure 15-1 shows the location of schools and medical facilities in the city.

MAJOR NOISE SOURCES

Major sources of noise within the city include traffic on roadways, rail operations, aircraft operations, and industrial facilities. Each of these sources is discussed below.

The City's Code Enforcement Division receives numerous noise complaints each year. These complaints are typically related to construction noise; golf course maintenance noise; residential noise; and heating, ventilating, and air conditioning noise (Johnson, personal communication). Complaints have also been received regarding traffic noise. Locations where traffic noise complaints tend to be the highest are discussed below.

Roadways

Areas that have historically been sources of traffic noise complaints are listed below. These are generally places where residential development abuts a major, high-speed arterial (Johnson, personal communication).

- Folsom-Auburn Road, south of Oak Avenue Parkway;
- Greenback Lane, between Negro Bar Road and American River Canyon Drive;
- East Natoma Street, between Folsom Lake Crossing and Blue Ravine Road;
- East Natoma Street, between Prison Road and Randall Drive;
- Blue Ravine Road, between Manseau Drive and Oak Avenue Parkway;
- Blue Ravine Road, between Riley Street and Russi Road;
- Riley Street, between Levy Road and Orchard Drive; and
- Glenn Drive, between Riley Street and Sibley Street.

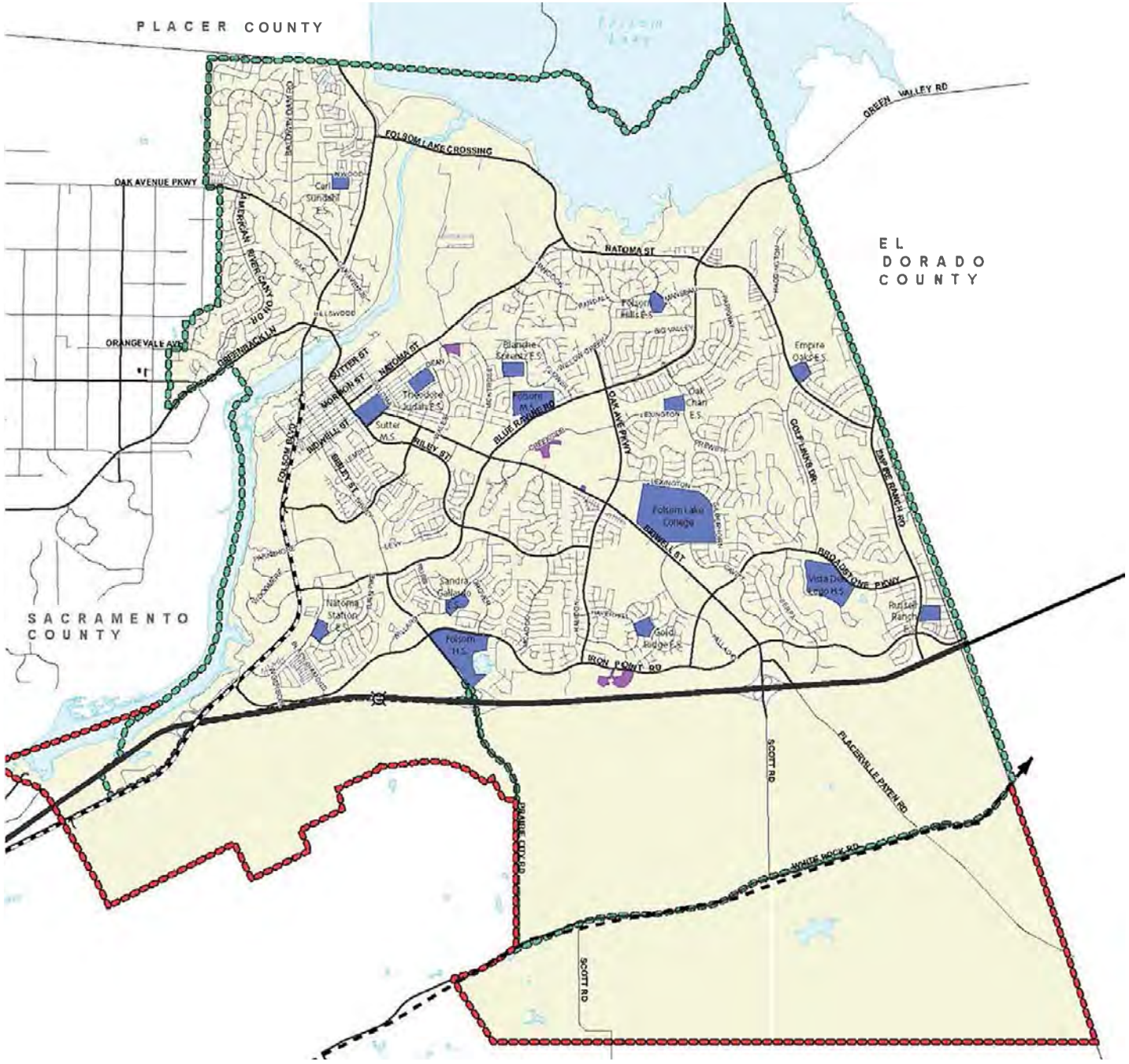

Figure 15-1

City of Folsom

Noise-Sensitive Uses

- 2035 General Plan Planning Area
- Folsom City Boundary
- County Boundary
- School
- Hospital

Created by
Planning Partners 2018.

Additional Sources:
City of Folsom, 2017;
County of Sacramento, 2017.

The FHWA Traffic Noise Model (FHWA-RD-77-108) was used to develop existing noise contours expressed in terms of L_{dn} for major roadways within the 2035 Plan Evaluation Area. The FHWA model predicts hourly L_{eq} values for free-flowing traffic conditions. Estimates of the hourly distribution of traffic for a typical 24-hour period were used to develop L_{dn} values from L_{eq} values.

Traffic data representing average daily traffic volumes for existing conditions were obtained from DKS (the General Plan consulting traffic engineers) and Caltrans (Caltrans 2016). Using these data and the FHWA model, traffic noise levels were calculated. The traffic noise level at 100 feet from the roadway centerline and distances from the centerlines of selected roadways to the 60 dB, 65 dB, and 70 dB L_{dn} contours are summarized in Table 15-2 and mapped in Figure 15-2.

In many cases, the actual distances to noise level contours may vary from the distances predicted by the FHWA model. Factors such as roadway curvature, roadway grade, shielding from local topography or structures, elevated roadways, or elevated receivers may affect actual sound propagation. The distances reported in Table 15-2 are considered to be conservative estimates of noise exposure along roadways in the city.

Table 15-2 Traffic Data and Noise Modeling Results for Existing Conditions

Roadway	From	To	Average Daily Traffic (No. of vehicles)	Truck Percent	Posted Speed (mph)	Ldn at 100 feet from Centerline	Distance to Contour (feet)		
							70 dB Ldn	65 dB Ldn	60 dB Ldn
Folsom Auburn Rd	City Limit	Folsom Lake Crossing	37100	3	50	70	98	211	455
Folsom Auburn Rd	Folsom Lake Crossing	Oak Avenue Pkwy	26400	3	50	68	78	168	363
Folsom Auburn Rd	Oak Avenue Pkwy	Greenback Ln	31900	3	40	67	62	133	286
Oak Ave	Santa Juanita Ave	Folsom Auburn Rd	11800	3	45	64	38	83	178
Greenback Ln	Madison Ave	Folsom Auburn Rd	38300	5	50	71	115	248	534
Greenback Ln	Folsom Auburn Rd	Leidesdorff St	25300	3	35	64	43	92	199
Folsom Lake Crossing	Folsom Auburn Rd	E. Natoma St	27400	3	55	70	94	203	437
Folsom Blvd	Greenback Ln	Natoma St	29900	5	50	70	98	210	453
Folsom Blvd	Natoma St	Glenn Dr	34300	5	50	70	107	230	496
Folsom Blvd	Glenn Dr	Blue Ravine Rd	33800	5	50	70	106	228	492
Folsom Blvd	Blue Ravine Rd	Iron Point Rd	38000	5	55	72	132	284	612
Folsom Blvd	Iron Point Rd	US-50	45600	5	55	73	149	321	691
Sibley Street	Bidwell St	Glenn Dr	4000	3	30	55	11	23	49
Sibley Street	Glenn Dr	Blue Ravine Rd	11600	4	40	64	41	89	192

Table 15-2 Traffic Data and Noise Modeling Results for Existing Conditions

Roadway	From	To	Average Daily Traffic (No. of vehicles)	Truck Percent	Posted Speed (mph)	Ldn at 100 feet from Centerline	Distance to Contour (feet)		
							70 dB Ldn	65 dB Ldn	60 dB Ldn
Prairie City Rd	Blue Ravine Rd	Iron Point Rd	26900	5	45	68	78	169	363
Prairie City Rd	Iron Point Rd	US-50	27400	5	50	69	92	198	427
Prairie City Rd	US-50	Alder Creek Pkwy	6800	4	55	64	40	85	184
Prairie City Rd	Alder Creek Pkwy	White Rock Rd	6800	4	55	64	40	85	184
Oak Avenue Pkwy	Blue Ravine Rd	East Bidwell St	17500	4	45	66	54	117	253
Oak Avenue Pkwy	East Bidwell St	Iron Point Rd	9000	2	45	62	31	67	144
East Bidwell St	Riley St	Glenn Dr	17200	6	35	65	46	98	211
East Bidwell St	Glenn Dr	Blue Ravine Rd	22000	6	35	66	54	116	249
East Bidwell St	Blue Ravine Rd	Oak Avenue Pkwy	32400	5	45	69	89	191	411
East Bidwell St	Oak Avenue Pkwy	Broadstone Pkwy	35100	5	45	70	93	201	434
East Bidwell St	Broadstone Pkwy	Iron Point Rd	38200	5	45	70	99	213	459
East Bidwell St	Iron Point Rd	US-50	57000	5	45	72	129	278	599
East Bidwell St	US-50	Alder Creek Pkwy	7600	5	55	65	45	97	209
East Bidwell St	Alder Creek Pkwy	White Rock Rd	7600	5	55	65	45	97	209
Empire Ranch Rd	E. Natoma St	Broadstone Pkwy	8500	2	45	62	30	65	139
Empire Ranch Rd	Broadstone Pkwy	Iron Point Rd	6100	2	45	61	24	52	111
Natoma St	Folsom Blvd	Riley St	7900	5	25	59	19	42	90
Natoma St	Riley St	Wales Dr	12700	5	35	63	34	73	158
E. Natoma Street	Wales Dr	Folsom Lake Crossing	12600	4	35	62	30	66	141
E. Natoma Street	Folsom Lake Crossing	Blue Ravine Rd	29800	3	45	68	71	153	330
E. Natoma Street	Blue Ravine Rd	Empire Ranch Rd	15800	2	45	65	45	98	210
Blue Ravine Rd	Folsom Blvd	Prairie City Rd	24300	5	45	68	73	158	339
Blue Ravine Rd	Prairie City Rd	Riley St	23900	5	45	68	72	156	336

Table 15-2 Traffic Data and Noise Modeling Results for Existing Conditions

Roadway	From	To	Average Daily Traffic (No. of vehicles)	Truck Percent	Posted Speed (mph)	Ldn at 100 feet from Centerline	Distance to Contour (feet)		
							70 dB Ldn	65 dB Ldn	60 dB Ldn
Blue Ravine Rd	Riley St	East Bidwell St	22900	5	45	68	70	151	326
Blue Ravine Rd	East Bidwell St	Oak Avenue Pkwy	19900	4	40	65	50	107	231
Blue Ravine Rd	Oak Avenue Pkwy	E. Natoma St	21800	4	45	67	63	136	292
Green Valley Rd	E. Natoma St	City Limit	27800	4	55	70	101	218	470
Iron Point Rd	Folsom Blvd	Prairie City Rd	11700	6	45	65	48	104	223
Iron Point Rd	Prairie City Rd	Oak Avenue Pkwy	20800	3	45	66	56	121	260
Iron Point Rd	Oak Avenue Pkwy	Broadstone Pkwy	16300	3	45	65	48	103	221
Iron Point Rd	Broadstone Pkwy	East Bidwell St	12500	6	45	66	50	108	233
Iron Point Rd	East Bidwell St	Empire Ranch Rd	8400	4	45	63	33	72	155
White Rock Rd	Prairie City Rd	Oak Avenue Pkwy	10200	4	55	66	52	112	241
White Rock Rd	Oak Avenue Pkwy	East Bidwell St	10200	4	55	66	52	112	241
White Rock Rd	East Bidwell St	Empire Ranch Rd	8300	4	55	65	45	97	210
US-50	Folsom Blvd	Prairie City Rd	94000	6	65	77	314	676	1456
US-50	Prairie City Rd	East Bidwell St	93000	6	65	77	311	671	1445
US-50	East Bidwell St	City Limit	99000	6	65	78	325	699	1507

Source: FHWA-RD-77-108 with inputs from Caltrans (2016), DKS Associates and BAC 2017.

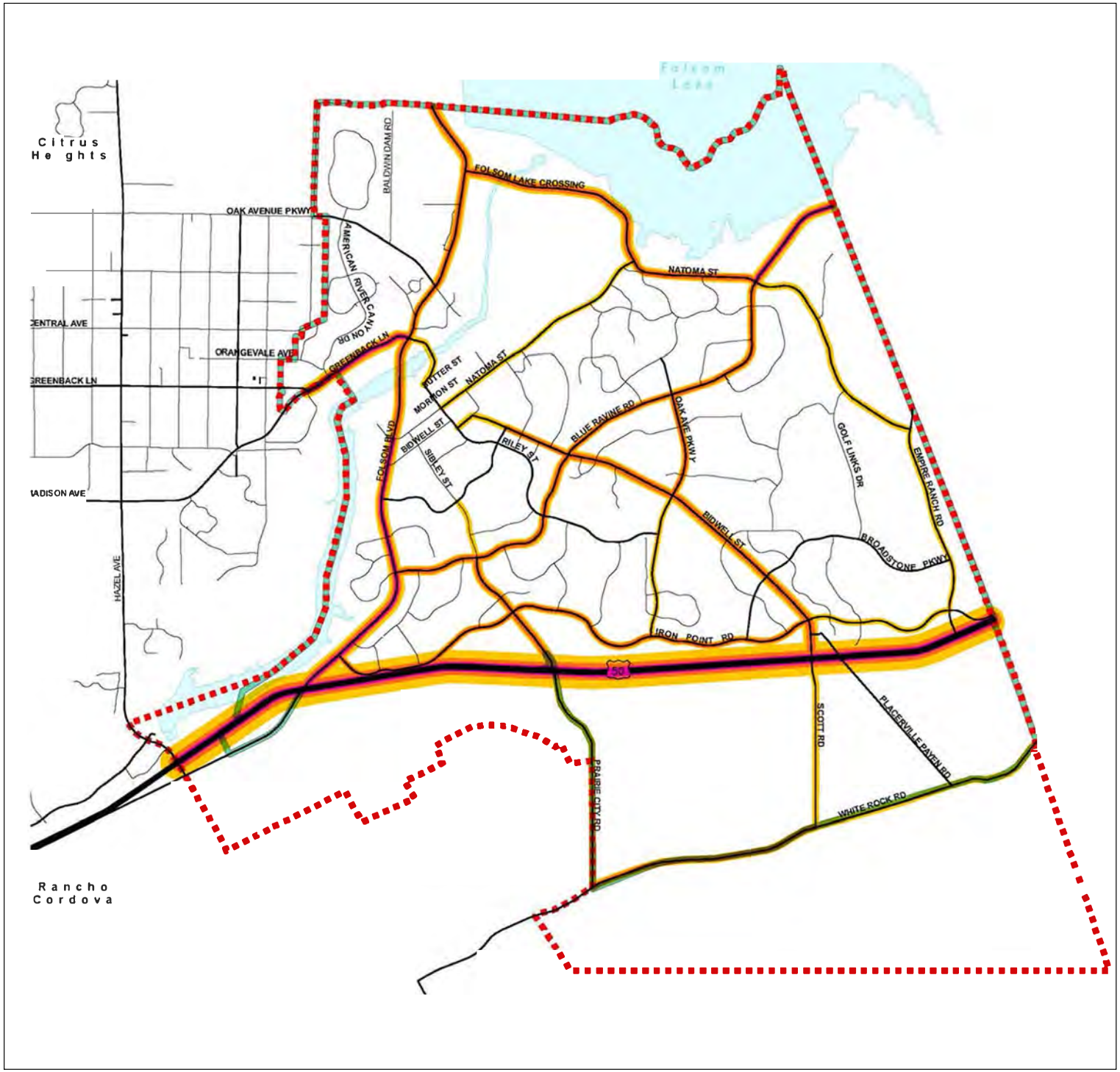

Figure 15-2

City of Folsom

Existing Traffic Noise Contours

2035 General Plan Planning Area

Folsom City Boundary

Noise Contours

60 to 65 dB

65 to 70 dB

> 70 dB

N

100
25
10
ACRES

0 0.5 1 2

Miles

Created by
Planning Partners 2018.

Additional Sources:
City of Folsom, 2017;
County of Sacramento, 2017.

Rail Operations

Heavy Rail

The old Southern Pacific rail lines located within the city are now managed by the Sacramento-Placerville Transportation Corridor Joint Powers Authority (SPTC-JPA) and are not operational, with the exception of use of the rails to facilitate maintenance performed by the Folsom El Dorado Railroad Association (Johnson, personal communication). As such, freight rail operations are not a significant source of noise in the city.

Passenger Rail

Sacramento Regional Transit (RT) light rail trains operate within the city along tracks located adjacent to Folsom Boulevard. Based on the current schedule for Monday through Friday, there are 50 daytime (7:00 a.m. to 10:00 p.m.) light rail passages and nine nighttime (10 p.m. to 7:00 a.m.) passages. On Saturdays there are 49 scheduled operations, all during daytime hours, and on Sundays and holidays there are 39 scheduled operations, also all during daytime hours.

Noise levels from light rail operations in Folsom have been quantified through noise level measurements conducted from a position 100 feet from the tracks, adjacent to the Folsom Boulevard segment in December 2017. See Figure 15-3 for noise measurement locations. Table 15-3 summarizes computed noise levels in terms of L_{dn} at a distance of 100 feet from the light rail tracks and the distances to the 60 and 65 L_{dn} noise contours.

Table 15-3 Noise and Vibration from Light Rail Operations

Period	Ldn at 100 Feet	Distance to 60 Ldn Contour	Distance to 65 Ldn Contour
Weekday	52	31	14
Saturday	48	15	7
Sunday & Holidays	47	13	6

Source: BAC noise level measurements, December 2017.

In addition to regular light-rail operations, the Placerville and Sacramento Valley Railroad occasionally operates excursion trains between Folsom and Latrobe. However, these trains are low-speed with very limited operations. As a result, excursion train operations are not a significant noise source in the City of Folsom.

Aircraft Operations

The only airport with operations that potentially affect Folsom is Mather Field (formerly Mather Air Force Base). The facility is located southwest of the city. On March 28, 1995, Mather Air Force Base and aviation facilities were transitioned to Sacramento County. In May 1995 the majority of all-cargo carriers operating at Sacramento International Airport relocated to Mather Field. Current land use compatibility planning noise contours for Mather Field that the 60 CNEL noise contour does not extend into the city. Specifically, the 60 dB CNEL noise contour ends 3 miles west of the closest point of the Folsom city limits. (Sacramento County Airport System 2018)

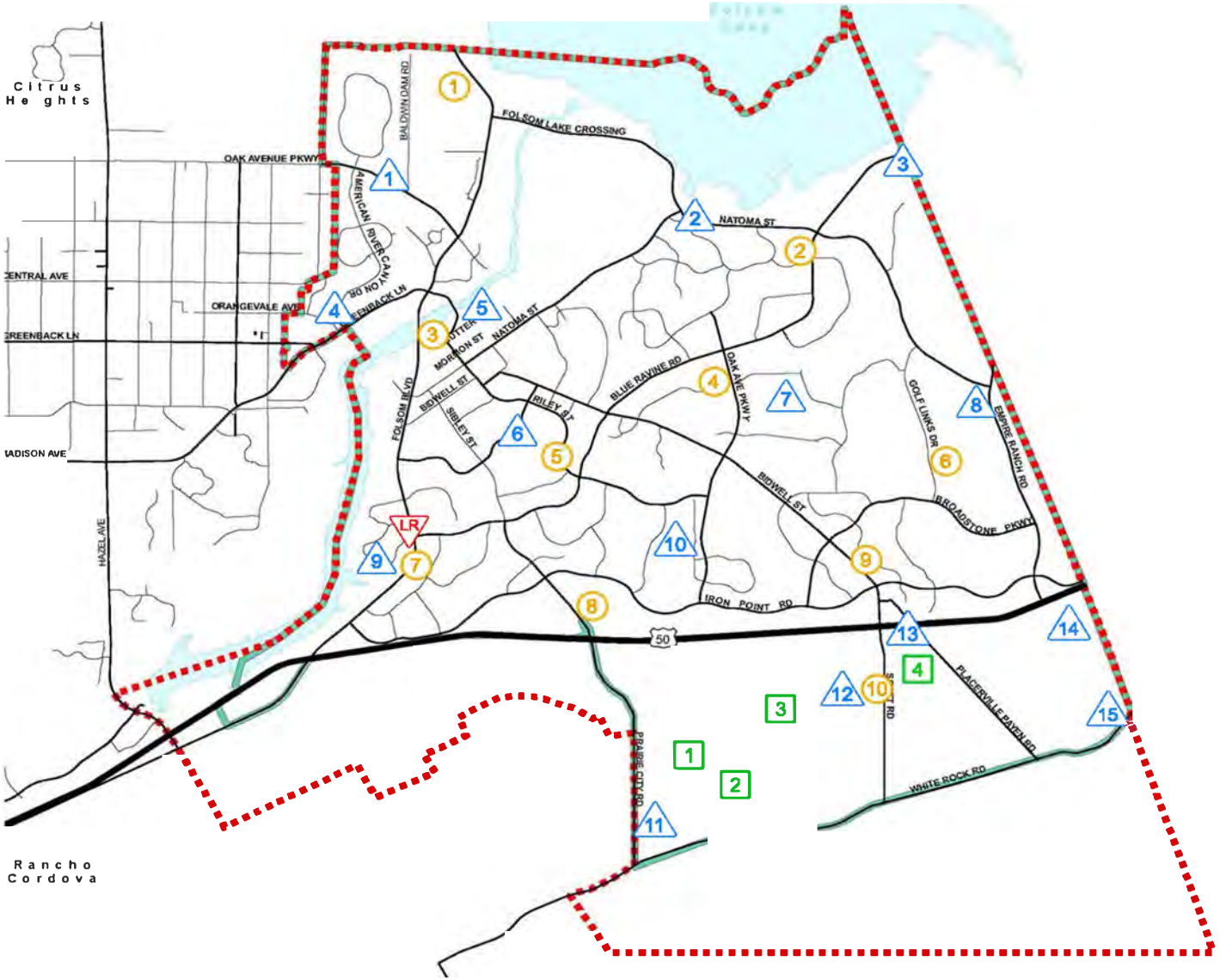

Figure 15-3

City of Folsom

Noise and Vibration Monitoring Sites

2035 General Plan Planning Area

Folsom City Boundary

Ambient Noise Measurement Sites

Vibration Measurement Sites

Aircraft Monitoring Sites

Light Rail Noise and Vibration Monitoring

N

100
25
10
ACRES

0 0.5 1 2

Miles

Created by
Planning Partners 2018.

Additional Sources:
City of Folsom, 2017;
County of Sacramento, 2017.

Although the Mather 60 dB CNEL noise contour is located well outside of the City of Folsom, Mather Airport aircraft overflights of the city have been a source of controversy in the city. The Mather Airport Aircraft Overflight Noise Group, a citizen working group chartered by the Sacramento County Board of Supervisors, was developed to identify potential actions that could reduce the impacts of noise from aircraft operating to or from Mather Airport.

This collaborative regional forum forwarded 33 recommendations to Sacramento County, of which 30 have been accepted for implementation by the Sacramento County Airport System. An additional 12 recommendations forwarded by Sacramento County Airport System staff have been implemented or are planned to be in the future. Implementation of the accepted measures will reportedly enhance noise compatibility in the vicinity of Sacramento Mather Airport and reduce the impacts of aircraft noise on the residents and citizens of the County of Sacramento and surrounding jurisdictions.

To quantify the noise generation of individual aircraft overflights within the City of Folsom, long-term, single-event, aircraft noise surveys were conducted by Bollard Acoustical Consultants, Inc. (BAC) in 2015 and 2016 at the locations shown on Figure 15-3. The purposes of the noise surveys were to evaluate the potential for sleep disturbance resulting from such overflights.

The results of those noise surveys, which included measurement of 226 aircraft overflights over a cumulative noise monitoring period of 300 hours (12.5 days), indicated that the probability of awakening during nighttime aircraft overflights ranged from 1.4 to 2.0 percent using the American National Standards Institute (ANSI) methodology for estimating the likelihood of behavioral awakenings (ANSI S12.9 2008).

A study entitled Mather Airport Nighttime Awakening Analysis was prepared by ESA in December 2013 (revised April 2014) as part of the Mather Airport Master Plan Update. This analysis utilized the same ANSI methodology for prediction of sleep disturbance using the Integrated Noise Model (INM) files used to develop CNEL contours for the Mather Airport Master Plan. The awakenings analysis utilized an assumed 15.5 existing nighttime aircraft operations and 26 nighttime aircraft operations for the year 2035 proposed master plan project condition. This study reported slightly higher probabilities of awakening for future Mather Airport operations than the BAC study.

Stationary Sources

Existing and permitted future stationary sources of noise in and around the city generally include a mix of commercial and light-industrial sources, including the City's water treatment plant, corporation yard, commercial loading dock, heating, ventilating and air-conditioning (hvac) equipment, car washes, auto maintenance facilities, shops, metal fabricating shops, shopping centers, drive-up windows, car washes, loading docks, batch plants, recycling centers, sand and gravel operations, special events such as concerts and fireworks, and activities at athletic facilities.

The following large facilities are sources of noise that may potentially affect the 2035 Plan Evaluation Area:

Aerojet General Corporation

The Aerojet campus is located south of Highway 50 between Mercantile Drive and Prairie City Road southwest of the city. Primary noise-generating activities at this facility have historically been associated with the large scale testing of rockets and high-performance aircraft engines for use in

military and aerospace applications. This large scale testing has been discontinued at this site and has been moved to Edwards Air Force Base, but could potentially occur in the future at a time of Aerojet's choice. There are now occasional smaller scale rocket engine tests that occur 10 to 12 times a year with test durations of one to two minutes. Aerojet provides notification to the public and local agencies in advance of this testing. If a large scale testing is ever performed, Aerojet engages in major public outreach with changeable sign boards on roads and other notification of the general public. In recent years Aerojet has had no issues with noise complaints from public (Murphy, personal communication).

Additional on-site noise sources associated with this facility include industrial operations such as manufacturing, cleaning, maintenance, heating and cooling, and pollution control activities. Based on prior noise studies conducted at Aerojet, noise from these additional noise sources were not found to exceed County noise standards at nearby off-site receptors (Folsom 2011).

Teichert Quarry

The Teichert Quarry site is located on the east side of Scott Road approximately 5,000 feet south of White Rock Road.

According to a Teichert representative (Smith, pers. comm. 2018), operations at the quarry are anticipated to commence in approximately 2020. The permit for the hard rock quarry is for the mining, processing and load-out of aggregate products but the site is not permitted for the manufacture of asphaltic or Portland cement concrete. While processing will ultimately occur at the quarry site, initial operations will involve transport of mined resource via conveyor to Teichert's Grantline plant for processing and sales. Hours of mining operations at the site will normally be from 6 a.m. to 10 p.m. Monday through Friday and 6 a.m. to 3 p.m. on Saturday. However, the site is permitted for 24-hour processing and transport (load-out) of materials as needed. Annual production will depend on market demand, ranging from 500,000 tons/year initially up to 3.3 million tons per year.

Noise modeling prepared for the Teichert Quarry Project DEIR (Sacramento County 2008) indicates that mining and processing noise levels are predicted to be approximately 25 dBA Leq north of White Rock Road, which is well below measured existing ambient noise levels within the Folsom 2035 Plan Evaluation Area. However, project-generated heavy truck traffic would contribute to the local traffic noise environment.

Ambient noise monitoring conducted for the Teichert Quarry project provides additional information on ambient noise levels in Folsom. Table 15-4 summarizes the findings, and Figure 15-4 shows the location of the Teichert Quarry ambient monitoring stations.

Table 15-4 Long-term Ambient Noise Monitoring Conducted for the Teichert Quarry Project

Site	Date	Ldn
T-1	Friday, June 1, 2001	62
	Saturday, June 2, 2001	58
	Sunday, June 3, 2001	65
	Monday, June 4, 2001	62
	Tuesday, June 5, 2001	62
T-4	Friday, June 1, 2001	56
	Saturday, June 2, 2001	55
	Sunday, June 3, 2001	55
	Monday, June 4, 2001	55
	Tuesday, June 5, 2001	57
T-5	Thursday, Feb 27, 2003	52
	Friday, Feb 28, 2003	51
	Saturday, March 1, 2003	54
	Friday, March 2, 2001	56

Source: Sacramento County 2008.

The results in Table 15-4 show sound levels in excess of the City's land use compatibility standard for residential uses (60 L_{dn}) at Position T-1. This indicates that any new residential development in this area could be exposed to traffic noise in excess of 60 L_{dn}, although this may affect little or none of the area within Folsom city limits. Results at Position T-5 within the city limits indicate noise levels that are compatible with residential uses.

Prairie City State Vehicular Recreational Area

The Prairie City State Vehicular Recreational Area (SVRA) is located south of the city about three miles south of Highway 50. The Prairie City SRVA is a facility managed by the California Department of Parks and Recreation (CDPR) that serves recreational and competition users of off-road motorcycles, four wheel drive vehicles, and all-terrain vehicles (ATVs). The park is divided into areas that cater separately for four-wheel drive vehicles, motorcycles and ATVs, motocross, and off-road racing (CDPR 2016).

Noise emissions from recreational off-road vehicles are governed in California by Assembly Bill (AB) 2274, Chapter 563, enacted in September 2002, and enforced by CDPR. AB 2274 limits the noise level produced by recreational off-road vehicles manufactured after 1998 and vehicles defined as competition vehicles that were manufactured after 1986 to 96 dB at 20 inches from the exhaust pipe.

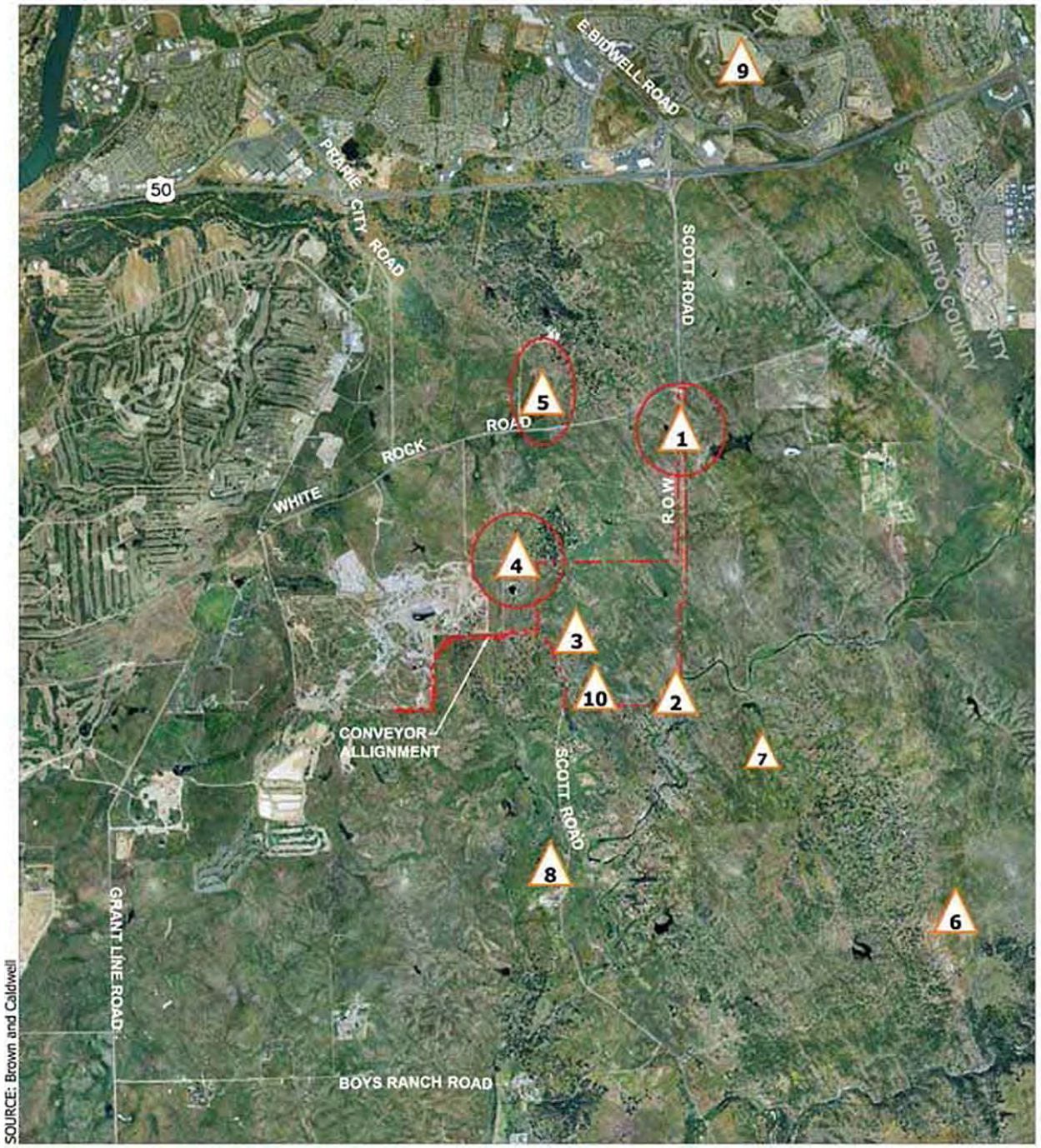

Figure 15-4

City of Folsom

Teichert Quarry Noise Measurement Locations

N

100
25
10
ACRES

0 0.5 1 2

Miles

Created by
Planning Partners 2018.

Additional Sources:
Teichert Quarry FEIR, 2010.

During the ambient noise survey conducted for the Folsom Plan Area Specific Plan EIR/EIS, off-road vehicles were audible in the FPASP area. However, noise attributable to the operation of off-road vehicles in the park could not be isolated and measured due to White Rock Road traffic noise levels that dominated the immediate noise environment (Folsom 2011).

Noise level monitoring was conducted during Prairie City SVRA race events in 2013 and 2014 for the Prairie City Vehicular Recreation Area Draft Environmental Impact Report (CDPR 2016). The noise monitoring locations are shown on Figure 15.5. The noise measurement results are provided in Table 15-5.

Table 15-5 Prairie City SVRA Noise Measurement Results

Site	Date and Time		Hourly Leq, dBA	
	From	To	8 a.m. – 6 p.m.	7 p.m.–7 a.m.
Typical Conditions (first round of measurements, April 5–8, 2013)				
LT-01	4 p.m. April 5, 2013	3 p.m. April 6, 2013	59	41
	4 p.m. April 6, 2013	3 p.m. April 7, 2013	60	40
	4 p.m. April 7, 2013	3 p.m. April 8, 2013	58	44
LT-02	5 p.m. April 5, 2013	4 p.m. April 6, 2013	49	47
	5 p.m. April 6, 2013	4 p.m. April 7, 2013	52	48
	5 p.m. April 7, 2013	4 p.m. April 8, 2013	67	56
Hangtown Motocross Classic (second round of measurements, May 15–21, 2013)				
LT-01	3 p.m. May 15, 2013	2 p.m. May 16, 2013	65	61
	3 p.m. May 16, 2013	2 p.m. May 17, 2013	67	59
	3 p.m. May 17, 2013	2 p.m. May 18, 2013	69	42
	3 p.m. May 18, 2013	2 p.m. May 19, 2013	63	40
	3 p.m. May 19, 2013	2 p.m. May 20, 2013	47	39
	3 p.m. May 20, 2013	2 p.m. May 21, 2013	45	43
LT-02	3 p.m. May 15, 2013	2 p.m. May 16, 2013	64	50
	3 p.m. May 16, 2013	2 p.m. May 17, 2013	49	48
	3 p.m. May 17, 2013	2 p.m. May 18, 2013	49	48
	3 p.m. May 18, 2013	2 p.m. May 19, 2013	51	49
	3 p.m. May 19, 2013	2 p.m. May 20, 2013	48	50
	3 p.m. May 20, 2013	2 p.m. May 21, 2013	48	50
4x4 Track during the NorCal Rock Racing (third round of measurements, September 5–8, 2014)				
LT-03	4 p.m. September 5, 2014	3 p.m. September 6, 2014	57	47
	4 p.m. September 6, 2014	3 p.m. September 7, 2014	49	37
	4 p.m. September 7, 2014	3 p.m. September 8, 2014	40	37
LT-04	4 p.m. September 5, 2014	3 p.m. September 6, 2014	60	55
	4 p.m. September 6, 2014	3 p.m. September 7, 2014	59	57
	4 p.m. September 7, 2014	3 p.m. September 8, 2014	58	55

Note: Noise measurement sites are shown on Figure 15-5.

Source: California Department of Parks and Recreation 2015; Data compiled by AECOM in 2013 and 2014.

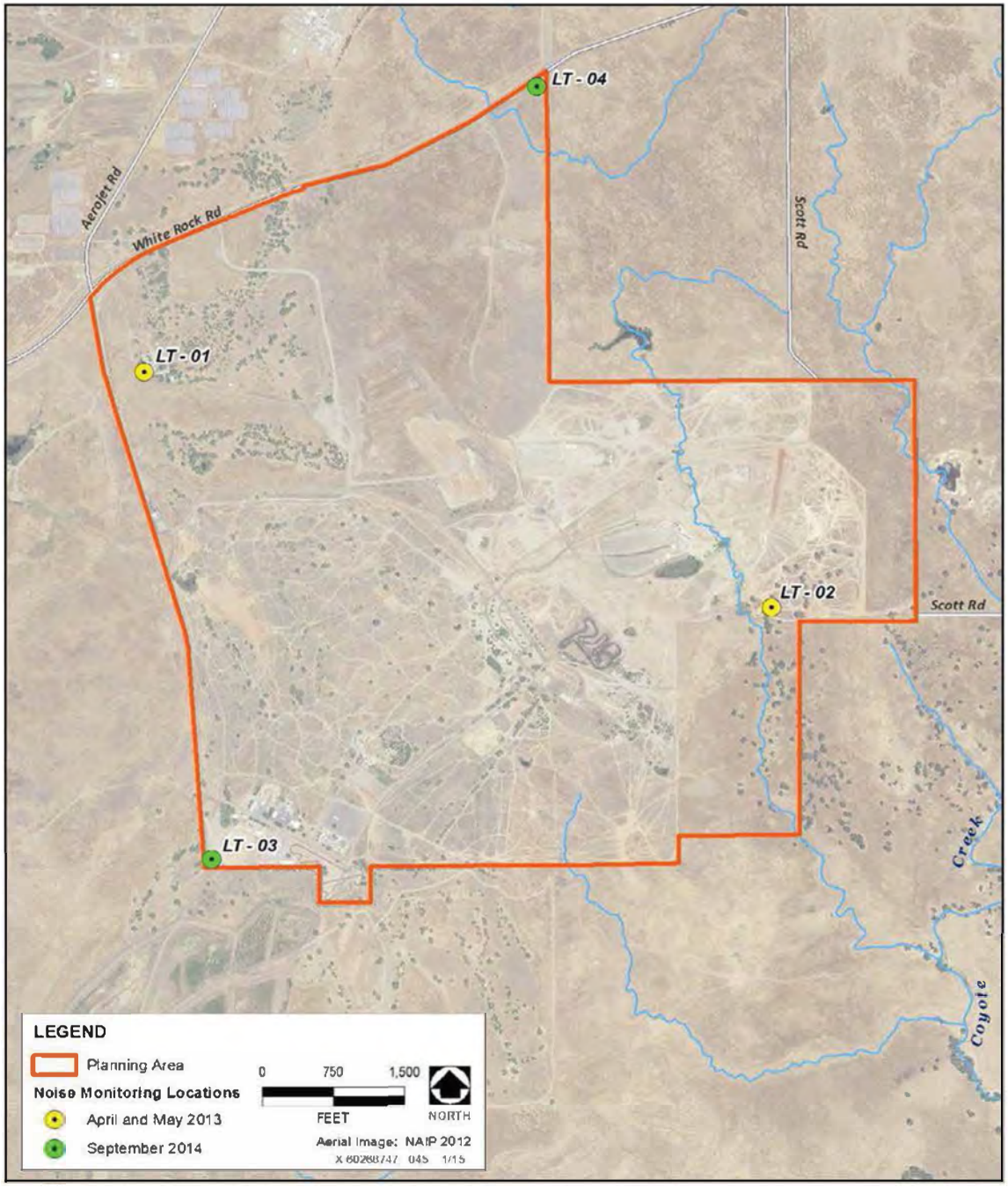

Figure 15-5

City of Folsom

Prairie City SVRA Noise Measurement Sites

N

100
25
10
ACRES

0 0.5 1 2

Miles

Created by
Planning Partners 2018.

Additional Source:
AECOM 2014.

Parks and School Playing Fields

There are several park and school uses within the 2035 Plan Evaluation Area, spread throughout the city. Noise generated by these uses depends on the ages and numbers of people using any respective facility at a given time, and the types of activities users are engaged in. School playing field activities tend to generate more noise than those of neighborhood parks, as the intensity of school playground usage tends to be much higher. At a distance of 100 feet from an elementary school playground being used by 100 students, average and maximum noise levels of 60 and 75 dB, respectively, can be expected. At organized events such as high-school football games with large crowds and public address systems, the noise generation is often significantly higher. As with service commercial uses, the noise generation of parks and school playing fields is variable.

COMMUNITY NOISE SURVEY

A community noise survey was conducted in December 2017 to provide a sampling of ambient noise levels throughout the city. Noise monitoring sites were selected to be representative of typical residential and park areas within the city. The monitoring consisted of long-term (24-hour) samples at 10 locations. This data was supplemented with ambient noise level data recently collected (2016) for proposed residential developments in the area south of Highway 50. Figure 15-3 shows the locations of the community noise survey sites.

All noise monitoring was conducted using Larson Davis Model 820, Lxt and 831 Type I sound level meters. The calibration of each meter was checked before and after each measurement. The systems comply with all pertinent requirements of the American National Standards Institute (ANSI) for Type I sound level meters. Table 15-6 summarizes the long-term monitoring results.

Table 15-6 City of Folsom Long-Term Noise Measurement Results

Site	Date	L_{dn}, dB
1	12/19/2017	50
2	12/19/2017	55
3	12/19/2017	55
4	12/19/2017	61
5	12/19/2017	55
6	12/19/2017	52
7	12/19/2017	49
8	12/19/2017	54
9	12/19/2017	52
10	12/19/2017	59
11	7/1/2015	52
12	6/16/2015	51
13	6/1/2017	57
14	2/25/2017	58
15	2/25/2017	58

Source: BAC 2017; City of Folsom Community Long-Term Noise Measurement Results, 2015-2017.

The ambient noise measurement results in Tables 15-2 through 15-6 show sound levels approaching or exceeding the City's land use compatibility standard for residential uses (60 L_{dn}) at some locations in the city. This indicates that new residential development in some areas could be exposed to noise in excess of 60 L_{dn}.

COMMUNITY VIBRATION SURVEY

A community vibration survey was conducted in December 2017 to provide a sampling of ambient vibration levels throughout the city. Vibration monitoring sites were selected to be representative of typical residential and park areas within the city. The monitoring consisted of short-term (15-minute) samples at 10 locations. In addition, vibration monitoring of single-event Regional Transit light-rail passbys were conducted at the site denoted as "LR" on figure 15.3 on December 9th . Those measurements consisted of vibration monitoring of 8 separate light rail passbys from a measurement position 100 feet from the train tracks. Figure 15-3 shows the locations of the community vibration survey sites.

All vibration monitoring was conducted using Larson Davis Model Lxt Type I sound level meters fitted with PCB Electronics velocity transducers. The vibration monitoring system was calibrated prior to use at each site. The vibration measurement system complies with all pertinent requirements of the American National Standards Institute (ANSI). Table 15-7 summarizes the vibration monitoring results.

Table 15-7 City of Folsom Short-Term Vibration Measurement Results

Site	Date	VdB, RMS
1	12/19/2017	31
2	12/19/2017	34
3	12/19/2017	28
4	12/19/2017	37
5	12/19/2017	36
6	12/19/2017	29
7	12/19/2017	39
8	12/19/2017	30
9	12/19/2017	29
10	12/19/2017	29
LR	12/19/2017	55 – 67 (Average = 59)

Source: BAC 2017; City of Folsom Community Short-Term Vibration Measurement Results, 2017.

The measured vibration levels were below the threshold of perception at each measurement location. These results indicate that vibration levels are not significant within the typical park and residential areas within the City of Folsom.

15.2.4 REGULATORY SETTING

The following regulations of federal, state, and local agencies govern various aspects of noise and vibration. These regulations are summarized below and discussed in detail in Appendix C.

FEDERAL LAWS AND REGULATIONS

The federal Noise Control Act of 1972 (Public Law 92 574) established a requirement that all federal agencies administer their programs to promote an environment free of noise that would jeopardize public health or welfare. The U.S. Environmental Protection Agency (EPA) was given the responsibility for:

- providing information to the public regarding identifiable effects of noise on public health and welfare,
- publishing information on the levels of environmental noise that will protect the public health and welfare with an adequate margin of safety,
- coordinating federal research and activities related to noise control, and
- establishing federal noise emission standards for selected products distributed in interstate commerce.

The Noise Control Act also directed that all federal agencies comply with applicable federal, state, interstate and local noise control regulations.

Environmental Protection Agency

The Environmental Protection Agency (EPA) recommended in 1974 that Day/Night Noise Level (L_{dn}) should be kept below 55 A-Weighted Sound Level (dBA) in residential areas "to protect public health and welfare with an adequate margin of safety" (EPA 1974). This level relates to the level normally present in a typical suburban community of about 1,995 people per square mile. This goal did not account for economic or technological feasibility and was not designed as a regulation. The study recognized that many people lived in both quieter and noisier areas. The EPA guideline has methodologies for evaluating other size communities, as well as "correction" factors used to adjust for seasonal operations, the existence of pure tones and impulse sounds.

U.S. Department of Housing and Urban Development

The U.S. Department of Housing and Urban Development (HUD) has established guidelines for evaluating noise impacts on residential projects seeking financial support under various grant programs. 23 CFR 772 and 24 CFR 51(B) describe HUD policies and programs to protect citizens against excessive noise in their communities and places of residence. These policies and programs apply to development projects with HUD involvement. Section 51.101 states the HUD goal that the interior noise level in residences should not exceed 45 dB Ldn. The normally acceptable noise level for exterior uses is 65 dB Ldn.

Federal Transit Administration (FTA)

Federal Transit Administration procedures for the evaluation of noise from transit projects are specified in the document titled Transit Noise and Vibration Impact Assessment (FTA 2006). The FTA noise impact criteria group noise-sensitive land uses into the following three categories:

- Category 1: Buildings or parks where quiet is an essential element of their purpose.
- Category 2: Residences and buildings where people normally sleep. This includes residences, hospitals and hotels where nighttime sensitivity is assumed to be of utmost importance.
- Category 3: Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, churches and active parks.

L_{dn} is used to characterize noise exposure for residential areas (Category 2). For other noise-sensitive land uses, such as outdoor amphitheaters and school buildings (Categories 1 and 3), the maximum 1-hour Leq during the facility's operating period is used.

Federal Highway Administration

The Federal Highway Administration uses a one-hour equivalent (time-average) sound level criteria of 67 dBA to determine when to consider noise barriers for new highway projects. Before actually building barriers, the Federal Highway Administration requires that the project further qualify based on the cost and benefit of the barrier per protected home.

Federal Railroad Administration

The Federal Railroad Administration (FRA) noise standards are the same as those applied by FTA as described above.

Federal Aviation Administration

14 CFR Part 150, "Airport Noise Compatibility Planning," prescribes the procedures, standards and methodology to be applied airport noise compatibility planning activities. Table B-5 summarizes land use compatibility standards applied by the Federal Aviation Administration (FAA).

CALIFORNIA LAWS AND REGULATIONS

California General Plan Guidelines

The California Governor's Office of Planning and Research published the current General Plan Guidelines in 2017. These advisory guidelines serve as valuable reference for cities and counties in the preparation of local general plans. The Office of Planning and Research aims to realize the sustainable developmental goals of protecting the environment, maintaining a healthy economy, and ensuring equitable treatment of all people.

California Environmental Quality Act

The state legislature adopted the California Environmental Quality Act (CEQA) as a result of a public mandate for thorough environmental analysis of projects that might affect the environment. CEQA considers excessive noise to be an environmental impact. Implementation of CEQA ensures that during the decision making stage of development, City officials and the general public assess the noise impacts associated with public and private development projects.

California Noise Insulation Standards (Title 24)

The California Commission of Housing and Community Development officially adopted noise standards in 1974. In 1988, the Building Standards Commission approved revisions to the standards (Title 24, Part 2, California Code of Regulations). As revised, Title 24 establishes an interior noise standard of 45 dBA for residential space (Community Noise Equivalent Level [CNEL] or L_{dn}). Acoustical studies must be prepared for residential structures that are to be located within noise contours of 60 dBA or greater from freeways, major streets, thoroughfares, rail lines, rapid transit lines or industrial noise sources. The studies must demonstrate that the building is designed to reduce interior noise to 45 dBA or lower.

California Division of Aeronautics Noise Standards

Title 21 Chapter 5000 of the CCR identifies noise compatibility standards for airport operations. Section 5014 of the code states that the standard for the acceptable level of aircraft noise for persons living in the vicinity of airports is established to be a community noise equivalent level (CNEL) of 65 dB. Land uses such as residences, schools, hospitals, or places of worship exposed to aircraft noise exceeding 65 dB CNEL are deemed to be in a noise-impact area. This standard forms the basis for the limitation that no proprietor of an airport shall operate an airport such that incompatible land uses as those described above lie within a noise-impact area, unless the operator has applied for or received a variance.

LOCAL LAWS AND REGULATIONS

The City of Folsom has adopted ordinances and standard conditions to protect citizens of Folsom from the annoying and harmful effects of noise, and to protect the economic base of Folsom by preventing encroachment of noise-sensitive uses into noise impacted areas. These requirements are found in the Folsom Municipal Code (FMC) and in the City's Standard Construction Specifications.

City of Folsom Noise Ordinance

In 1993 the City of Folsom adopted a Noise Control Ordinance that was codified as Chapter 8.42 in the Municipal Code. Unlike the General Plan Noise Element, the Noise Ordinance is oriented toward the regulation of individual noise events rather than community background noise levels of concern to the Noise Element. The Noise Ordinance specifies noise measurement criteria, allowable exterior and interior noise standards, noise source exemptions and special situations, and penalties for violation.

City of Folsom Zoning Code

The Folsom Municipal Code also contains noise regulations for specific land uses in Chapter 17 – Zoning. Those chapters are as follows:

17.24.030.B Adult Related Businesses: No loudspeakers or sound equipment shall be used by an adult related business for amplification of sound to a level discernible by the public beyond the walls of the building or portion thereof in which the adult related business is conducted.

17.35.040 Agricultural-Reserve District: Applications for use permits will be reviewed for compatibility with the long-term uses designated for the area on the general plan. Uses which have the potential to emit noise and/or odor beyond the property lines will not be approved.

17.52.520.A.1.b Historic District - River way subarea special use and design standards: Uses which may produce visual, noise, odor, parking, or other effects which may be objectionable to surrounding uses require a conditional use permit from the historic district commission.

17.61.070.E Home Occupations – Nuisances: No activity which produces noise, smoke, odors, glare, electrical interference, or vibrations discernible beyond the site is allowed.

17.110.060.3 Condominium conversion requirements – Vibration Transmission: All permanent mechanical equipment (such as motors, compressors, pumps and compactors) which are determined by the building official to be a source of structural vibration or structural-borne noise shall be

vibration-isolated with inertia blocks or bases or vibration isolator springs in accordance with the standards in effect at the time the last building was constructed on the site.

17.110.060.4 Condominium conversion requirements – Noise Standards: The structures shall conform to all interior and exterior sound transmission standards of the California Code of Regulations and applicable sections of the California Building Code. Where these standards cannot be feasibly met, in the discretion of the building official, reduced requirements may be allowed by the building official and the subdivider shall include notice of the deficiency in the final physical elements report.

17.114.10 Marijuana Cultivation: The marijuana cultivation area shall not result in a nuisance or adversely affect the health, welfare, or safety of the resident or nearby residents by creating dust, glare, heat, noise, noxious gases, odors, smoke, traffic, vibration, or other impacts, or be hazardous due to use or storage of materials, processes, products or wastes.

17.114.10.C Marijuana Cultivation: A repeated disruption to the free passage of persons or vehicles in the neighborhood, excessive noise which is disturbing to people of normal sensitivity on adjacent or nearby property or areas open to the public.

17.114.10.D Marijuana Cultivation: Any other impacts on the neighborhood which are disruptive of normal activity in the area including, but not limited to, grow lighting visible outside the dwelling, excessive vehicular traffic or parking occurring at or near the dwelling, and excessive noise emanating from the dwelling.

Standard Construction Specifications

The City has established Standard Construction Specifications, General Requirements. The standard construction specifications are required to be adhered to by any contractor constructing a public or private project within the city. Standards regarding the noise environment are summarized below.

6.09 *Sound Control* – Requires that all construction work comply with all noise level rules, regulations, and ordinances, and that all construction vehicles be equipped with a muffler to control sound levels.

7.23 *Weekend, Holiday, and Night Work* – Prohibits construction work during evening hours, or on Sunday or holidays, to reduce noise and other construction nuisance effects.

Folsom Plan Area/Russell Ranch Adopted Mitigation Measures

Mitigation measures adopted by the City during its approval of the Folsom Plan Area Specific Plan and the Russell Ranch project related to noise include:

Folsom Plan Area Specific Plan EIR/EIS

- Mitigation Measure 3A.11-1: Implement Noise-Reducing Construction Practices, Prepare and Implement a Noise Control Plan, and Monitor and Record Construction Noise near Sensitive Receptors.
- Mitigation Measure 3A.11-3: Implement Measures to Prevent Exposure of Sensitive Receptors to Groundborne Noise or Vibration from Project Generated Construction Activities.

- Mitigation Measure 3A.11-4: Implement Measures to Prevent Exposure of Sensitive Receptors to Increases in Noise from Project-Generated Operational Traffic on Off-site and On-Site Roadways.
- Mitigation Measure 3A.11-5: Implement Measures to Reduce Noise from Project-Generated Stationary Sources.

Russell Ranch Project EIR and Initial Study

- Mitigation Measure 3A.11-1: Implement Noise-Reducing Construction Practices, Prepare and Implement a Noise Control Plan, and Monitor and Record Construction Noise near Sensitive Receptors.
- Mitigation Measure 4.6-3(a): Design Necessary Noise Barriers.
- Mitigation Measure 4.6-3(b): Prepare a detailed analysis of interior noise levels for residences exposed to Highway 50 traffic noise.
- Mitigation Measure 4.6-3(c): Demonstrate that mechanical ventilation shall be installed in all residential uses to allow residents to keep doors and windows closed, as desired for acoustical isolation.

15.2.5 PROPOSED GENERAL PLAN POLICIES

The following goals and policies from the proposed 2035 General Plan address noise and vibration:

Goal SN 6.1: Protect the citizens of Folsom from the harmful effects of exposure to excessive noise and to protect the economic base of Folsom by preventing the encroachment of incompatible land uses within areas affected by existing noise-producing uses.

Policy SN 6.1.1, Noise Mitigation Strategies. Develop, maintain, and implement strategies to abate and avoid excessive noise exposure in the city by requiring that effective noise mitigation measures be incorporated into the design of new noise-generating and new noise-sensitive land uses.

Policy SN 6.1.2, Noise Mitigation Measures. Require effective noise mitigation for new development of residential or other noise sensitive land uses to reduce noise levels as follows:

1. For noise due to traffic on public roadways, railroad line operations, and aircraft: achieve compliance with the performance standards within Table 15-9 (GP Table SN-2).
2. For non-transportation-related noise sources: achieve compliance with the performance standards contained within Table 15-8 (GP Table SN-1).
3. If compliance with the adopted standards and policies of the Safety and Noise Element will not be achieved even with feasible mitigation measures, a statement of overriding considerations for the project must be provided.

Policy SN 6.1.3, Acoustical Analysis. Require an Acoustical Analysis prior to approval of proposed development of residential or other noise-sensitive land uses in a noise-impacted area.

Policy SN 6.1.4, Noise and Project Review. Develop, maintain, and implement procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are implemented as part of the project review and building permit processes. The appropriate time

for requiring an acoustical analysis would be as early in the project review process as possible so that noise mitigation may be an integral part of the project design.

Policy SN 6.1.5, Automobile Noise. Encourage the enforcement of the existing section of the California Vehicle Code relating to adequate vehicle mufflers and modified exhaust systems.

Policy SN 6.1.6, Aircraft Noise. Strive to reduce noise from aircraft travel over Folsom.

Policy SN 6.1.7, Noise Barriers. If noise barriers are required to achieve the noise level standards contained within this Element, the City shall encourage the use of these standards:

1. Noise barriers exceeding six feet in height relative to the roadway should incorporate an earth berm so that the total height of the solid portion of the barrier (such as masonry or concrete) does not exceed six feet.
2. The total height of a noise barrier above roadway elevation should normally be limited to 12 feet.
3. The noise barriers should be designed so that their appearance is consistent with other noise barriers in the project vicinity.

Policy SN 6.1.8, Vibration Standards. Require construction projects and new development anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby noise-sensitive uses based on Federal Transit Administration criteria as shown in Table 15-10 (GP Table SN-3)

Table 15-8 (GP Table SN-1): Noise Compatibility Standards

Land Use	Exterior Noise Level Standard for Outdoor Activity Areas[a]	Interior Noise Level Standard	
	Ldn/CNEL, dB	Ldn/CNEL, dB	Leq, dB[b]
Residential (Low Density Residential, Duplex, Mobile Homes)	60[c]	45	N/A
Residential (Multi Family)	65[d]	45	N/A
Transient Lodging (Motels/Hotels)	65[d]	45	N/A
Mixed-Use Developments	70	45	N/A
Schools, Libraries, Churches, Hospitals, Nursing Homes, Museums	70	45	N/A
Theaters, Auditoriums	70	N/A	35
Playgrounds, Neighborhood Parks	70	N/A	N/A
Golf Courses, Riding Stables, Water Recreation, Cemeteries	75	N/A	N/A
Office Buildings, Business Commercial and Professional	70	N/A	45
Industrial, Manufacturing, and Utilities	75	N/A	45

a 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 Community Development Department.

b Outdoor activity areas for residential developments are considered to be the back yard patios or decks of single-family residential units, and the patios or common areas where people generally congregate for multifamily development. Outdoor activity areas for nonresidential developments are considered to be those common areas where people generally congregate, including outdoor seating areas. Where the location of outdoor activity areas is unknown, the exterior noise standard shall be applied to the property line of the receiving land use.

c As determined for a typical worst-case hour during periods of use.

d 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 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.

e Where it is not possible to reduce noise in outdoor activity areas to 65 dB, Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior level of up to 70 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.

Source: BAC 2017.

Table 15-9 (GP Table SN-2): Noise Level Standards from Stationary Sources

Noise Level Descriptor	Daytime (7:00 A.M. to 10:00 P.M.)	Nighttime (10:00 P.M. to 7:00 A.M.)
Hourly L_{eq}, dB	55	45
Maximum level, dB	70	65

Note: Noise levels are measured at the property line of the noise-sensitive use.
Source: BAC 2017.

Table 15-10 (GP Table SN-3): Groundborne Vibration Impact Criteria for General Assessment

Land Use Category	Impact Levels (VdB)		
	Frequent Events[a]	Occasional Events[b]	Infrequent Events[c]
Category 1: Buildings where vibration would interfere with interior operations	65[d]	65[d]	65[d]
Category 2: Residences and buildings where people normally sleep	72	75	80
Category 3: Institutional land uses with primarily daytime uses	75	78	83

Vibration levels are measured in or near the vibration-sensitive use.

a. "Frequent Events" is defined as more than 70 vibration events of the same source per day.

b. "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

c. "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.

This criterion limit is based on levels that are acceptable for most moderately-sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels

Source: Federal Transit Administration, Transit Noise Impact and Vibration Assessment, May 2006.

15.2 ENVIRONMENTAL EFFECTS

15.2.1 SIGNIFICANCE CRITERIA

As set forth in Appendix G, Question XII of the State CEQA Guidelines, the following criteria have been established to quantify the level of significance of an adverse effect to noise and vibration evaluated pursuant to CEQA. A project would result in significant noise or vibration impacts if the project would result in any of the following:

- Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies. (*XII.a*)
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. (*XII.b*)

- A substantial permanent increase in ambient noise levels in the project vicinity above levels without the project. (*XII.c*)
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. (*XII.d*)
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, exposure of people residing or working in the area to excessive noise levels resulting from the proposed project. (*XII.e*)
- For a project within the vicinity of a private airstrip, exposure of people residing or working in the project area to excessive noise levels. (*XII.f*)

CEQA guidelines XII.c and XII.d above require identification of significant noise impacts if the project would result in substantial permanent or temporary increases in noise. However, the CEQA guidelines do not specify the numeric noise level increase that would be considered substantial.

It is generally recognized that an increase of at least 3 dB for similar noise sources is usually required before most people will perceive a change in noise levels, and an increase of 6 dB is required before the change will be clearly noticeable (Egan 1988).

The Federal Interagency Commission on Noise (FICON) has developed a graduated scale for use in the assessment of project related noise level increases. Table 15-11 was developed by FICON as a means of developing thresholds for impact identification for project related noise level increases. The FICON standards have been used extensively in recent years in the preparation of noise sections of Environmental Impact Reports that have been certified in many California Cities and Counties.

The rationale for the graduated scale used in the FICON standards is that test subjects' reactions to increases in noise levels varied depending on the starting level of noise. Specifically, with lower ambient noise environments, such as those below 60 dB Ldn, a larger increase in noise levels was required to achieve a negative reaction than was necessary in more elevated noise environments.

The use of the FICON standards are considered conservative relative to thresholds used by other agencies in the State of California. For example, the California Department of Transportation (Caltrans) requires a project related traffic noise level increase of 12 dB for a finding of significance, and the California Energy Commission (CEC) considers project related noise level increases between 5-10 dB significant, depending on local factors. Therefore, the use of the FICON standards, which set the threshold for finding of significant noise impacts as low as 1.5 dB, provides a conservative approach to impact assessment.

Table 15-11 Significance of Changes in Cumulative Noise Exposure

Ambient Noise Level Without Project, Ldn	Increase Required for Significant Impact
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

Source: Federal Interagency Committee on Noise (FICON)

Based on the FICON research, as shown in Table 15-11, a 5 dB increase in noise levels due to a project is required for a finding of significant noise impact where ambient noise levels without the project are less than 60 dB Ldn. Where pre-project ambient conditions are between 60 and 65 dB Ldn, a 3 dB increase is applied as the standard of significance. Finally, in areas already exposed to higher noise levels, specifically pre-project noise levels in excess of 65 dB Ldn, a 1.5 dB increase is considered by FICON as the threshold of significance.

This graduated scale indicates that in quieter noise environments, test subjects tolerated a higher increase in noise levels due to a project before the onset of adverse noise impacts than did test subjects in louder environments.

According to the FICON study, if screening analysis shows that noise-sensitive areas will be at or above DNL 65 dB and will have an increase of DNL 1.5 or more, further analysis should be conducted. The FICON study also reported the following: Every change in the noise environment does not necessarily impact public health and welfare.

Audibility is not a test of significance according to CEQA. If this were the case, any project which added any audible amount of noise to the environment would be considered unacceptable according to CEQA. Because every physical process creates noise, whether by the addition of a single vehicle on a roadway, or a tractor in an agricultural field, the use of audibility alone as significance criteria would be unworkable. CEQA requires a substantial increase in noise levels before noise impacts are identified, not simply an audible change.

15.2.2 ANALYSIS METHODOLOGY

Because this Draft PEIR considers the impacts associated with adoption of the City of Folsom 2035 General Plan, including new noise policies, as well as the development of both noise sensitive and noise-generating land uses, the following methodology is employed: Noise impacts are identified for new noise-sensitive developments located within areas impacted by existing or future, aircraft, traffic, rail, industrial, or other significant noise sources. Noise impacts are also identified for noise-producing projects proposed near existing or proposed noise-sensitive areas. Noise impacts are also identified where implementation of the proposed General Plan policies pertaining to noise would themselves result in the exposure of people to excessive noise levels. Finally, noise impacts are evaluated by projecting traffic noise generation of the proposed General Plan roadways under year 2035 traffic forecasts and comparing those levels to existing conditions.

EVALUATION OF CHANGES IN TRAFFIC NOISE LEVELS RESULTING FROM THE PROJECT

To assess noise impacts due to project-related traffic increases on the local roadway network, traffic noise levels are predicted at a representative distance for both existing and cumulative conditions following implementation of the General Plan. Noise impacts are identified at existing noise-sensitive areas if the noise level increases that result from the project exceed the significance thresholds shown in Table 15-11.

To describe existing and projected noise levels due to traffic, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. The model is based upon the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the

acoustical characteristics of the site. The FHWA model was developed to predict hourly Leq values for free-flowing traffic conditions. To predict traffic noise levels in terms of Ldn, it is necessary to adjust the input volume to account for the day/night distribution of traffic.

Traffic volumes for the short-term and cumulative conditions and scenarios were obtained from DKS Associates and published Caltrans traffic counts. Figure 15-6 and Table 15-12 show the predicted future traffic noise levels on the local roadway network under General Plan 2035 conditions. Table 15-13 shows the increases in traffic noise levels on the local roadway network for existing and cumulative conditions that would result from the project. The table is provided in terms of Ldn at a standard distance of 100 feet from the centerlines of the project-area roadways.

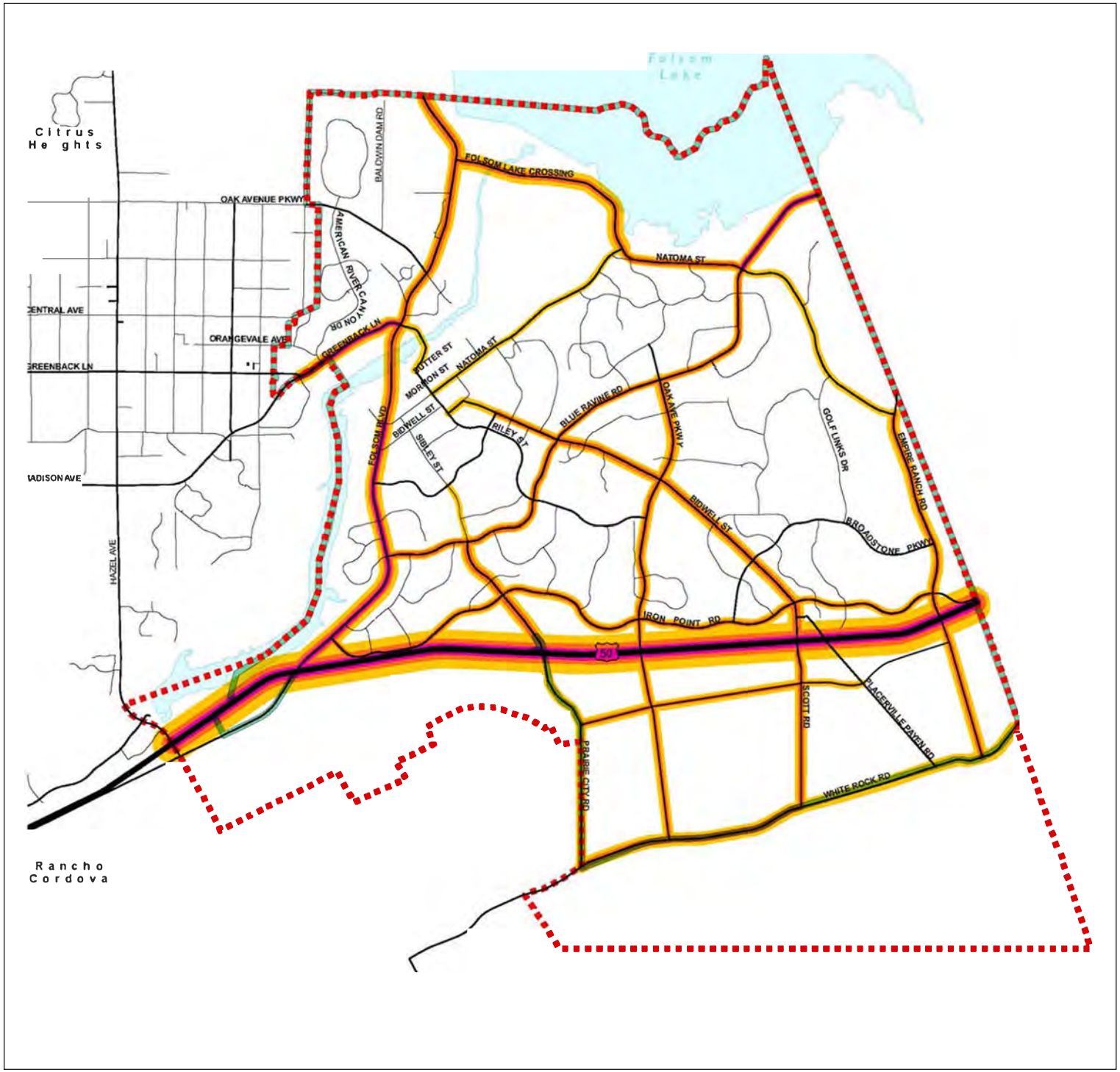

Figure 15-6

City of Folsom

Future Traffic Noise Contours

2035 General Plan Planning Area

Folsom City Boundary

Noise Contours

60 to 65 dB

65 to 70 dB

> 70 dB

N

100
25
10
ACRES

0 0.5 1 2

Miles

Created by Planning Partners 2018.

Additional Sources:
City of Folsom, 2017;
County of Sacramento, 2017.

Table 15-12 Traffic Data and Noise Modeling Results for Future (2035) Conditions

Roadway	From	To	Average Daily Traffic	Truck Percent	Posted Speed (mph)	Ldn at 100 feet from Centerline	Distance to Contour (feet)		
							70 dB Ldn	65 dB Ldn	60 dB Ldn
Folsom Auburn Rd	City Limit	Folsom Lake Crossing	56000	3	50	72	129	278	599
Folsom Auburn Rd	Folsom Lake Crossing	Oak Avenue Pkwy	33600	3	50	69	92	198	426
Folsom Auburn Rd	Oak Avenue Pkwy	Greenback Ln	40400	3	40	68	72	155	335
Oak Ave	Santa Juanita Ave	Folsom Auburn Rd	17000	3	45	65	49	106	227
Greenback Ln	Madison Ave	Folsom Auburn Rd	41100	5	50	71	121	260	560
Greenback Ln	Folsom Auburn Rd	Leidesdorff St	29100	3	35	65	47	101	218
Folsom Lake Crossing	Folsom Auburn Rd	E. Natoma St	38400	3	55	71	118	254	548
Folsom Blvd	Greenback Ln	Natoma St	36900	5	50	71	112	242	521
Folsom Blvd	Natoma St	Glenn Dr	37500	5	50	71	114	245	527
Folsom Blvd	Glenn Dr	Blue Ravine Rd	39800	5	50	71	118	254	548
Folsom Blvd	Blue Ravine Rd	Iron Point Rd	43300	5	55	72	144	310	668
Folsom Blvd	Iron Point Rd	US-50	58100	5	55	74	175	377	813
Sibley Street	Bidwell St	Glenn Dr	5900	3	30	57	14	30	64
Sibley Street	Glenn Dr	Blue Ravine Rd	14900	4	40	64	41	89	191
Prairie City Rd	Blue Ravine Rd	Iron Point Rd	37200	5	45	70	97	209	451
Prairie City Rd	Iron Point Rd	US-50	32700	5	50	70	104	223	481
Prairie City Rd	US-50	Alder Creek Pkwy	28200	4	55	70	102	220	474
Prairie City Rd	Alder Creek Pkwy	White Rock Rd	18400	4	55	68	77	166	357
Oak Avenue Pkwy	Blue Ravine Rd	East Bidwell St	26700	4	45	68	72	155	335
Oak Avenue Pkwy	East Bidwell St	Iron Point Rd	24000	2	45	67	60	129	278
Oak Avenue Pkwy	Iron Point Rd	US-50	46900	2	45	70	93	201	434
Oak Avenue Pkwy	US-50	Alder Creek Pkwy	30500	2	45	68	70	151	326
Oak Avenue Pkwy	Alder Creek Pkwy	White Rock Rd	20900	2	45	66	55	118	253
East Bidwell St	Riley St	Glenn Dr	22700	6	35	66	55	118	254
East Bidwell St	Glenn Dr	Blue Ravine Rd	29900	6	35	67	66	142	305
East Bidwell St	Blue Ravine Rd	Oak Avenue Pkwy	42800	5	45	70	107	230	495
East Bidwell St	Oak Avenue Pkwy	Broadstone Pkwy	43900	5	45	71	108	234	503

Table 15-12 Traffic Data and Noise Modeling Results for Future (2035) Conditions

Roadway	From	To	Average Daily Traffic	Truck Percent	Posted Speed (mph)	Ldn at 100 feet from Centerline	Distance to Contour (feet)		
							70 dB Ldn	65 dB Ldn	60 dB Ldn
East Bidwell St	Broadstone Pkwy	Iron Point Rd	42300	5	45	70	106	228	491
East Bidwell St	Iron Point Rd	US-50	53700	5	45	71	124	267	576
East Bidwell St	US-50	Alder Creek Pkwy	51100	5	55	73	161	346	746
East Bidwell St	Alder Creek Pkwy	White Rock Rd	27200	5	55	70	106	227	490
Empire Ranch Rd	E. Natoma St	Broadstone Pkwy	20200	2	45	66	53	115	247
Empire Ranch Rd	Broadstone Pkwy	Iron Point Rd	28900	2	45	67	68	146	314
Empire Ranch Rd	Iron Point Rd	US-50	31200	2	45	68	71	153	331
Empire Ranch Rd	US-50	Alder Creek Pkwy	29100	2	45	67	68	147	316
Empire Ranch Rd	Alder Creek Pkwy	White Rock Rd	23800	2	45	67	59	128	276
Natoma St	Folsom Blvd	Riley St	10100	5	25	60	23	49	106
Natoma St	Riley St	Wales Dr	14200	5	35	63	37	79	170
E. Natoma Street	Wales Dr	Folsom Lake Crossing	13000	4	35	62	31	67	144
E. Natoma Street	Folsom Lake Crossing	Blue Ravine Rd	40500	3	45	69	87	188	405
E. Natoma Street	Blue Ravine Rd	Empire Ranch Rd	25300	2	45	67	62	133	288
Blue Ravine Rd	Folsom Blvd	Prairie City Rd	28000	5	45	69	80	173	373
Blue Ravine Rd	Prairie City Rd	Riley St	23900	5	45	68	72	156	336
Blue Ravine Rd	Riley St	East Bidwell St	21400	5	45	67	67	145	312
Blue Ravine Rd	East Bidwell St	Oak Avenue Pkwy	18900	4	40	65	48	104	224
Blue Ravine Rd	Oak Avenue Pkwy	E. Natoma St	25800	4	45	68	70	152	327
Green Valley Rd	E. Natoma St	City Limit	34200	4	55	71	116	250	539
Iron Point Rd	Folsom Blvd	Prairie City Rd	18900	6	45	67	66	143	307
Iron Point Rd	Prairie City Rd	Oak Avenue Pkwy	29200	3	45	68	70	151	326
Iron Point Rd	Oak Avenue Pkwy	Broadstone Pkwy	32900	3	45	68	76	164	353
Iron Point Rd	Broadstone Pkwy	East Bidwell St	14400	6	45	66	55	119	256
Iron Point Rd	East Bidwell St	Empire Ranch Rd	20900	4	45	67	61	132	284
Alder Creek Pkwy	Prairie City Rd	Oak Avenue Pkwy	29100	3	55	70	98	211	455

Table 15-12 Traffic Data and Noise Modeling Results for Future (2035) Conditions

Roadway	From	To	Average Daily Traffic	Truck Percent	Posted Speed (mph)	Ldn at 100 feet from Centerline	Distance to Contour (feet)		
							70 dB Ldn	65 dB Ldn	60 dB Ldn
Alder Creek Pkwy	Oak Avenue Pkwy	East Bidwell St	24000	3	55	69	86	186	400
Alder Creek Pkwy	East Bidwell St	Placerville Rd	6100	3	55	63	35	75	161
White Rock Rd	Prairie City Rd	Oak Avenue Pkwy	30900	4	55	71	109	234	504
White Rock Rd	Oak Avenue Pkwy	East Bidwell St	26100	4	55	70	97	209	450
White Rock Rd	East Bidwell St	Empire Ranch Rd	19100	4	55	68	79	170	366
US-50	Folsom Blvd	Prairie City Rd	141000	6	65	79	411	885	1907
US-50	Prairie City Rd	East Bidwell St	139500	6	65	79	408	879	1894
US-50	East Bidwell St	City Limit	148500	6	65	79	425	916	1974

Sources: FHWA-RD-77-108 with inputs from Caltrans (2016), DKS Associates and Bollard Acoustical Consultants, Inc. (BAC) 2018.

Table 15-13 Project-Related Increases in Traffic Noise Levels

Roadway	From	To	Traffic Noise Level at 100 feet, dB Ldn		
			Existing	2035	Increase
Folsom Auburn Rd	City Limit	Folsom Lake Crossing	70	72	**2**
Folsom Auburn Rd	Folsom Lake Crossing	Oak Avenue Pkwy	68	69	1
Folsom Auburn Rd	Oak Avenue Pkwy	Greenback Ln	67	68	1
Oak Ave	Santa Juanita Ave	Folsom Auburn Rd	64	65	2
Greenback Ln	Madison Ave	Folsom Auburn Rd	71	71	0
Greenback Ln	Folsom Auburn Rd	Leidesdorff St	64	65	1
Folsom Lake Crossing	Folsom Auburn Rd	E. Natoma St	70	71	1
Folsom Blvd	Greenback Ln	Natoma St	70	71	1
Folsom Blvd	Natoma St	Glenn Dr	70	71	0
Folsom Blvd	Glenn Dr	Blue Ravine Rd	70	71	1
Folsom Blvd	Blue Ravine Rd	Iron Point Rd	72	72	1
Folsom Blvd	Iron Point Rd	US-50	73	74	1
Sibley Street	Bidwell St	Glenn Dr	55	57	2
Sibley Street	Glenn Dr	Blue Ravine Rd	64	64	0
Prairie City Rd	Blue Ravine Rd	Iron Point Rd	68	70	1
Prairie City Rd	Iron Point Rd	US-50	69	70	1
Prairie City Rd	US-50	Alder Creek Pkwy	64	70	**6**
Prairie City Rd	Alder Creek Pkwy	White Rock Rd	64	68	**4**
Oak Avenue Pkwy	Blue Ravine Rd	East Bidwell St	66	68	**2**

Table 15-13 Project-Related Increases in Traffic Noise Levels

Roadway	From	To	Traffic Noise Level at 100 feet, dB Ldn		
			Existing	2035	Increase
Oak Avenue Pkwy	East Bidwell St	Iron Point Rd	62	67	**4**
Oak Avenue Pkwy	Iron Point Rd	US-50	---	70	---
Oak Avenue Pkwy	US-50	Alder Creek Pkwy	---	68	---
Oak Avenue Pkwy	Alder Creek Pkwy	White Rock Rd	---	66	---
East Bidwell St	Riley St	Glenn Dr	65	66	1
East Bidwell St	Glenn Dr	Blue Ravine Rd	66	67	1
East Bidwell St	Blue Ravine Rd	Oak Avenue Pkwy	69	70	1
East Bidwell St	Oak Avenue Pkwy	Broadstone Pkwy	70	71	1
East Bidwell St	Broadstone Pkwy	Iron Point Rd	70	70	0
East Bidwell St	Iron Point Rd	US-50	72	71	0
East Bidwell St	US-50	Alder Creek Pkwy	65	73	**8**
East Bidwell St	Alder Creek Pkwy	White Rock Rd	65	70	**6**
Empire Ranch Rd	E. Natoma St	Broadstone Pkwy	62	66	**4**
Empire Ranch Rd	Broadstone Pkwy	Iron Point Rd	61	67	**7**
Empire Ranch Rd	Iron Point Rd	US-50	---	68	---
Empire Ranch Rd	US-50	Alder Creek Pkwy	---	67	---
Empire Ranch Rd	Alder Creek Pkwy	White Rock Rd	---	67	---
Natoma St	Folsom Blvd	Riley St	59	60	1
Natoma St	Riley St	Wales Dr	63	63	0
E. Natoma Street	Wales Dr	Folsom Lake Crossing	62	62	0
E. Natoma Street	Folsom Lake Crossing	Blue Ravine Rd	68	69	1
E. Natoma Street	Blue Ravine Rd	Empire Ranch Rd	65	67	**2**
Blue Ravine Rd	Folsom Blvd	Prairie City Rd	68	69	1
Blue Ravine Rd	Prairie City Rd	Riley St	68	68	0
Blue Ravine Rd	Riley St	East Bidwell St	68	67	0
Blue Ravine Rd	East Bidwell St	Oak Avenue Pkwy	65	65	0
Blue Ravine Rd	Oak Avenue Pkwy	E. Natoma St	67	68	1
Green Valley Rd	E. Natoma St	City Limit	70	71	1
Iron Point Rd	Folsom Blvd	Prairie City Rd	65	67	**2**
Iron Point Rd	Prairie City Rd	Oak Avenue Pkwy	66	68	1
Iron Point Rd	Oak Avenue Pkwy	Broadstone Pkwy	65	68	**3**
Iron Point Rd	Broadstone Pkwy	East Bidwell St	66	66	1
Iron Point Rd	East Bidwell St	Empire Ranch Rd	63	67	**4**
Alder Creek Pkwy	Prairie City Rd	Oak Avenue Pkwy	---	70	---
Alder Creek Pkwy	Oak Avenue Pkwy	East Bidwell St	---	69	---
Alder Creek Pkwy	East Bidwell St	Placerville Rd	---	63	---
White Rock Rd	Prairie City Rd	Oak Avenue Pkwy	66	71	**5**
White Rock Rd	Oak Avenue Pkwy	East Bidwell St	66	70	**4**
White Rock Rd	East Bidwell St	Empire Ranch Rd	65	68	**4**

Table 15-13 Project-Related Increases in Traffic Noise Levels					
Roadway	**From**	**To**	**Traffic Noise Level at 100 feet, dB Ldn**		
			Existing	**2035**	**Increase**
US-50	Folsom Blvd	Prairie City Rd	77	79	**2**
US-50	Prairie City Rd	East Bidwell St	77	79	**2**
US-50	East Bidwell St	City Limit	78	79	**2**

Note: A **Bold** numeral indicates an exceedance of the significance criterion.
Sources: FHWA-RD-77-108 with inputs from Caltrans (2016), DKS Associates and BAC 2018.

15.2.3 LESS-THAN-SIGNIFICANT IMPACTS

Based on the evaluations set forth below, potential impacts for the following specific topics with respect to noise and vibration were found to be less than significant. Therefore, they will not be evaluated further in this chapter.

XV. NOISE		
Would the Project:	Less than Significant Impact	No Impact
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.	X	
f) For a project within the vicinity of a private airstrip, exposure of people residing or working in the project area to excessive noise levels.		X

EVALUATION OF LESS-THAN-SIGNIFICANT IMPACTS

Question (b) Vibration: Less-than-significant Impact. The ambient vibration measurement results shown in Table 15-7 are well below Federal Transit Administration thresholds shown in Table 15-10 for sensitive receptors. This includes vibration measurement results for the Regional Transit Light Rail operations. As a result, existing and projected future sensitive receptors located within the City of Folsom are not expected to be exposed to excessive vibration levels. Therefore, the project would result in a less-than-significant vibration impact, and no mitigation would be necessary.

Question (f) Private Airstrips: No Impact. No private airstrips are identified in the project area. Therefore, existing and future sensitive land uses located within the City of Folsom will not be exposed to excessive aircraft noise levels resulting from private airstrips. No impact would occur, and no mitigation would be necessary.

15.2.4 POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

The following discussion examines the potential impacts of the proposed project based on the impact threshold criteria described above.

Impact N-1	**Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies; or a substantial permanent increase in ambient noise levels in the project vicinity above levels without the project**
Applicable Regulations	HUD 23 CFR 772, 24 CFR 51(B); FMC 8.42.
Adopted Mitigation Measures	FPASP 3A.11-4, 3A.11-5; RR 4.6-3a through 4.6-3c.
Proposed GP Policies that Reduce Impacts	Goal SN 6.1; Policies SN 6.1.2 - 6.1.3
Significance after Implementation of GP Policies	Significant, mitigation required.
Mitigation Measures	N-1: Add Implementation Program SN-1.
Significance after Mitigation	Significant and unavoidable.

Activities associated with urban development that would occur with implementation of the 2035 General Plan could increase community noise levels beyond those currently existing that could affect existing sensitive land uses. General Plan implementation also could result in the siting of sensitive land uses in areas with high community noise levels in excess of General Plan standards. This would be a significant impact.

Future development of new noise-sensitive land uses would occur under the 2035 General Plan within areas that either are currently affected by noise from both transportation and non-transportation noise sources, or will be in the future. In addition, future development of new noise-generating land uses would occur under the 2035 General Plan within areas that either are currently near noise-sensitive land uses or may be in the future. Development projects that would occur under the proposed 2035 General Plan would include development of residential, commercial and industrial projects, transportation facilities, public/quasi-public facilities, and other land uses. The majority of the land available for new development of urban uses (77 percent of the citywide total or 2,218 acres) would be located within the FPASP area south of Highway 50. North of Highway 50, 441 acres in 453 parcels are planned for urban uses by 2035.

Table 15-14 includes existing federal, state, regional, and City regulations that protect the public from adverse levels of noise, and policies from the 2035 General Plan that enact the City's intent to protect sensitive populations from excessive noise levels. A discussion for each policy and its implications for reducing community noise levels is also provided.

Table 15-14 Regulatory Requirements and Proposed 2035 General Plan Goals/Policies Related to Community Noise Levels

Measure Identification	How the Regulation or Policy Avoids or Reduces Impact
FEDERAL REGULATIONS	
U.S. Department of Housing and Urban Development	23 CFR 772 and 24 CFR 51(B) describe HUD policies and programs to protect citizens against excessive noise in their communities and places of residence. These policies and programs apply to development projects with HUD involvement.

Table 15-14 Regulatory Requirements and Proposed 2035 General Plan Goals/Policies Related to Community Noise Levels

Measure Identification	How the Regulation or Policy Avoids or Reduces Impact
STATE REGULATIONS	
California Environmental Quality Act	Implementation of CEQA ensures that during the decision making stage of development, City officials and the general public assess the noise impacts associated with public and private development projects.
CITY REQUIREMENTS	
Noise Ordinance – FMC Chapter 8.42.040 Exterior noise standards.	Application of the City Noise Ordinance exterior noise standards will ensure that noise from locally-regulated noise sources is maintained at acceptable levels at exterior areas of existing and future noise-sensitive land uses located within the City.
Noise Ordinance - FMC Chapter 8.42.050 Interior noise standards.	Application of the City Noise Ordinance interior noise standards will ensure that noise from locally-regulated noise sources are maintained at acceptable levels at interior areas of existing and future noise-sensitive land uses located within the City.
FOLSOM PLAN AREA SPECIFIC PLAN EIR/EIS	
Mitigation Measure 3A.11-4	This measure prevents exposure of sensitive receptors to increases in noise from project-generated operational traffic on off-site and on-site Roadways. It also requires the preparation of project-specific acoustical analyses to analyze traffic noise impacts at the project level and develop noise-attenuation measures for on-site noise-sensitive land uses (i.e., residential dwellings and school classrooms)
Mitigation Measure 3A.11-5	This measure requires analysis of project-generated stationary noise sources such as mechanical equipment, emergency generators, parking lots, and loading docks, and the development of noise-attenuation measures for such stationary noise sources that may affect noise-sensitive land uses.
RUSSELL RANCH PROJECT EIR	
Mitigation Measure 4.6-3(a)	This measure requires proposed improvement plans to show the locations of sound walls and/or landscaped berms along US 50, White Rock Road, and Empire Ranch Road where developments are proposed near those roadways. Alternatively, the applicant may submit a site-specific acoustical analysis for a specific development phase where noise barrier locations are recommended that is prepared by an acoustical consultant recognized by the City of Folsom to determine or confirm whether sound attenuation is needed, taking into account site-specific conditions (e.g. site design, location of structures, building characteristics, building orientation, etc.) in accordance with adopted noise standards.
Mitigation Measure 4.6-3(b)	In conjunction with submittal of the Building Permit for the residential uses with direct exposure to US 50 traffic noise, this measure requires detailed analysis of interior noise levels conducted by a qualified acoustical consultant recognized by the City of Folsom.
Mitigation Measure 4.6-3(c)	In conjunction with submittal of Building Permits, plans shall show that mechanical ventilation is to be installed in all residential uses to allow residents to keep doors and windows closed, as desired for acoustical isolation.
2035 GENERAL PLAN GOALS AND POLICIES	
Goal SN 6.1	Protects the citizens of Folsom from the harmful effects of exposure to excessive noise and protects the economic base of Folsom by preventing the encroachment of incompatible land uses within areas affected by existing noise-producing uses.

Table 15-14 Regulatory Requirements and Proposed 2035 General Plan Goals/Policies Related to Community Noise Levels

Measure Identification	How the Regulation or Policy Avoids or Reduces Impact
SN 6.1.2	Requires effective noise mitigation for new development of residential or other noise sensitive land uses to reduce noise levels. This policy applies to traffic on public roadways, railroad operations, aircraft overflights, as well as non-transportation noise sources. Numeric noise thresholds are provided under this policy for a variety of land use designations and mitigation measures are required to ensure compliance with those noise level standards.
SN 6.1.3	Requires an Acoustical Analysis prior to approval of proposed development of residential or other noise-sensitive land uses in a noise-impacted area. This policy works in conjunction with Policy 6.1.2 to achieve satisfaction with the noise performance standards established in that policy.

Source: Planning Partners 2018; Bollard Acoustical Consultants, Inc. 2018.

Project implementation would result in an increase in average daily traffic (ADT) volumes on affected roadway segments and, consequently, an increase in traffic source noise. To assess this impact, traffic noise levels associated with implementation of the 2035 General Plan were predicted for affected roadway segments using FHWA's Highway Noise Prediction Model (FHWA-RD-77-108) (FHWA 1978) and traffic data (e.g., ADT volumes, vehicle speeds, and percentage distribution of vehicle types) from DKS Associates, Inc. and Caltrans. This model is based on the California vehicle noise (CALVENO) reference noise emission factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and ground attenuation factors and does not assume any natural or human- made shielding (e.g., the presence of vegetation, berms, walls, or buildings).

As shown in Table 15-13, implementation of the 2035 General Plan would result in net increases in noise levels along affected roadway segments that would range from 0 to 8 dB L_{dn} in comparison to existing conditions. Those modeled increases that would be considered substantial (e.g., 3 dB Ldn/CNEL where existing or projected future traffic noise levels range between 60 and 65 dB Ldn/CNEL, or 1.5 dB Ldn/CNEL where existing or projected future traffic noise levels are greater than 65 dB Ldn/CNEL) in comparison to existing conditions are indicated in bold text in Table 15-13. Project implementation would result in a substantial permanent increase in ambient noise levels at nearby existing and future sensitive receptors along affected roadways, including segments of Folsom-Auburn Road, Prairie City Road, Oak Avenue Parkway, East Bidwell Street, Empire Ranch Road, East Natoma Street, Iron Point Road, White Rock Road, and Highway 50. As a result, this long-term impact is considered significant, requiring mitigation.

While the 2035 Draft General Plan includes policies that require the preparation of noise studies for new development along affected roadways and the identification of project-specific noise mitigation measures to ensure that existing and proposed noise levels are satisfactory for the intended uses and sensitivity of the nearby receptors, it is difficult to retrofit existing developed sensitive uses with noise attenuating mitigation measures. Significant traffic noise impacts at existing noise-sensitive areas associated with growth of communities are generally very difficult to feasibly mitigate because some areas may already have noise barriers, or new noise barriers may be infeasible from a cost standpoint or ineffective because of openings in the barriers that are commonly required for roadway ingress and egress. Because it may not be feasible to reduce the project-related long-term operations traffic noise

level increases to a less-than-significant level at all existing noise-sensitive land uses along affected roadway segments, this impact would remain significant and unavoidable.

Significance of Impact: Significant.

Mitigation Measure N-1:

Add **Implementation Program SN-1: Adopt a Noise Reduction Program.**

The City shall adopt a citywide noise reduction program to reduce traffic noise levels along roadways where significant increases in traffic noise levels are expected to occur. The program shall include, but shall not be limited to, the following specific elements for noise abatement consideration where reasonable and feasible:

- Noise barrier retrofits
- Truck usage restrictions
- Reduction of speed limits
- Use of quieter paving materials
- Building façade sound insulation
- Traffic calming
- Additional enforcement of speed limits and exhaust noise laws
- Signal timing.

Environmental Effects of Measure: Implementation of Mitigation Measure N-1 would result in a new program to reduce traffic noise levels that would result from implementation of the 2035 General Plan. Implementation of the measure would not result in an expansion of the area within the 2035 Plan Evaluation Area devoted to urbanized land uses, and would not act to increases the intensity of existing or planned land uses. This measure could result in increased construction activities to install noise attenuation features, with associated increases in construction noise and air emissions. However, the Draft PEIR anticipates urban and infrastructure development, including maintenance activities along and within roadways, necessary to implement the General Plan. Because of this, no environmental effects would occur beyond those identified in this Draft PEIR.

Level of Significance After Mitigation: Significant and unavoidable.

The Draft PEIR recognizes that the cited 2035 General Plan policies and Mitigation Measure N-1, used individually or collectively, can result in a reduction of traffic noise levels at affected sensitive receptor locations. It is difficult to retrofit existing developed sensitive uses with noise attenuating mitigation measures. Significant traffic noise impacts at existing noise-sensitive areas associated with the growth of communities are generally very difficult to feasibly mitigate because some areas may already have noise barriers, or new noise barriers may be infeasible from a cost standpoint or ineffective because of openings in the barriers that are commonly required for roadway ingress and egress. Despite the implementation noise abatement programs required by 2035 General Plan policies and Mitigation Measure N-1, it is infeasible to ensure that existing residential uses will not be exposed to future traffic noise levels exceeding the City's noise standards where they do not currently, or be exposed to significantly higher levels than they are exposed to today.

For example, it may not be possible to construct a noise barrier at an existing residence due to engineering constraints (utility easements or driveway openings), and building façade sound insulation would only benefit interior spaces, so outdoor activity areas may still be affected. It may also be infeasible to reduce speed limits in areas where speed surveys would not safely support the reduction. In addition, busy streets tend to also serve commercial uses, so restricting trucks on the busier streets may be impractical or illegal. Although a combination of the listed measures could be highly effective in reducing traffic noise levels on a citywide basis, it is not possible to state with certainty that it would be possible to mitigate this impact at every noise-sensitive use within the 2035 Plan Evaluation Area. As a result, this impact would remain significant and unavoidable.

Impact N-2 A substantial temporary increase in ambient noise levels in the project vicinity above levels without the project	
Applicable Regulations	FMC 8.42; Standard Construction Specifications 6.09 and 7.23.
Adopted Mitigation Measures	FPASP 3.A.11-1; RR 3.A.11-1.
Proposed GP Policies that Reduce Impacts	Goal SN 6.1, Policy SN 6.1.3.
Significance after Implementation of GP Policies	Less than significant.

Implementation of the 2035 General Plan would result in temporary, short-term construction activities associated with development of residential, commercial, schools, and park uses, supporting roadways, and other infrastructure improvements. Maintenance of roadways, and other infrastructure improvements could also result in construction noise. General Plan related construction activities could expose existing and future sensitive receptors to temporary noise levels that exceed the applicable noise standards and/or result in a substantial increase in ambient noise levels.

Unlike permanent noise sources such as the ongoing operation of mechanical equipment at a grocery store or pumping equipment at the City's water treatment plant, short-term noise sources are commonly associated with temporary construction activities. Such noise sources can be highly variable in terms of volume level, frequency content, location, hours of use, and duration of operation of the noise source in question. Distances to noise sensitive receptors, and the existing ambient noise environment in the receptor's vicinity can also affect perceptions of construction noise.

Construction generally occurs in several discrete stages, each phase requiring a specific complement of equipment with varying equipment types, quantity, and intensity. These variations in the operational characteristics of the equipment change the effect they have on the noise environment in the community for the duration of the construction process.

Existing noise sensitive receptors are located throughout the City of Folsom. The City of Folsom exempts daytime construction noise from applicable standards. It is projected that the noise- sensitive receptors located in the City of Folsom north of Highway 50 would not be affected by construction noise from the FPASP area during the daytime hours due to the intervening location of U.S. 50 that serves as a major dominating noise source. However, if construction activities occur during the more noise-sensitive evening and nighttime hours, due to the potential necessity of continuous activity for specific components to maintain structural integrity, project-generated noise levels could exceed 45 dB Leq at future sensitive receptors within 2,000 feet of construction activity. Noise sensitive

receptors in both the City of Folsom and the County of El Dorado could be located within potential construction noise contour distances.

Table 15-15 includes existing federal, state, regional, and City regulations that protect the public from adverse levels of construction noise, and policies from the 2035 General Plan that state the City's intent to protect sensitive populations from excessive construction noise levels. A discussion for each policy and its implications for reducing construction noise levels is also provided.

Table 15-15 Regulatory Requirements and Proposed 2035 General Plan Goals/Policies Related to Construction Noise

Measure Identification	How the Regulation or Policy Avoids or Reduces Impact
FEDERAL REGULATIONS	
None Applicable	--
STATE REGULATIONS	
California Environmental Quality Act	Implementation of CEQA ensures that during the decision making stage of development, City officials and the general public assess the short-term noise impacts associated with temporary construction projects.
CITY REQUIREMENTS	
Noise Ordinance - FMC Chapter 8.42.040 Exterior noise standards	Application of the City Noise Ordinance exterior noise standards will ensure that noise from locally-regulated noise sources are maintained at acceptable levels at exterior areas of existing and future noise-sensitive land uses located within the City.
Noise Ordinance - FMC Chapter 8.42.050 Interior noise standards	Application of the City Noise Ordinance interior noise standards will ensure that noise from locally-regulated noise sources are maintained at acceptable levels at interior areas of existing and future noise-sensitive land uses located within the City.
Noise Ordinance - FMC Chapter 8.42.040 Exterior noise standards	Application of the City Noise Ordinance exterior noise standards will ensure that noise from locally-regulated noise sources are maintained at acceptable levels at exterior areas of existing and future noise-sensitive land uses located within the City.
Noise Ordinance - FMC Chapter 8.42.050 Interior noise standards	Application of the City Noise Ordinance interior noise standards will ensure that noise from locally-regulated noise sources are maintained at acceptable levels at interior areas of existing and future noise-sensitive land uses located within the City.
Noise Ordinance - FMC Chapter 8.42.060 Noise Source Exemptions	This provision of the Noise Ordinance exempts noise sources associated with construction, provided such activities do not take place before 7 a.m. or after 6 p.m. on any day except Saturday or Sunday, or before 8 a.m. or after 5 p.m. on Saturday or Sunday. As a result, nearly all construction activities conducted within the City are carried out during the less noise-sensitive daytime hours.
Noise Ordinance - FMC Chapter 8.42.050 Interior noise standards	Application of the City Noise Ordinance interior noise standards will ensure that noise from locally-regulated noise sources are maintained at acceptable levels at interior areas of existing and future noise-sensitive land uses located within the City.
Noise Ordinance - FMC Chapter 8.42.060 Noise Source Exemptions	This provision of the Noise Ordinance exempts noise sources associated with construction, provided such activities do not take place before 7 a.m. or after 6 p.m. on any day except Saturday or Sunday, or before 8 a.m. or after 5 p.m. on Saturday or Sunday. As a result, nearly all construction activities conducted within the City are carried out during the less noise-sensitive daytime hours.
Noise Ordinance - FMC Chapter 8.42.050 Interior noise standards	Application of the City Noise Ordinance interior noise standards will ensure that noise from locally-regulated noise sources are maintained at acceptable levels at interior areas of existing and future noise-sensitive land uses located within the City.
Noise Ordinance - FMC Chapter 8.42.060 Noise Source Exemptions	This provision of the Noise Ordinance exempts noise sources associated with construction, provided such activities do not take place before 7 a.m. or after 6 p.m. on any day except Saturday or Sunday, or before 8 a.m. or after 5 p.m. on Saturday or Sunday. As a result, nearly all construction activities conducted within the City are carried out during the less noise-sensitive daytime hours.

Standard Construction Requirements 6.09 Sound Control	Requires that all construction work comply with all noise level rules, regulations, and ordinances, and that all construction vehicles be equipped with a muffler to control sound levels.
Standard Construction Requirements 7.23 Weekend, Holiday, and Night Work	Prohibits construction work during evening hours, or on Sunday or holidays, to reduce noise and other construction nuisance effects.
Standard Construction Requirements 6.09 Sound Control	Requires that all construction work comply with all noise level rules, regulations, and ordinances, and that all construction vehicles be equipped with a muffler to control sound levels.
Standard Construction Requirements 7.23 Weekend, Holiday, and Night Work	Prohibits construction work during evening hours, or on Sunday or holidays, to reduce noise and other construction nuisance effects.
FOLSOM PLAN AREA SPECIFIC PLAN EIR/EIS	
Mitigation Measure 3A.11-1	Requires implementation of noise reducing construction practices, preparation and implementation of a construction noise control plan, and monitoring and recordation of construction noise near sensitive receptors.
RUSSELL RANCH EIR	
Mitigation Measure 3A.11-1	This measure requires implementation of noise-reducing construction practices, and the preparation and implementation of a noise control plan, including monitoring of construction noise near sensitive receptors.
2035 GENERAL PLAN GOALS AND POLICIES	
Goal SN 6.1	Protects the citizens of Folsom from the harmful effects of exposure to excessive noise and protects the economic base of Folsom by preventing the encroachment of incompatible land uses within areas affected by existing noise-producing uses.
Policy SN 6.1.3	Requires an Acoustical Analysis prior to approval of proposed development of residential or other noise-sensitive land uses in a noise-impacted area. This policy works in conjunction with Policy 6.1.2 to achieve compliance with the noise performance standards established in that policy.

Source: Planning Partners 2018; Bollard Acoustical Consultants, Inc. 2018.

The City's Noise Ordinance contains specific standards applicable to short-term or temporary noise sources, including such sources as construction. Standard construction requirements also act to limit noise from construction operations. Adopted FPASP and Russell Ranch mitigation measures impose stringent construction noise requirements for all construction activities south of Highway 50 over and above standard City requirements. The Noise Ordinance also includes exemptions for certain types of noise sources that are often a necessary component of normal city operations. Adherence to and enforcement of the City's Noise Ordinance, standard construction requirements, and adopted mitigation measures would render this impact less than significant.

Significance of Impact: Less than significant.

Mitigation Measure: No mitigation beyond the enforcement of the City's Noise Ordinance Standards, standard construction requirements, and adopted mitigation measures is required.

Impact N-3	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, exposure of people residing or working in the area to excessive noise levels resulting from the proposed project.
Applicable Regulations	FAA 14 CFR Part 150.
Adopted Mitigation Measures	None available.
Proposed GP Policies that Reduce Impacts	Goal SN 6.1; Policies SN 6.1.2 - 6.1.3 SN 6.1.6.
Significance after Implementation of GP Policies	Significant.
Mitigation Measure	Mitigation Measure N-3: Issue disclosure statements.
Significance after Mitigation	Less than significant.

Future development with implementation of the 2035 General Plan could be exposed to adverse levels of aircraft noise. This would be a significant impact.

Mather Airport is located in excess of six miles from the Folsom city limits. As a result, the CNEL noise contours prepared for the airport indicate that the City of Folsom is located well beyond the 60 dB CNEL contour considered acceptable for noise-sensitive development. Furthermore, studies of sleep disturbance associated with nighttime aircraft single-events have indicated that the probability of awakening from such events is fairly low. Nonetheless, considerable attention has been paid to the issue of aircraft noise in the City of Folsom related to Mather Airport arrivals and departures.

Table 15-16 Regulatory Requirements and Proposed 2035 General Plan Goals/Policies Related to Aircraft Overflight Noise

Measure Identification	How the Regulation or Policy Avoids or Reduces Impact
FEDERAL REGULATIONS	
Federal Aviation Administration	14 CFR Part 150, "Airport Noise Compatibility Planning," prescribes the procedures, standards and methodology to be applied airport noise compatibility planning activities. The goal of such activities is to ensure land use compatibility with respect to aircraft noise.
STATE REGULATIONS	
California Environmental Quality Act	Implementation of CEQA ensures that during the decision making stage of development, City officials and the general public assess the noise impacts associated with aviation-related activities.
CITY REQUIREMENTS	
None applicable	--
FOLSOM PLAN AREA SPECIFIC PLAN EIR/EIS	
None applicable	--
RUSSELL RANCH EIR	
None applicable	--
2035 GENERAL PLAN GOALS AND POLICIES	
Goal SN 6.1	Protects the citizens of Folsom from the harmful effects of exposure to excessive noise and to protect the economic base of Folsom by preventing the encroachment of incompatible land uses within areas affected by existing noise-producing uses.

Table 15-16 Regulatory Requirements and Proposed 2035 General Plan Goals/Policies Related to Aircraft Overflight Noise

Measure Identification	How the Regulation or Policy Avoids or Reduces Impact
Policy SN 6.1.2	Requires effective noise mitigation for new development of residential or other noise sensitive land uses to reduce noise levels. This policy applies to aircraft overflights. Numeric noise thresholds are provided under this policy for a variety of land use designations which may be affected by aircraft overflights and mitigation measures are required to ensure compliance with those noise level standards.
Policy SN 6.1.3	Requires an Acoustical Analysis prior to approval of proposed development of residential or other noise-sensitive land uses in a noise-impacted area. This policy works in conjunction with Policy 6.1.2 to achieve satisfaction with the noise performance standards established in that policy. Although the City of Folsom is not technically impacted by aircraft noise, substantial concerns have been expressed regarding this noise source in recent years. This measure ensures that noise levels within residences and other noise-sensitive land uses which are potentially affected by aircraft noise will meet standards which allow indoor communication and sleep.
Policy SN 6.1.6	States that the City will strive to reduce noise from aircraft travel over Folsom.

Source: Planning Partners 2018; BAC 2018.

While proposed General Plan policy SN 6.1.6 states that the City shall strive to reduce noise from aircraft travel over Folsom, it is unclear what mechanisms are available to the City to achieve this result. Although advances in aircraft technology have resulted in lower aircraft noise emissions over time, increased air traffic has resulted in a higher number of individual overflights. Proposed General Plan Policy 6.1.2 requires that all new residential and other noise-sensitive development provide adequate sound insulation to ensure compliance with the City's interior noise level standards. Nonetheless, extensive construction of new residential development is proposed in the area south of US Highway 50, which is the area in closest proximity to the majority of Mather Airport overflights, particularly arrivals. As a result, prospective residents of the area not familiar with the Mather Operations may experience adverse reactions or annoyance associated with the overflights. This impact is considered potentially significant.

Significance of Impact: Significant.

Mitigation Measure N-3:

> Require private developers to provide disclosure statements to all prospective residents in the area south of US Highway 50 notifying them of the presence of Mather Airport to the southwest, of routine aircraft overflights associated with Mather operations, including early morning and late night operations, and of temporarily elevated noise levels during such overflights.

Environmental Effects of Measure: Implementation of Mitigation Measure N-3 would result in disclosing a potential nuisance noise source to future residents within the affected area south of Highway 50. Implementation of the measure would not result in an expansion of the area within the 2035 Plan Evaluation Area devoted to urbanized land uses, and would not act to increases the intensity of existing or planned land uses. This measure would not result in increased construction activities to comply with the requirements of the measure. No new impacts not previously evaluated elsewhere in this Draft PEIR would result from the measure.

Level of Significance After Mitigation: Less than significant.

Disclosure of a potential nuisance noise source would permit potential residents to make an informed decision regarding occupancy in the affected area. Those who are sensitive to such sources of noise could elect to live elsewhere prior to making a financial commitment.

Impact N-4 Implementation of 2035 General Plan policies related to noise and vibration	
Applicable Regulations	OPR General Plan Guidelines.
Adopted Mitigation Measures	None available.
Proposed GP Policies that Reduce Impacts	Goal SN 6-1, Policies SN 6.1.1 - 6.1.8
Significance after Implementation of GP Policies	Less than significant.

The proposed City of Folsom General Plan policies related to noise shown earlier in this section are numerically consistent with the existing policies of the 1988 General Plan. In addition, new polices and clarification of existing policy language are included in the 2035 General Plan to provide additional protection to the city residents and businesses with respect to land use compatibility for noise and vibration. Because the proposed policies would afford an equal or greater level of protection against the harmful and annoying effects of noise to city residents than currently provided, this impact would be less than significant.

Table 15-17 Regulatory Requirements and Proposed 2035 General Plan Goals/Policies Related to Noise

Measure Identification	How the Policy Avoids or Reduces Impact
FEDERAL REGULATIONS	
None applicable	---
STATE REGULATIONS	
California Environmental Quality Act	Implementation of CEQA ensures that during the decision making stage of development, City officials and the general public assess the noise impacts associated with the implementation of General Plan Policies.
California Governor's Office of Planning and Research General Plan Guidelines	The California Governor's Office of Planning and Research publishes guidelines for the development of General Plans. These advisory guidelines serve as valuable reference for cities and counties in the preparation of local general plans. The Office of Planning and Research aims to realize the sustainable developmental goals of protecting the environment, maintaining a healthy economy, and ensuring equitable treatment of all people.
CITY REQUIREMENTS	
None applicable	---
FOLSOM PLAN AREA SPECIFIC PLAN EIR/EIS	
None applicable	---
RUSSELL RANCH PROJECT EIR	
None applicable	---

Table 15-17 Regulatory Requirements and Proposed 2035 General Plan Goals/Policies Related to Noise

Measure Identification	How the Policy Avoids or Reduces Impact
2035 GENERAL PLAN GOALS AND POLICIES	
Goal SN 6.1	Protects the citizens of Folsom from the harmful effects of exposure to excessive noise and protects the economic base of Folsom by preventing the encroachment of incompatible land uses within areas affected by existing noise-producing uses.
Policy SN 6.1.1	Develops, maintains, and implements strategies to abate and avoid excessive noise exposure in the city by requiring that effective noise mitigation measures be incorporated into the design of new noise-generating and new noise-sensitive land uses.
Policy SN 6.1.2	Requires effective noise mitigation for new development of residential or other noise sensitive land uses to reduce noise levels. This policy applies to aircraft overflights. Numeric noise thresholds are provided under this policy for a variety of land use designations which may be affected by aircraft overflights and mitigation measures are required to ensure compliance with those noise level standards.
Policy SN 6.1.3	Requires an Acoustical Analysis prior to approval of proposed development of residential or other noise-sensitive land uses in a noise-impacted area. This policy works in conjunction with Policy 6.1.2 to achieve compliance with the noise performance standards established in that policy.
Policy SN 6.1.4	Develops, maintains, and implements procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are implemented as part of the project review and building permit processes. The appropriate time for requiring an acoustical analysis would be as early in the project review process as possible so that noise mitigation may be an integral part of the project design.
Policy SN 6.1.5	Encourages the enforcement of the existing section of the California Vehicle Code relating to adequate vehicle mufflers and modified exhaust systems.
Policy SN 6.1.6	States that the City will strive to reduce noise from aircraft travel over Folsom.
Policy SN 6.1.7	If noise barriers are required to achieve the noise level standards contained within the Element, the City shall encourage the use of these standards: 1. Noise barriers exceeding six feet in height relative to the roadway should incorporate an earth berm so that the total height of the solid portion of the barrier (such as masonry or concrete) does not exceed six feet. 2. The total height of a noise barrier above roadway elevation should normally be limited to 12 feet. 3. The noise barriers should be designed so that their appearance is consistent with other noise barriers in the project vicinity.
Policy SN 6.1.8	Requires construction projects and new development anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby noise-sensitive uses based on Federal Transit Administration criteria

Source: Planning Partners 2018; Bollard Acoustical Consultants, Inc. 2018.

Significance of Impact: Less than significant.

Mitigation Measure: None required.

This page intentionally
left blank.