Section 4.12

Noise

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4.12.1 Introduction

This section of the Supplemental Recirculated Environmental Impact Report (SREIR) addresses potential noise impacts associated with the proposed Grapevine Project (project) that could occur from potentially lower trip internal capture rates (ICRs) than evaluated in the Draft Environmental Impact Report (DEIR) and Final Environmental Impact Report (FEIR) (collectively, the "2016 EIR") for the project.

The DEIR and FEIR were circulated and publicly reviewed in 2016, and the FEIR was certified by Kern County on December 6, 2016. As discussed in Chapter 2, *Introduction*, the FEIR certification was subsequently rescinded by the Board of Supervisors at a hearing on March 12, 2019, and the County received an application to re-adopt the approvals for the proposed project on March 14, 2019. On April 12, 2019, the County published a Notice of Preparation (NOP) for an SREIR to evaluate potential traffic, air pollution, greenhouse gas, noise, public health and growth inducing impacts that could occur from lower CRs than were considered in the 2016 EIR.

The ICR represents the percentage of trips staying within a community compared to total trips generated by the uses in a community. Residential and mixed-use development, such as the proposed project, generate vehicle trips that begin and end within a project study area. These are called "internal" trips. Trips that end or begin outside the project study area are called "external" trips. If a project area uses generate an average daily total of 1,000 trips, for example, and 500 trips begin and end within the community, the average daily ICR would be 50 percent. Traffic trip volumes are highest during "peak" morning (AM) and evening (PM) periods. If a project generates 300 trips during the AM peak period, and 100 of these trips begin and end within the project, the AM peak hour ICR would be 33.3 percent. External trips are generally longer and result in higher vehicle miles travelled (VMT) than internal trips. A project's ICRs change as land uses and transportation patterns, which are affected by transit options and technologies, change over time. An ICR analysis generally reflects and considers ICRs and transportation patterns that exist at a specific a point in time of the project buildout process.

The original DEIR (2016) used projections for the ICRs as peak period traffic impacts generated from the Kern County Council of Governments (Kern COG) 2014 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) Travel Demand Model (Kern COG model). The analysis considered the ICR rates for home to work trips ("Home-Based Work" trips) and home to school, shopping, recreational and other non-work related trips ("Home-Based Other/Non-Home-Based" trips). The Kern COG model projected that, for all trips combined, at buildout the project would have an AM peak period ICR of 72.2 percent and a PM peak period ICR of 71.4 percent.

During the DEIR (2016) comment period, the California Department of Transportation (Caltrans) requested that Fehr & Peers, the project's traffic consultants, conduct a review of Home-Based Work ICRs in certain other California locations. The review found that the average Home-Based Work ICR for the California communities was 57.4 percent and, based on this information, Caltrans requested that the project analysis utilize a Home-Based Work ICR of 28.7 percent, 50 percent lower than the results of the review.

As a result, the DEIR (2016) traffic analysis was revised in the Final EIR (2016) to incorporate the 28.7 percent Home-Based Work trip ICR with updated trip generation rates (Updated 28.7% HBW ICR) requested by Caltrans. When combined with the Kern COG model ICRs for non-work Home-Based Other/Non-Home-Based trips, the ICRs for all project trips considered in the FEIR (2016) were 59.8 percent in the AM peak period and 64.2 percent in the PM period. These results are lower than the 72.2 percent AM peak period and 71.4 percent PM peak period ICRs analyzed in the DEIR (2016). The Final EIR (2016) revised the project's mitigation measures and considered the significance of all significant impacts that were determined to potentially occur using the lower AM and PM peak period ICRs.

The purpose of the SREIR is to evaluate the potential impacts that could occur from lower ICRs than evaluated in the FEIR (2016). To perform this evaluation, it was determined that a variety of scenarios needed to be developed for modeling that could show what would happen if the projected mix of residential, commercial and industrial development did not build out as proposed. The material in this section of the SREIR includes:

- Environmental and regulatory settings for Noise. All chapters of the Final EIR (2016) and related studies are included as Volumes 5 to 12 of this SREIR.
- The June 7, 2019, *Noise Memorandum* (Volume 3, Appendix E.1) and the December 2015 *Noise Assessment Technical Report for the Grapevine Project* (Noise Assessment) (Volume 12, Appendix, S) both prepared by Dudek, and incorporated by reference herein.
- The Scenario traffic evaluation "*Supplemental Recirculated Transportation Impact Study Technical Report for the Grapevine Specific And Community Plan Project* dated August 2019, prepared by Fehr & Peers (Fehr & Peers 2019) is included as Appendix E.2 in Volume 4 of this SREIR.
- Presentation of 22 Screening Scenarios that show a variety of development buildouts (Screening Scenarios) resulting in lower ICRs and higher and lower VMT.
- Analysis of the 22 Screening Scenarios with criteria to identify a subset of five alternative scenarios that would result in lower ICRs and higher VMT than considered in the FEIR (2016) (the "Reduced ICR Scenarios"). The five scenarios have the potential to increase the percentage of medium or heavy trucks.
- Presentation of the original Final EIR (2016) analysis for the Updated 28.7% HBW ICR.
- Comparison of the five Reduced ICR Scenarios to the updated 28.7 % HBW ICR analysis.
- Roadway segment volumes and resulting traffic related noise levels for the five Reduced ICR scenarios were then individually compared to the Updated 28.7% HBW ICR noise levels.
- Analysis and identification of potential significant noise impacts that could occur under one or more of the five Reduced ICR Scenarios and a comparison of these impacts with the updated 28.7% HBW ICR analysis.
- Identification of noise impact mitigation measures for the project to reduce potentially significant impacts.

Acoustical Terminology

Noise

The assessment of noise impacts uses specific terminology and fundamental descriptors not commonly used in everyday conversation. Therefore, in order to assist in a thorough understanding of the subsequent analysis, these terms are discussed in this subsection.

Acoustics is the study of sound, and noise is defined as unwanted sound.

Airborne sound is a rapid fluctuation or oscillation of air pressure above and below atmospheric pressure creating a sound wave.

The **pitch** or loudness of sound determines whether a sound is of a pleasant or objectionable nature. Pitch, which is the height or depth of a tone or sound, is louder to humans when it is high pitched versus low pitched. The loudness of a sound is determined by a combination of the intensity of the sound waves with the reception characteristics of the ear.

Measurement scales are used to describe sounds. A **decibel (dB)** is a unit used to describe the amplitude of sound, and sound levels are calculated on a logarithmic, not linear, basis. The lowest sound level that an unimpaired human ear can hear is described as zero on the decibel scale. Due to the logarithmic nature of measuring sound levels on the decibel scale, a 10-dB increase represents a tenfold increase in acoustic energy, whereas a 20-dB increase represents a hundredfold increase in acoustic energy. Because a relationship exists between acoustic energy and intensity, each 10-dB increase in sound level can have an approximate doubling effect on loudness as perceived by the human ear.

Acoustical terms used in this subsection are summarized in Table 4.12-1, *Definition of Acoustical Terms*. The most common metric is the overall **A-weighted sound level measurement (dBA)** that has been adopted by regulatory bodies worldwide. The A-weighting network measures sound in a fashion similar to the way a person perceives or hears sound, thus achieving very good correlation in terms of evaluating acceptable and unacceptable sound levels.

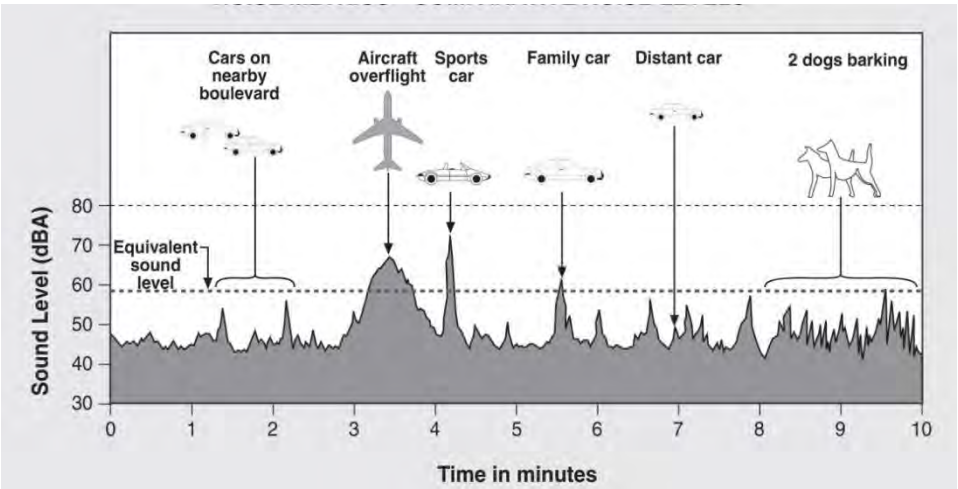
Table 4.12-1. Definition of Acoustical Terms

Term	Definition
Ambient Noise Level	The composite noise from all sources resulting in the normal, existing level of environmental noise at a given location. The ambient level is typically defined by the L_{eq} level.
Background Noise Level	The underlying ever-present lower level noise that remains in the absence of intrusive or intermittent sounds. Distant sources, such as traffic, typically make up the background. The background level is generally defined by the L_{90} percentile noise level.
Intrusive	Noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence, tonal content, the prevailing ambient noise level, and the sensitivity of the receiver. The intrusive level is generally defined by the L_{10} percentile noise level.
Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
A-Weighted Sound Level (dBA)	The sound level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighted filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted.

Table 4.12-1. Definition of Acoustical Terms	
Term	Definition
Equivalent Noise Level (L_{eq})	The average A-weighted noise level, on an equal energy basis, during the measurement period.
Percentile Noise Level (L_n)	The noise level exceeded during 'n' percent of the measurement period, where 'n' is a number between 0 and 100 (e.g., L_{90})
Day-Night Average Level (L_{dn})	The energy average A-weighted noise level during a 24-hour day, obtained after the addition of 10 decibels between the hours of 10:00 PM and 7:00 AM
Community Noise Equivalent Level (CNEL)	Represents the average daytime noise level during a 24-hour day, adjusted to an equivalent level to account for people's lower tolerance of noise during the evening and nighttime hours. Because community receptors are considered to be more sensitive to unwanted noise intrusion during the evening and night, an artificial decibel increment is added to quiet-time noise levels. Sound levels are increased by 5 dBA during the evening, from 7:00 PM to 10:00 PM and by 10 dBA during the nighttime, from 10:00 PM to 7:00 AM
Hertz (Hz)	A unit of frequency. The number of times per second that the sine wave of sound repeats itself, or that the sine wave of a vibrating object repeats itself.

One way to describe noise is to measure the **maximum sound level (L_{max})** (as represented by the 70 dBA noise level from the sports car in the example shown in Table 4.12-2, *Noise Metrics – Comparative Noise Levels*). The L_{max} measurement does not account for the duration of the sound. Studies have shown that human response to noise involves the maximum level and its duration. For example, the aircraft in this case is not as loud as the sports car, but the aircraft sound lasts longer. For most people, the aircraft overflight would be more annoying than the shorter duration sports car event. Thus, the maximum sound level alone is not sufficient to predict reaction to environmental noise.

Table 4.12-2. Noise Metrics - Comparative Noise Levels



A-weighted sound levels can be measured or presented as **equivalent sound pressure level (L_{eq})**. This is defined as the average noise level, on an equal-energy basis for a stated period of time and is commonly used to measure steady-state sound or noise that is usually dominant. Statistical measurements are typically denoted by L_n, where 'n' represents the percentile of time the sound level is exceeded. The measurement of L_{90} represents the noise level that is exceeded during 90 percent of the measurement period. Similarly, the L_{10} represents the noise level exceeded for 10 percent of the measurement period.

Human response to daytime and nighttime noise has been observed to vary. During the evening and nighttime, exterior background noises are generally lower than daytime levels; however, most household noise also decreases at night, and exterior noise becomes more noticeable. Furthermore, most people sleep at night and are sensitive to intrusive noises. To account for human sensitivity to evening and nighttime noise levels, the **Day-Night Level (L_{dn})** was developed. The L_{dn} is a noise index that accounts for the greater annoyance attributed to noise during the evening and nighttime hours.

L_{dn} values are calculated by averaging hourly L_{eq} sound levels for a 24-hour period and applying weighting factors to evening and nighttime L_{eq} values. The weighting factor, which reflects the increased sensitivity to noise during nighttime hours, is added to each hourly L_{eq} sound level before the 24-hour L_{dn} is calculated. For the purposes of assessing noise, the 24-hour day is divided into two time periods, with the following weightings:

- Daytime: 7 AM to 10 PM (15 hours), weighting factor of 0 dB
- Nighttime: 10 PM to 7 AM (9 hours), weighting factor of 10 dB

The time periods are then averaged (on an energy basis) to compute the overall L_{dn} value. For a continuous noise source, the L_{dn} value can be computed by adding 6.4 dB to the overall 24-hour noise level (L_{eq}). For example, if the expected continuous noise level from a power plant were 60.0 dBA L_{eq} for every hour, the resulting L_{dn} from the plant would be 66.4 dBA L_{dn}.

The **community noise equivalent level (CNEL)** metric is similar to the L_{dn} but with an additional 5 dB weighting factor between 7 PM and 10 PM and with a 10 dB weighing factor between 10 PM and 7 AM. CNEL and L_{dn} measures are frequently used interchangeably. For a continuous noise source, the CNEL value can be computed by adding 6.7 dB to the overall 24-hour noise level (L_{eq}), meaning that the plant in the previous example would be 66.7 dBA CNEL.

The effects of noise on people can be grouped into three general categories:

- **Subjective effects** of annoyance, nuisance, dissatisfaction
- **Interference** with activities such as speech, sleep, learning
- **Physiological effects** such as startling and
- **Physical effects** such as hearing loss

In most cases, environmental noise produces effects in the first two categories of subjective effects and interference with activities only; however, workers in industrial plants might experience physiological effects of noise. No satisfactory way exists to measure the subjective effects of noise, or to measure the corresponding reactions of annoyance and dissatisfaction. This lack of a common standard is due primarily to the wide variation in individual thresholds of annoyance and habituation to noise. Thus, an important way of determining a person's subjective reaction to a new noise is by comparison with the existing or "ambient" environment to which that person has adapted. In general, the more the level or the tonal (frequency) variations of a noise exceed the existing ambient noise level or tonal quality, the less acceptable the new noise will be, as judged by the exposed individual. When comparing sound levels from similar sources (for example, changes in traffic noise levels), a 3 dBA change is considered to be a just-perceivable difference; 5 dBA is clearly perceivable, and 10 dBA is considered a doubling in loudness.

Exterior Noise Distance Attenuation

Noise sources are classified in two forms: (1) point sources, such as stationary equipment or a group of construction vehicles and equipment working within a spatially limited area at a given time; and (2) line sources, such as a roadway with a large number of pass-by sources (motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6.0 dBA for each doubling of distance from the source to the receptor at acoustically "hard" sites and at a rate of 7.5 dBA for each doubling of distance from source to receptor at acoustically "soft" sites. Sound generated by a line source (i.e., a roadway) typically attenuates at a rate of 3 dBA and 4.5 dBA per doubling distance, for hard and soft sites, respectively. Sound levels can also be attenuated by man-made or natural barriers. For the purpose of a sound attenuation discussion, a "hard" or reflective site does not provide any excess ground-effect attenuation and is characteristic of asphalt or concrete ground surfaces, as well as very hard-packed soils. An acoustically "soft" or absorptive site is characteristic of unpaved loose soil or vegetated ground.

Structural Noise Attenuation

Sound levels can also be attenuated by man-made or natural barriers. Solid walls, berms, or elevation differences typically reduce noise levels by 5 to 10 dBA. Structures can also provide noise reduction by insulating interior spaces from outdoor noise. The outside-to-inside noise attenuation provided by typical structures in California ranges between 17 to 30 dBA with open and closed windows, respectively, as shown in Table 4.12-3, *Outside-to-Inside Noise Attenuation (dBA)*.

Table 4.12-3. Outside-to-Inside Noise Attenuation (dBA)

Building Type	Open Windows	Closed Windows[1]
Residences	17	25
Schools	17	25
Churches	20	30
Hospitals/Offices/Hotels	17	25
Theaters	17	25

Source: Dudek, 2015b

[1] Structures with closed windows can attenuate exterior noise by a minimum of 25 to 30 dBA

Vibration

Vibration is defined as the mechanical motion of earth or ground, building, or other type of structure, induced by the operation of any mechanical device or equipment located upon or affixed thereto. Vibration generally results in an oscillatory motion in terms of the displacement, velocity, or acceleration of the ground- or structure(s) that causes a normal person to be aware of the vibration by means such as, but not limited to, sensation by touch or visual observation of moving objects.

The effects of **groundborne vibration** include movements of building floors, rattling of windows, and shaking of items on shelves or hangings on the walls. In extreme cases, vibration can cause damage to buildings. The noise radiated from the motion of the room surfaces is called ground-borne noise. The vibration motion normally does not provoke the same adverse human reactions as the noise unless there is an effect associated with the shaking of the building. In addition, the vibration noise can only occur inside buildings. Similar to the propagation of noise, vibration propagated from the source to the receptor depends on the receiving building (i.e., the weight of

the building), soil conditions, layering of the soils, the depth of groundwater table, etc. However, the response of humans to vibration is very complex. However, it is generally accepted that human response is best approximated by the vibration velocity level associated with the vibration occurrence.

Heavy equipment operation, including stationary equipment that produces substantial oscillation or construction equipment that causes percussive action against the ground surface, may be perceived by building occupants as perceptible vibration. It is also common for groundborne vibration to cause windows, pictures on walls, or items on shelves to rattle. Although the perceived vibration from such equipment operation can be intrusive to building occupants, the vibration is seldom of sufficient magnitude to cause even minor cosmetic damage to buildings.

When evaluating human response, groundborne vibration is usually expressed in terms of root mean square (RMS) vibration velocity. RMS is defined as the average of the squared amplitude of the vibration signal. As for sound, it is common to express vibration amplitudes in terms of decibels.

To avoid confusion with sound decibels, the abbreviation VdB is used for vibration decibels. The vibration threshold of perception for most people is around 65 VdB. Vibration levels in the 70 to 75 VdB range are often noticeable but generally deemed acceptable, and levels in excess of 80 VdB are often considered unacceptable.

4.12.2 Environmental Setting

Local Setting

The project site currently contains minimal noise sources. The project site encompasses 8,010 acres, including 83 acres of off-site infrastructure improvements, in the west-central portion of 270,000-acre Tejon Ranch, which is privately owned by Tejon Ranchcorp (see Figures 3-1 and 3-2 in Chapter 3, *Project Description*). The area is generally bounded by the Tehachapi and San Emigdio Mountains and Tejon Ranch conservation lands immediately to the south, east, and west; with the Tejon Ranch Tecuya Creek Conservation Easement and Wind Wolves Preserve to the west; and the Tejon Ranch Commerce Center (TRCC) immediately to the north. The California Aqueduct traverses the project site near the northern boundary. The Edmonston Pumping Plant Road bisects the project site from east to west and Interstate 5 (I-5) bisects the project site from north to south.

Large-scale farming, oil and gas extraction, mining, and cattle grazing currently exist within the Tejon Ranch boundaries. These activities are overseen by the ranch headquarters located at the top of Grapevine Canyon, and subject to the Tejon Ranch Conservation and Land Use Agreement (Ranchwide Agreement) signed in 2008, which preserves approximately 240,000 acres of the Tejon Ranch property in open space in perpetuity. Current and historic uses of the project site include irrigated agriculture (almond orchards), a commercial area, including hospitality facilities, surrounding the I-5/Grapevine Road interchange, cattle grazing, air quality monitoring facility, two north-south trending transmission corridors and a switching station, and filming uses.

Transportation Noise Sources

Aviation

The nearest public airports to the project are the Bakersfield Airport located approximately 25 miles north and the Taft-Kern County Airport located approximately 30 miles northwest of the project site. High-altitude overflights for aircraft using the Bakersfield or Taft-Kern County Airport occur over the project site, but do not contribute to the ambient noise environment within the project area. Mapped noise contours for the Bakersfield Airport are contained within the Bakersfield City limits; mapped noise contours for Taft-Kern County Airport extend less than one-half mile from the runways.

A private airstrip, Tejon Ag Airstrip, is located on Laval Road, approximately 1.5 miles east of the TRCC, between the project's Plan Areas 6c and 6d. The airstrip is oriented diagonally on a rectangular piece of land at the east end of the Tejon oil field. There are no improvements such as hangers, fuel service, or radio communication associated with this 3,200-foot dirt landing strip; it is privately owned and permission is required prior to landing (AirNav, 2015a). The orientation of the dirt strip runway is such that any limited approach and departure operations would be conducted over adjacent cultivated agriculture areas.

The U.S. Department of the Navy has a military training route (MTR) that passes over the project site. MTR VR-1262 originates from Lemoore Naval Air Station and the designated route is 5 nautical miles on either side of the centerline for a total width of 10 nautical miles. The military occasionally operates within VR-1262 for low altitude (below 10,000 feet) high speed training. A recent Navy environmental document noted that within a recent year, there were 38 operations involving military aircraft using VR-1262.

Roadways

Vehicular traffic along I-5 is a principal contributor to the existing noise environment within the project area, with existing local roads such as Grapevine Road, Edmonston Pumping Plant Road, Laval Road, and Wheeler Ridge Road being secondary contributors. Access to the project site is provided by I-5; Plan Areas 1 through 5b would generally be accessed from the I-5/Grapevine Road interchange while Plan Areas 6a trough 6e would be generally accessed from the I-5/Wheeler Ridge Road/Laval Road interchange.

Grapevine Road East connects to Edmonston Pumping Plant Road, which bisects the project site from east to west. Grapevine Road West extends west to provide access to the Grapevine commercial area, which includes an existing gas stations and motel.

Railroads

The San Joaquin Valley Railroad (SJVR) operated 417 miles of track in Southern California. The SJVR interchanges with the Union Pacific Railroad (UPRR) at Fresno, Goshen Junction and Bakersfield, and the Burlington Northern Santa Fe (BNSF) at Fresno and Bakersfield (Genesee & Wyoming, 2015). The UPRR owns and operates tracks in eastern Kern County (UPRR, 2015); the BNSF is the leading freight transportation company in the area with lines running parallel to State Route (SR)-99 into Bakersfield and the splitting to the east and west to provide services to Los Angeles and Tehachapi (BNSF, 2015). The nearest railroad lines to the project site are located

approximately 16 miles northwest, north of SR-166, and approximately 27 miles northeast, in Tehachapi.

Commercial and Industrial Noise Sources

South of the California Aqueduct, a small cluster of commercial structures exists on either side of I-5 at the Grapevine Road interchange: a gas station, motel, and restaurant are located along the western loop of Grapevine Road; and two restaurants are located along the eastern loop of Grapevine Road. Because of their close proximity to I-5, operational noise from these commercial establishments is generally not audible above the vehicle traffic noise associated with I-5.

At the eastern end of Edmonston Pumping Plant Road, there are three industrial sites, including the Griffith Sand and Gravel Mine, Pastoria Energy Facility, and the Edmonston Pumping Plant for the California Aqueduct. All three are located outside the project site boundaries.

The TRCC straddles I-5 on the west and east and is north of the California Aqueduct. A factory outlet center is located on the east side of the I-5/Wheeler Ridge Road/Laval Road interchange, with more industrial uses located along Wheeler Ridge Road north of the interchange. A truck transit center and several trucking distribution centers are along Wheeler Ridge Road.

Noise Sensitive Land Uses

Noise sensitive land uses are land uses that may be subject to stress and/or interference from excessive noise. The Noise Element of the Kern County General Plan (KCGP) defines noise sensitive receptors as residences, schools, hospitals, parks, churches, and other similar land uses. Industrial and commercial land uses are generally not considered sensitive to noise, with the exception of commercial lodging facilities. Noise sensitive land uses within the project site or within close proximity to the project site include:

- Ramada Inn Limited motel, 9000 Countryside Court, west side of I-5, adjacent to Grapevine Road West;
- Single-family residence located 0.35 mile south of the I-5/Grapevine Road interchange, between I-5 northbound and southbound travel lanes;
- Single-family residence located 0.78 mile south of Grapevine Road interchange, between I-5 northbound and southbound travel lanes;
- Best Western motel, 5521 Dennis McCarthy Drive, west side of I-5 at Wheeler Ridge Road/Laval Road interchange; and
- Microtel Inn and Suites, 5620 Del Sol Drive, east side of I-5 at Wheeler Ridge Road/Laval Road interchange.
- Single-family residences, approximately 15 residences, immediately west of Laval Road, adjacent to Tejon Ag Airstrip and between project's Plan Areas 6c and 6d.
- Single-family residence located on the south side of Laval Road, adjacent to the project's Plan Area 6d eastern boundary and the project's Plan Area 6e southern boundary.

Proximate Vibration-Sensitive Land Uses

Land uses in which groundborne vibration could potentially interfere with operations or equipment, such as research, manufacturing, hospitals, and university research operations are considered "vibration-sensitive." The degree of sensitivity depends on the specific equipment that would be

affected by the groundborne vibration. Excessive levels of groundborne vibration of either a regular or an intermittent nature can result in annoyance to residential uses. There are no known vibration-sensitive land uses within 15 miles of the project site.

Existing Noise Levels

Two types of sound-level measurements were taken to inventory existing noise conditions: (1) 24-hour measurements were performed in areas where the project implementation could result in noise sensitive land uses in locations removed from existing roadways; and (2) short-term (varying from 15 to 30 minutes) measurements were performed along existing roadways to characterize noise levels associated with transportation facilities and for calibration of the transportation noise model (Dudek, 2015b).

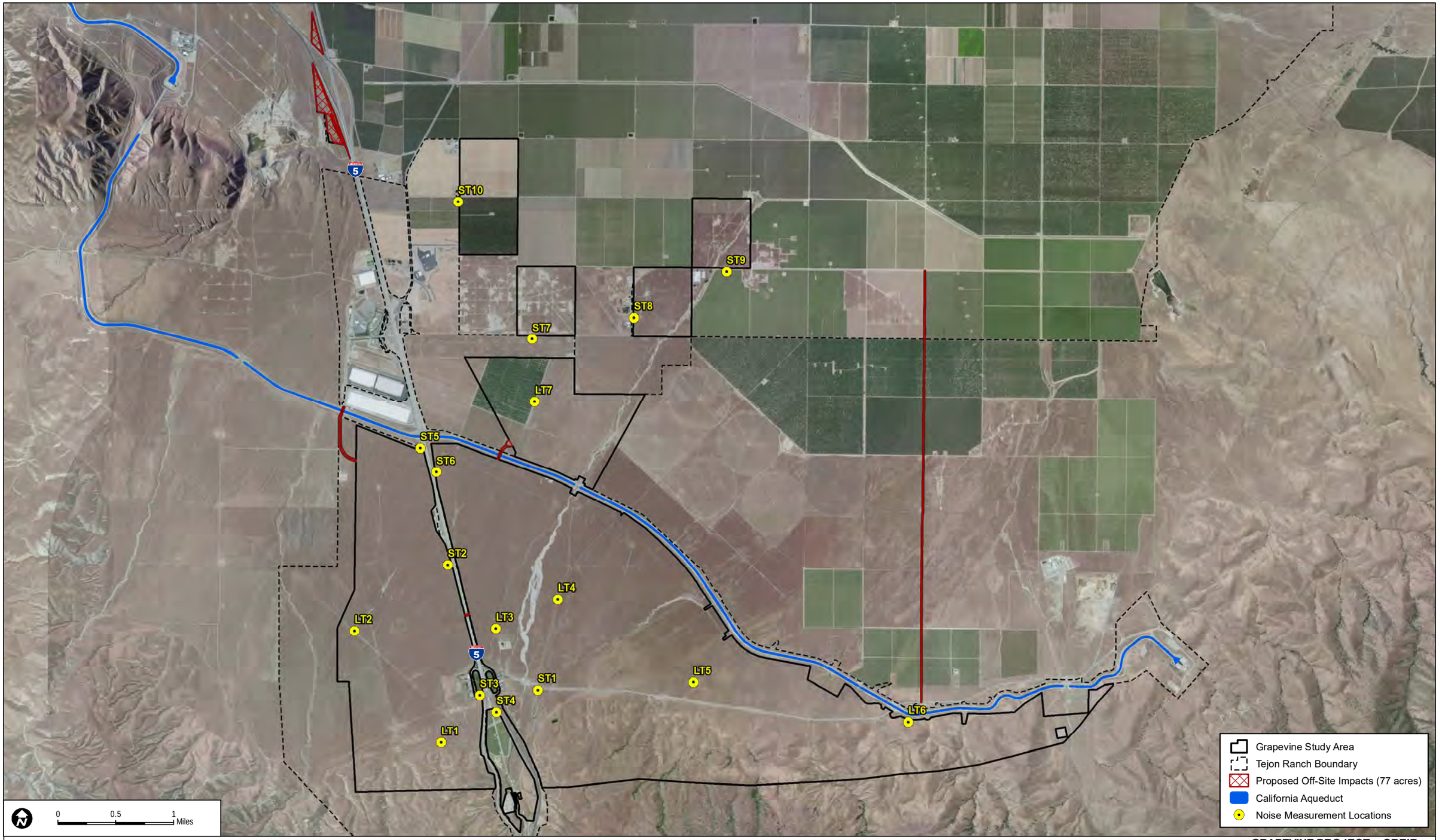
Sound-level measurements were performed using a total of four different integrating sound-level meters: one Larson Davis Model 800 American National Standards Institute (ANSI) Type I; one Larson Davis Model 720 ANSI Type II; and two SoftdB Piccolo Models ANSI Type II. The sound-level meters were calibrated before and after each series of measurements using a Larson Davis Model CAL150 calibrator (Dudek, 2015b).

A total of seven long-term measurements (24-hour duration) were taken within the project site; these locations are identified as LT# within Figure 4.12-1, *Noise Measurement Locations*. Table 4.12-4, *Ambient Sound Level Measurements (dBA)*, summarizes the minimum (L_{min}) and maximum (L_{max}) sound levels recorded for each monitor location during the 24-hour measurement period, as well as the calculated 24-hour weighted average noise level (L_{dn}).

Table 4.12-4. Ambient Sound Level Measurements (dBA)

Site	Project Site Location	Noise Sources	Dates	L_{dn}	L_{max}	L_{min}
LT1	South-central portion of Plan Area 1, proposed low density residential, open space	Distant vehicular traffic on I-5	11/7/2013 – 11/8/2013	58	63.3	49
LT2	Western-central portion of Plan Area 2, proposed low density residential, park, school	Distant vehicular traffic on I-5	11/7/2013 – 11/8/2013	56	58	45
LT3	Central portion of Plan Area 3, proposed Village Mixed-Use Residential, park	Vehicular traffic on I-5	11/7/2013 – 11/8/2013	61	60.3	44.7
LT4	Western-central portion of Plan Area 4, proposed Village Mixed-Use Residential and low density residential	Distant vehicular traffic on I-5	11/6/2013 – 11/7/2013	53	49.8	41.4
LT5	South-central portion of Plan Area 5a, proposed low density residential, Village Mixed-Use Residential, park, school	Traffic along Edmonston Pumping Plant Road	11/6/2013 – 11/7/2013	45	47.5	33.5
LT6	Eastern portion of Plan Area 5b, proposed low density residential	Traffic along Edmonston Pumping Plant Road, distant industrial uses including aggregate quarry, electrical sub-station, Edmonston Pumping Plant	11/6/2013 – 11/7/2013	58	57	38.4
LT7	Central portion of Land use Area 6a, proposed Village Mixed-Use Residential, park	Distant vehicular traffic on I-5 and commercial / industrial uses in TRCC (0.5 mile west)	11/6/2013 – 11/7/2013	49	45.6	39.2

Source: Dudek, 2015b.



SOURCES: Ken Kay Associates 2015

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SPA No. 157, Map No. 500; GPA No. 9, Map No. 202; GPA No. 10, Map No 202; GPA No. 4, Map No. 218R; GPA No. 5, Map No. 218R; GPA No. 11, Map No. 219; GPA No. 12, Map No. 219; Special Plan No. 2, Map No. 202; Special Plan No. 3, Map No. 218R; Special Plan No. 3, Map No. 219; ZCC No. 18, Map No. 202; ZCC No. 3, Map No. 218R; ZCC No. 14, Map No. 219; Ag. Preserve No. 19 – Exclusion, Map No. 202

Noise Measurement Locations

Figure 4.12-1

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The results of the ambient noise survey from long-term measurements reflect noise levels that range between 45 and 61 dBA L_{dn} (or CNEL) within the project site where noise sensitive land uses are proposed in the Grapevine Specific and Community Plan. The primary noise source contributing to the ambient noise environment is traffic, despite the noise monitor's distance from principal roadways. I-5 is a major roadway and contributor to the ambient noise environment in the project area. The ambient noise levels recorded at each long-term monitor location fall within acceptable levels for sensitive receptors as specified in the KCGP.

Since roadway traffic is often a primary contributor to the noise environment in any community, short-term noise measurements were also conducted adjacent to the existing roadways within the project site. A total of 10 short-term noise measurements were conducted; locations are identified as ST# within Figure 4.12-1, *Noise Measurement Locations*. The results of short-term roadway traffic noise measurements are presented in Table 4.12-5, *Roadway Noise Level Measurements (Existing)(dBA)*.

Table 4.12-5. Roadway Noise Level Measurements (Existing) (dBA)

Site	Measurement Date	Measurement Time Period	L_{dn}	L_{max}	L_{min}	Remarks
1	11/6/2013	9:30 – 9:45	69.1	83.9	42	Edmonston Pumping Plant Road, two-lane arterial
2	11/6/2013	11:15 – 11:20	79.1	85.1	69.6	Southbound I-5, 1/4 mile south of commercial vehicle enforcement facility (CVEF)
3	11/6/2013	11:45 – 11:50	67.7	74.2	58.2	Across wash from Ramada Limited motel
4	11/6/2013	12:50 – 12:55	66.5	76.5	56.1	Near bottom of grade, 300' south of Grapevine Road undercrossing
5	11/7/2013	14:00 – 14:10	80.6	91.2	68.5	I-5 southbound
6	11/7/2013	14:45 – 14:50	81.8	96.1	69.3	I-5 northbound
7	11/7/2013	16:10 – 16:25	62.7	80.9	38.8	Adjacent to Laval Road, near the project's Plan Area 6c
8	11/7/2013	16:50 – 17:05	50.2	71.3	43.9	Adjacent to Laval Road, near the project's Plan Area 6d; Very light traffic, mostly background noise (oil pump, distant industrial plant)
9	11/7/2013	16:40 – 16:50	62.7	83.8	35.4	Adjacent to Laval Road, near the project's Plan Area 6e
10	11/7/2013	15:30 – 15:45	38.3	54.2	34.4	Very low ambient noise levels, north end of project site dirt road, distance Caterpillar plant noise; near the project's Plan Area 6b

Source: Dudek, 2015b.

The highest recorded average noise levels were associated with traffic on I-5, and ranged from 67 to 82 dBA L_{eq} with distances between 150 and 40 feet from the edge of pavement. Noise levels along Edmonston Pumping Plant Road were 69 dBA L_{eq} at a distance of approximately 25 feet from the edge of pavement. Laval Road had recorded noise levels between 50 and 63 dBA L_{eq} at a distance of approximately 20 feet from the edge of pavement. With the exception of I-5, current roadway noise for existing local roadways generally do not exceed acceptable levels for sensitive receptors as specified in the KCGP at a distance of greater than 25 feet from the edge of the roadway.

4.12.3 Regulatory Setting

Federal

There are a number of laws and guidelines at the Federal level that direct the consideration of a broad range of noise and vibration issues. Because the project does not require action by Federal agencies, at this time, the project is not directly subject to Federal noise regulations other than those of the Federal Occupational Safety and Health Administration (OSHA). For perspective, several of the more significant noise-related Federal regulations and guidelines are described below.

Noise Control Act of 1972 (42 USC 4910)

This act establishes a national policy to promote an environment for all Americans free from noise that jeopardizes their health and welfare. To accomplish this, the act establishes a means for the coordination of Federal research and activities in noise control, authorizes the establishment of Federal noise emissions standards for products distributed in commerce, and provides information to the public with respect to the noise-emission and noise-reduction characteristics of such products.

EPA Recommendations

In response to a Federal mandate, U.S. Environmental Protection Agency (EPA) provided guidance in Information on Levels of Environmental Noise Requisite to Protect Health and Welfare with an Adequate Margin of Safety (National Technical Information Service, 550\9-74-004, EPA, Washington, D.C., March 1974). Commonly referenced as the "Levels Document," it establishes an L_{dn} of 55 dBA as the requisite level, with an adequate margin of safety, for areas with outdoor uses, including residential and recreational areas. This SREIR does not constitute EPA regulations or standards but identifies safe levels of environmental noise exposure without consideration of costs for achieving these levels or other potentially relevant considerations. It is intended to "provide State and local governments, as well as the Federal government and the private sector, with an informational point of departure for the purpose of decision-making." The agency is careful to stress that the recommendations contain a factor of safety and do not consider technical or economic feasibility issues and, therefore, should not be construed as standards or regulations.

Federal Aviation Administration Standards

Enforced by the Federal Aviation Administration (FAA), Code of Federal Regulations (CFR) Title 14, Part 150, prescribes the procedures, standards, and methodology governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs, including the process for evaluating and approving or disapproving those programs. Title 14 also identifies those land uses that are normally compatible with various levels of exposure to noise by individuals. The FAA has determined that interior sound levels up to 45 dBA L_{dn} (or CNEL) are acceptable within residential buildings. The FAA also considers residential land uses to be compatible with exterior noise levels at or less than 65 dBA L_{dn} (or CNEL).

Federal Highway Administration

The purpose of the Federal Highway Administration (FHWA) Noise Abatement Procedures (23 CFR 772) is to provide procedures for noise studies and noise abatement measures to help protect the public health and welfare, supply noise abatement criteria, and establish requirements for information to be given to local officials for use in the planning and design of highways. The purpose of this regulation is to provide procedures for noise studies and noise abatement measures to help protect the public health and welfare, to supply noise abatement criteria (NAC), and to establish requirements for information to be given to local officials for use in the planning and design of highways. It establishes five categories of noise-sensitive receptors and prescribes the use of the hourly L_{eq} as the criterion metric for evaluating traffic noise impacts.

All highway projects that are developed in conformance with this regulation shall be deemed to be in conformance with the Department of Transportation-FHWA Noise Standards. Title 23 establishes an NAC of 67 dBA $L_{eq(h)}$ applicable to federal highway projects for evaluating impacts to land uses including residences, recreational uses, hotels, hospitals, and libraries (23 CFR Chapter 1, Part 772, Section 772.19). Additionally, FHWA requires that individual states establish an allowable noise level increase (at or above which the increase is deemed to be "substantial" (between 5 and 15 dB) and abatement should be considered) for Type 1 highway projects. Type I projects include projects that would: construct a highway in a new location; physically alter and existing highway where there is a substantial horizontal or vertical alteration; add through-traffic lane(s); add auxiliary lane(s); add or relocate interchange lands or ramps; restripe pavement for the purposes of adding lane(s); and add a new, or substantially altering and existing, weigh station, rest stop, ride-share lot, or toll plaza.

Federal Transit Administration and Federal Railroad Administration

Although the Federal Transit Administration (FTA) standards are intended for federally funded mass-transit projects, the impact assessment procedures and criteria included in the FTA Transit Noise and Vibration Impact Assessment Manual (May 2006) are routinely used for projects proposed by local jurisdictions. The FTA and Federal Railroad Administration have published guidelines for assessing the impacts of groundborne vibration associated with rail projects, which have been applied by other jurisdictions to other types of projects. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 inches/second peak-particle velocity (PPV).

Department of Housing and Urban Development

The Department of Housing and Urban Development Environmental Standards (24 CFR Part 51) set forth the following exterior noise standards for new home construction assisted or supported by the department:

- 65 L_{dn} or less: acceptable;
- > 65 L_{dn} and < 75 L_{dn}: normally unacceptable (appropriate sound attenuation measures must
- be provided); and
- > 75 L_{dn}: unacceptable.

The Department of Housing and Urban Development's regulations do not contain standards for interior noise levels. Rather, a goal of 45 dB is set forth, and attenuation requirements are geared to achieve that goal.

Occupational Safety and Health Administration

The OSHA Occupational Noise Exposure: Hearing Conservation Amendment (Federal Register 48 [46], 9738–9785, 1983) stipulates that protection against the effects of noise exposure shall be provided for employees when sound levels exceed 90 dBA over an 8-hour exposure period. Protection shall consist of feasible administrative or engineering controls. If such controls fail to reduce sound levels to acceptable levels, personal protective equipment shall be provided and used to reduce exposure of the employee. Additionally, a hearing conservation program must be instituted by the employers whenever employee noise exposure equals or exceeds the action level of an 8-hour, time-weighted average sound level of 85 dBA. The hearing conservation program requirements consider periodic area and personal noise monitoring, the performance and evaluation of audiograms, the provision of hearing protection, annual employee training, and record keeping.

State

Noise Element Guidelines

The California Department of Health Services has studied the correlation of noise levels and their effects on various land uses and established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. The State requires all municipalities to prepare and adopt a comprehensive long-range general plan. General plans must contain a noise element (California Government Code Section 65302[f] and Section 46050.1 of the Health and Safety Code). The requirements for the noise element of the general plan include describing the noise environment quantitatively using a cumulative noise metric, such as CNEL or DNL, establishing noise/land use compatibility criteria, and establishing programs for achieving and/or maintaining land use compatibility. Noise elements should address all major noise sources in the community, including mobile and stationary noise sources.

The State Office of Planning and Research Noise Element Guidelines include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The Noise Element Guidelines contain a land use compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the CNEL. Table 4.12-6 presents guidelines for determining acceptable and unacceptable community noise exposure limits for various land use categories. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

Table 4.12-6. Land Use Compatibility for Community Noise Environments

Land Use Category	Community Noise Exposure (L_{dn} or CNEL, dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential - Low Density, Single-Family, Duplex, Mobile Homes	50–60	55–70	70–75	75–85
Residential - Multiple Family	50–65	60–70	70–75	70–85
Transient Lodging - Motel, Hotels	50–65	60–70	70–80	80–85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50–70	60–70	70–80	80–85
Auditoriums, Concert Halls, Amphitheaters	NA	50–70	NA	65–85
Sports Arenas, Outdoor Spectator Sports	NA	50–75	NA	70–85
Playgrounds, Neighborhood Parks	50–70	NA	67.5–75	72.5–85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50–70	NA	70–80	80–85
Office Buildings, Business Commercial and Professional	50–70	67.5–77.5	75–85	NA
Industrial, Manufacturing, Utilities, Agriculture	50–75	70–80	75–85	NA

NA: Not Applicable; L_{dn}: average day/night sound level; CNEL: Community Noise Equivalent Level

Normally Acceptable - Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable - New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Normally Unacceptable - New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable – New construction or development should generally not be undertaken.

California Division of OSHA

Occupational exposure to noise is regulated by the California Division of OSHA in Title 8, Group 15, Article 105, Sections 5095–5100. As mentioned above, the agency's standards stipulate that protection against the effects of noise exposure shall be provided when sound levels exceed 90 dBA over an 8-hour exposure period. Protection shall consist of feasible administrative and/or engineering controls. If such controls fail to reduce sound levels to acceptable levels, personal protective equipment shall be provided and used to reduce exposure of the employee. In addition, a hearing conservation program must be instituted by employers whenever employee noise exposure equals or exceeds the action level of an 8-hour time-weighted average sound level of 85 dBA. The hearing conservation program requirements consider periodic area and personal noise monitoring, the performance and evaluation of audiograms, the provisions of hearing protection, annual employee training, and record keeping. The California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.) requires the identification of "significant" environmental impacts and their feasible mitigation.

Section XI of Appendix G to the CEQA Guidelines (California Code of Regulations [CCR] Title 14, Appendix G) lists some indicators of potentially significant impacts, which are included below under "Thresholds of Significance."

CEQA does not define a threshold for "significant increase" with respect to noise exposure; however, based on human response and commonly applied industry standards, the following thresholds of significance would be applied to the project, as set forth by the CEQA Guidelines:

- The project causes the ambient noise level measured at the property line of affected uses to increase by 3 dBA in CNEL, to a level at or within the "normally unacceptable" or "clearly unacceptable" noise/land use compatibility category; or
- The project causes any 5-dBA or greater noise increase.

California Noise Control Act of 1973

Sections 46000 through 46080 of the California Health and Safety Code, known as the California Noise Control Act of 1973, declares that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also identifies a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the state to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

California Noise Insulation Standards

In 1974, the California Commission on Housing and Community Development adopted noise insulation standards for hotels, motels, dormitories, and multifamily residential buildings (CCR Title 24, Part 2). Title 24 establishes standards for interior room noise (attributable to outside noise sources). The regulations also specify that acoustical studies must be prepared whenever a multifamily residential building or structure is proposed to be located near an existing or adopted freeway route, expressway, parkway, major street, thoroughfare, rail line, rapid transit line, or industrial noise source, and where such noise source(s) create an exterior CNEL (or L_{dn}) of 60 dBA or greater. Such acoustical analysis must demonstrate that the residence has been designed to limit intruding noise to an interior CNEL (or L_{dn}) of at least 45 dBA (California's Title 24 Noise Standards, Chap. 2-35).

California Department of Transportation

Caltrans has oversees the traffic noise analysis protocol for new highway construction and reconstruction projects. This protocol specifies the policies, procedures, and practices that are to be used by agencies that sponsor federal or federal-aid highway projects involving new construction or reconstruction. The NAC specified in the protocol are the same as those specified in 23 CFR 772. The protocol defines a noise increase as substantial when the predicted noise levels with project implementation exceed existing noise levels by 12 dBA. The protocol also states that a sound level is considered to approach an NAC level when the sound level is within 1 dB of the NAC identified in 23 CFR 772 (e.g., 66 dBA is considered to approach the NAC of 67 dBA, but 65 dBA is not).

Section 216 of the California Streets and Highways Code

Section 216 of the California Streets and Highways Code relates to the noise effects of a proposed freeway project on public and private elementary and secondary schools. Under this code, a noise impact occurs if, as a result of a proposed freeway project, noise levels exceed 52 dBA $L_{eq(h)}$ in the interior of public or private elementary or secondary classrooms, libraries, multipurpose rooms, or other spaces. This requirement does not replace the "approach or exceed" NAC criterion under FHWA Activity Category D for classroom interiors, but it is a requirement that must be addressed in addition to the requirements of 23 CFR 772.

If a project results in a noise impact under this code, noise abatement must be provided to reduce classroom noise to a level at or below 52 dBA $L_{eq(h)}$. If noise levels exceed 52 dBA $L_{eq(h)}$ prior to construction of a proposed freeway project, then noise abatement must be provided to reduce noise to the level that existed prior to construction of the project.

Local

The proposed project is located in Kern County. All potentially affected noise-sensitive receptors are located within unincorporated areas of Kern County.

Most jurisdictions have unique standards and guidelines regarding noise and nuisance. These are set out in county and municipal codes and general plans. Each noise ordinance or noise element within a municipal/county code will address noise levels that create a nuisance in surrounding communities. Noise ordinances and noise elements occasionally classify different areas within these communities according to zoning standards. Such zones can include residential areas, which are analyzed further according to the density of the population; industrial areas; commercial areas; agricultural areas; and rural areas. The possible adverse effects of construction noise are included within the noise standards. The ambient noise level, type of noise source, distance to the noise source, time of day, duration of the noise, and zoning of the areas are variables that are considered when assessing the adverse effects of noise on noise-sensitive receptors. Virtually all municipal/county codes categorize noise by dBA. Many standards will use a continuous L_{eq}, CNEL, or L_{dn} to express the sound levels over a given timeframe.

Kern County General Plan (KCGP)

The project site is located within the KCGP. The KCGP Noise Element identifies goals, policies, and implementation measures that are used to guide development with regard to noise. The KCGP Noise Element identifies residential areas, schools, convalescence and acute care hospitals, parks and recreational areas, and churches as noise sensitive land uses. In noise sensitive areas, exterior noise levels generated by new projects are to be mitigated to 65 dB L_{dn} or less in outdoor activity areas and 45 dB L_{dn} or less within interior living spaces or other noise sensitive interior spaces.

Kern County includes working landscapes that have background noise levels from on-site as well as off-site (e.g., highway) uses, and also have periodic construction-related or seasonal noise levels. These ambient noise levels vary by location and over time, but are considered part of the County's setting for CEQA purposes. The KCGP Noise Element establishes the applicable CEQA significance threshold for noise impacts, and there is no actual or implied "zero decibel" or "any audible noise increase" that is appropriate or applicable to the project study area.

The following KCGP goals, policies, and implementation measures are applicable to the project:

Chapter 3. Noise Element

Section 3.2 Noise Sensitive Areas

Goals

- **Goal 1**. Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.
- **Goal 2.** Protect the economic base of Kern County by preventing the encroachment of incompatible land uses near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and other sources.

Policies

- **Policy 1.** Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.
- **Policy 2.** Require noise level criteria applied to all categories of land uses to be consistent with the recommendations of the California Division of Occupational Safety and Health (DOSH).
- **Policy 3.** Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise.
- **Policy 4.** Utilize good land use planning principles to reduce conflicts related to noise emissions.
- **Policy 5.** Prohibit new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into the project design. Such mitigation shall be designed to reduce noise to the following levels:

  (a) 65 dB-L_{dn} or less in outdoor activity areas.

  (b) 45 dB-L_{dn} or less within living spaces or other noise sensitive interior spaces.
- **Policy 7.** Employ the best available methods of noise control.
- **Policy 8.** Enforce the State Noise Insulation Standards (California Administrative Code, Title 24) and Chapter 35 of the Uniform Building Code concerning the construction of new multiple-occupancy dwellings such as hotels, apartments, and condominiums.

Implementation Measures

- **Implementation Measure A.** Utilize zoning regulations to assist in achieving noise-compatible land use patterns.
- **Implementation Measure C.** Review discretionary development plans, programs and proposals, including those initiated by both the public and private sectors, to ascertain and ensure their conformance to the policies outlined in this element.
- **Implementation Measure D.** Review discretionary development plans for proposed residential or other noise sensitive land uses in noise-impacted areas to ensure their conformance with the noise standards of 65 dB L_{dn} or less in outdoor activity areas and 45 dB L_{dn} or less within interior living spaces.
- **Implementation Measure F.** Require proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise sensitive land

uses to exterior noise levels in excess of 65 dB L_{dn} and interior noise levels in excess of 45 dB L_{dn}.

- **Implementation Measure G.** At the time of any discretionary approval, such as a request for a General Plan Amendment, zone change or subdivision, the developer may be required to submit an acoustical report indicating the means by which the developer proposes to comply with the noise standards. The acoustical report shall:
  a) Be the responsibility of the applicant.
  b) Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics.
  c) Be subject to the review and approval of the Kern County Planning and Natural Resources Department and Kern County Public Health Services Department. All recommendations therein shall be complied with prior to final approval of the project.
- **Implementation Measure H.** Encourage cooperation between the County and the incorporated cities within the County to control noise.
- **Implementation Measure I.** Noise analyses shall include recommended mitigation, if required, and shall:
  a) Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.
  b) Include estimated noise levels, in terms of CNEL, for existing and projected future (10 – 20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element.
  c) Include recommendations for appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element.
  d) Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise Element will not be achieved, a rationale for acceptance of the project must be provided.
- **Implementation Measure J.** Develop implementation procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are conducted as part of the project permitting process.

Kern County Ordinance

Title 19 Kern County Zoning Ordinance

Section 19.04.252 of the Kern County Zoning Ordinance defines *exterior noise level* as "the noise level near the exterior of a structure usually within fifty (50) feet of the structure."

Section 19.80.030.S (1) restricts noise generated by commercial or industrial uses within 500 feet of a residential use or residential zone district. The commercial or industrial use shall not generate noise that exceeds an average 65 dB L_{dn} between the hours of 7 AM and 10 PM. and shall not generate noise that exceeds 65 dB, or which would result in an increase of 5 dB or more from ambient sound levels, whichever is greater, between the hours of 10 PM and 7 AM. Commercial or industrial facilities that are located in the M-3 zone district are exempt from these noise-generation restrictions.

Title 8 Kern County Health and Safety Ordinance

Chapter 8.36 Noise Control

The Noise Control Ordinance in the Kern County Ordinance (Section 8.36.020 et seq.) prohibits a variety of nuisance noises. Construction-related noise is regulated by means of a limitation on the hours of construction activity for projects located within 1,000 feet of an occupied residential dwelling. In such cases, construction is prohibited between the hours of 9 PM and 6 AM on weekdays and 9 PM and 8 AM on weekends, except as provided below:

- The development services agency director or his designated representative may for good cause exempt some construction work for a limited time.
- Emergency work is exempt from this section.

4.12.4 Supplemental Recirculated EIR (SREIR) New and Updated Analysis

Methodology

A supplemental analysis of potential project noise impacts that could be associated with lower traffic ICR levels than considered in the FEIR (2016) was undertaken. To evaluate a lower ICR an updated Traffic Study was completed by Fehr & Peers (2019) (Volume 4, Appendix E.2), which provides the basis for this supplemental noise analysis. To ensure that the SREIR provides a consistent analysis of potential significant adverse effects associated with traffic-related noise, noise levels from the FEIR (2016) were first re-assessed based on the with updated trip generation rates as described in the 2019 Traffic Study; this is the Updated 28.7% HBW ICR analysis. The five lower ICR/higher VMT scenarios identified in the 2019 Traffic Study were also assessed and evaluated for the potential to cause significant new or significantly worse impacts than those identified in the 2016 EIR and those caused by the project as reflected in the Updated 28.7% HBW ICR analysis.

The five Reduced ICR Scenarios identified in the 2019 Traffic Study, and evaluated are listed below:

(a) **Scenario A.** Proposed project development of 12,000 dwelling units and 5,100,000 square feet of commercial/light industrial uses at 100 percent of full buildout with a 10 percent reduction in the daily and peak hour ICRs used in the 2016 EIR (Screening Scenario 1 and Scenario 1 in the 2019 Traffic Study, Volume 4, Appendix E.2).

(b) **Scenario B.** Proposed project development of 12,000 dwelling units and 5,100,000 square feet of commercial/light industrial uses at 100 percent of full buildout with a 20 percent reduction in the daily and peak hour ICRs used in the 2016 EIR (Screening Scenario 2 and Scenario 2 in the 2019 Traffic Study, Volume 4, Appendix E.2).

(c) **Scenario C.** Proposed project development of 12,000 dwelling units and 5,100,000 square feet of commercial/light industrial uses at 75 percent of full buildout (9,000 dwelling units and 3,185,000 square feet of commercial/light industrial uses) with a 20 percent reduction in the daily and peak hour ICRs used in the 2016 EIR (Screening Scenario 4 and Scenario 4 in the 2019 Traffic Study, Volume 4, Appendix E.2).

(c) **Scenario D.** Development of 14,000 dwelling units and schools and parks as required by applicable land use laws and regulations, with no complementary commercial/light industrial amenities or on-site employment-generating land uses (Screening Scenario 9 and Scenario 9 in the 2019 Traffic Study, Volume 4, Appendix E.2).

(d) **Scenario E.** Development of 12,000 dwelling units and schools and parks as required by applicable land use laws and regulations, with no complementary commercial/light industrial amenities or on-site employment-generating land uses (Screening Scenario 10 and Scenario 10 in the 2019 Traffic Study, Volume 4, Appendix E.2).

As explained above, this analysis estimates traffic-related noise levels for the Updated 28.7% HBW ICR analysis and five Reduced ICR Scenarios. The five Reduced ICR Scenarios have the potential to increase the percentage of medium or heavy trucks. The same approach and methodology applied in the 2016 EIR was applied in this SREIR analysis. For the analysis, the 2019 Traffic Study examined the same ten intersections that were evaluated in the DEIR (2016) and FEIR (2016) for Cumulative Plus Project Conditions at Laval/Wheeler and Grapevine interchange areas for AM and PM peak hour conditions. These intersections with relatively direct connection to I-5 interchanges were identified as having the potential to experience a greater percentage of medium and heavy trucks, as compared to the FEIR (2016) analysis:

- Dennis McCarthy Drive/Laval Road
- 1-5 Southbound Ramps/Laval Road
- I-5 Northbound Ramps/S. Wheeler Ridge Road
- S. Wheeler Ridge Road/Laval Road
- Street C/Street A
- 1-5 Southbound Off-Ramp/Street A
- 1-5 Northbound Off-Ramp/Street A
- Street D/Street A
- Street C/Street G
- Street C/Street H

The 2019 Traffic Study provided peak hour intersection turn movement volumes, including percentage of medium trucks and heavy trucks, for each of the above ten intersections under the Updated 28.7% HBW ICR analysis and five Reduced ICR Scenarios. These intersection turn movement volumes were used to determine vehicle volumes for the road comprising each leg of each intersection. The roadway traffic volumes determined under the Updated 28.7% HBW ICR analysis were compared against the volumes used in the FEIR (2016) traffic noise analysis, to assess whether the updated methodology would alter any of the FEIR (2016) conclusions. Roadway segment volumes and resulting noise levels for the remaining five Reduced ICR Scenarios were then individually compared to the Updated 28.7% HBW ICR analysis noise levels.

It should be noted this updated traffic noise analysis focuses primarily on local roadway segments and does not include I-5. The reason for this is that I-5 already carries approximately 80,000 average daily trips (ADT) along the segments that are adjacent to the area covered by the Specific Plan (Caltrans 2016). The minor changes to the percentage of heavy or medium trucks represented in project traffic volumes under the five Reduced ICR Scenarios would not have the potential to alter the overall traffic noise levels associated with I-5 because total project trip volumes would be a very slight percentage of the existing ADTs travelling along I-5.

Thresholds of Significance

As discussed in the NOP, the County determined that that the thresholds of significance used in the 2016 EIR do not require modification to address the 2018 revisions to CEQA Appendix G. Accordingly, this supplemental analysis addresses the following thresholds of significance to assess whether the project would involve:

- Exposure of persons to, or generate, noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies.

The supplemental noise analysis herein does not address the following thresholds, which are not relevant to the five lower ICR/higher VMT scenarios evaluated:

- Exposure of persons to, or generate, excessive groundborne vibration or groundborne noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- For a project located within the Kern County Airport Land Use Compatibility Plan, would the project expose people residing or working in the project area to excessive noise levels; or,
- For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

The lead agency determined in the DEIR (2016) NOP/Initial Study (IS) (see Volume 5) that the following environmental issues areas resulted in no impact or less than significant impact and was scoped out of requiring further review in the 2016 EIR. Refer to Volume 5 for a copy of the NOP/IS and additional information regarding the following impacts:

- For a project located within the Kern County Airport Land Use Compatibility Plan, would the project expose people residing or working in the project area to excessive noise levels.

  The project is not located within the sphere of influence of an airport, as identified in the Kern County Airport Land Use Compatibility Plan. There are no public airports or public use airport located in the project vicinity. Therefore, the project would not expose people residing or working in the project area to excessive noise levels related to public airports. No impact would occur.

Kern County Noise Significance Criteria

As described in Section 4.12.3, *Regulatory Setting*, Policy 5 of the KCGP Noise Element specifies the exterior noise limit for noise sensitive land uses to be 65 dBA L_{dn} (or CNEL) within outdoor activity areas or 45 dBA L_{dn} (or CNEL) within interior living spaces.

For transportation-related noise, impacts are considered significant if project-generated traffic exposes existing or potential noise sensitive land uses to sound levels in excess of 65 dBA L_{dn} (or CNEL). In areas where the ambient noise exceeds 65 dBA L_{dn} (or CNEL), a three dBA L_{dn} (or CNEL) or greater increase due to a proposed project is considered significant.

Impacts relating to operational noise are considered significant when project-related commercial or industrial noise would result in exposure of noise sensitive land uses to noise levels exceeding 65 dBA L_{dn} (or CNEL), as discussed in KCGP Noise Element Policy 1.

With respect to noise generation during construction, Section 8.36.020 of the Kern County Ordinance Code (Noise Ordinance) establishes construction noise control standards that would apply to any proposed project construction activity. Generally, noise-generating construction activities are restricted to the period between 6 AM and 9 PM weekdays and between 8 AM and 9 PM on weekends. Construction noise outside these allowable periods would be considered significant if it is audible to a person at a distance of 150 feet of the construction activity, if the construction site is within 1,000 feet of an occupied residential dwelling.

Impacts related to excessive groundborne vibration would be significant if the project results in the exposure of persons to or generation of excessive groundborne vibration equal to or in excess of 0.2 inches per second PPV. Construction activities within 200 feet and pile driving within 600 feet would be potentially disruptive to vibration-sensitive operations (Dudek, 2015b).

Project Impacts

Impact 4.12-1: Exposure of Persons to, or Generate, Noise Levels in Excess of Standards Established in the Local General Plan or Noise Ordinance or Applicable Standards of Other Agencies

As discussed above and shown in Figure 4.12-1, *Noise Measurement Locations*, there are three total potentially sensitive receptors within the project site, including two residential structures. Within one mile of the project site, there are 18 sensitive receptors, including 16 residential structures located adjacent to the project's Plan Areas 6c, 6d, and 6e.

The project was analyzed relative to noise generated from construction and implementation (operation) of the project, as well as noise exposure on proposed sensitive land uses from existing and proposed transportation facilities.

Operational noise for the project generally falls into five categories: 1) noise generated by commercial development; 2) noise generated by residential development; 3) noise generated by recreational facilities; 4) noise generated by infrastructure systems, such as the water supply and water treatment facilities and wastewater treatment facilities; and, 5) noise generated by increased traffic resulting from the project. The analysis of the first four categories are included in the 2016 EIR located in Volume 5; the fifth category, noise generated by increased traffic resulting from the project, is presented here as part of the SREIR analysis.

Operational Impacts

Noise Exposure

Roadway Noise

Existing roadways within the project vicinity include I-5, Edmonston Pumping Plant Road, Grapevine Road, Laval Road, and Wheeler Ridge Road. Roads within the project boundaries would be constructed as part of project implementation in a grid pattern. In the eastern portion of the project site, arterial roads are proposed to extend north from Edmonston Pumping Plant Road to

serve future land uses; these arterials would be connected by arterial roads that run east to west to form a basic grid pattern for the circulation system. In the western portion of the project site, a future street system is proposed to extend from the Grapevine Road West north to the California Aqueduct and west of I-5.

Existing Noise Sensitive Land Uses (NSLU)

Traffic-related noise impacts, especially in the context of a proposed specific plan analysis, must primarily evaluate the future noise environment resulting from long-range community buildout (project buildout or project implementation). This is performed using the traffic volumes anticipated from full buildout of the project compared with background or cumulative traffic from all other development in the region. While an extensive level of cumulative development is not anticipated to occur within the project area, many areas accessed via I-5 are anticipated to experience substantial growth, leading to increases in traffic volumes on I-5 and the local interchanges in the study area.

Table 4.12-7, *Traffic Related Noise Levels at Existing Noise Sensitive Land Uses (dBA CNEL)*, compares the traffic-related noise level at the existing noise sensitive land use for the FEIR (2016), Updated 28.7% HBW ICR analysis, Scenario A, Scenario B, Scenario C, Scenario D, and Scenario E traffic levels. The maximum change in noise levels at existing NSLUs between the FEIR (2016) and the Updated 28.7% HBW ICR analysis is 0.1 dBA CNEL. Using this level, the FEIR (2016) analysis of traffic noise on existing NSLU's remains accurate. However, the Updated 28.7% HBW ICR analysis noise levels are used as a basis for comparison of the five reduced ICR Scenario noise levels.

Table 4.12-7. Traffic Related Noise Levels at Existing Noise Sensitive Land Uses - Comparison of FEIR (2016), Updated 28.7% HBW ICR Analysis and Five Reduced ICR Scenarios

		Residences Between I-5 NB & SB Lanes	Best Western	Microtel Inn & Suites	Residences West of area 6d	Residences West of area 6e
FEIR (2016) Cumulative	CNEL	66.2	72.6	64	51.1	57.4
FEIR (2016) Cumulative Plus Project (CPP)	CNEL	67.6	73.5	68.5	53.5	59.8
Project Contribution (FEIR (2016))	dB	1.4	0.9	4.5	2.4	2.4
Updated 28.7% HBW ICR Analysis CPP	CNEL	67.6	73.5	68.6	53.6	59.9
Updated 28.7% HBW ICR Analysis change from FEIR (2016) CPP	dB	0	0	0.1	0.1	0.1

Table 4.12-7. Traffic Related Noise Levels at Existing Noise Sensitive Land Uses - Comparison of FEIR (2016), Updated 28.7% HBW ICR Analysis and Five Reduced ICR Scenarios

		Residences Between I-5 NB & SB Lanes	Best Western	Microtel Inn & Suites	Residences West of area 6d	Residences West of area 6e
Net Increase FEIR (2016) cumulative to Updated 28.7% HBW ICR Analysis CPP	dB	1.4	0.9	4.6	2.5	2.5
Scenario A	CNEL	67.6	73.5	69.8	54.3	60.6
Scenario A Change from Updated 28.7% HBW ICR Analysis CPP	dB	0	0	1.2	0.7	0.7
Net Increase FEIR (2016) cumulative to Scenario A CPP	dB	1.4	0.9	5.7	3.1	3.1
Scenario B	CNEL	67.6	73.5	70.5	54.5	60.8
Scenario B Change from Updated 28.7% HBW ICR Analysis CPP	dB	0	0	1.9	1.0	1.0
Net Increase FEIR (2016) cumulative to Scenario B CPP	dB	1.4	0.9	6.5	3.4	3.4
Scenario C	CNEL	67.6	73.5	70.4	54.1	60.4
Scenario C Change from Updated 28.7% HBW ICR Analysis CPP	dB	0	0	1.8	0.5	0.5
Net Increase FEIR (2016) cumulative to Scenario C CPP	dB	1.4	0.9	6.4	3.0	3.0
Scenario D	CNEL	67.6	73.5	70.2	54.3	60.6
Scenario D Change from Updated 28.7% HBW ICR Analysis CPP	dB	0	0	1.6	0.7	0.7

Table 4.12-7. Traffic Related Noise Levels at Existing Noise Sensitive Land Uses - Comparison of FEIR (2016), Updated 28.7% HBW ICR Analysis and Five Reduced ICR Scenarios

		Residences Between I-5 NB & SB Lanes	Best Western	Microtel Inn & Suites	Residences West of area 6d	Residences West of area 6e
Net Increase FEIR (2016) cumulative to Scenario D CPP	dB	1.4	0.9	6.2	3.2	3.2
Scenario E	CNEL	67.6	73.5	69.8	53.9	60.2
Scenario E Change from Updated 28.7% HBW ICR Analysis CPP	dB	0	0	1.2	0.3	0.3
Net Increase FEIR (2016) cumulative to Scenario E CPP	dB	1.4	0.9	5.8	2.8	2.8

Source: Dudek, 2019b

Traffic noise increases would be 1.4 dBA CNEL at the residences located between the I-5 northbound and southbound lanes, comparing all scenarios against the FEIR (2016) Cumulative Traffic without Project Noise level. This is due to the very small percentage of total traffic compared to the very large balance of traffic on I-5, regardless of the analysis scenario. Since the increase attributed to the project under any scenario would remain below the 3 dBA County threshold, impacts to these residences would be less than significant.

The project-related traffic noise increase would be 0.9 dBA CNEL at the Best Western motel, comparing all scenarios against the FEIR (2016) Cumulative Traffic without Project noise level. Since the increase attributed to the project under any scenario would remain below the 3 dBA County threshold, impacts to the Best Western motel would be less than significant.

At the residences adjacent to Plan Areas 6d and 6e, the project-related traffic noise increase would range from 2.5 to 3.4 dBA CNEL, dependent upon a given scenario, and when this scenario is compared against the FEIR (2016) Cumulative Traffic without Project cumulative scenario. These increases would each round to 3 dBA and would therefore not trigger the County significance threshold; impacts would therefore be less than significant for the residences adjacent to Plan Areas 6d and 6e.

For the Microtel motel located at TRCC, the project would increase traffic-related noise levels between 4.6 and 6.2 dBA CNEL, dependent upon a given scenario, and when said scenario is compared against the FEIR (2016) Cumulative Traffic without Project cumulative scenario. The Microtel motel was constructed within the last three years, employing noise control construction methods to address immediate proximity to I-5 traffic. The TRCC hotels do not have any exterior use areas that would be subject to the County's 65 dBA CNEL exterior noise criterion. The original project contribution was determined to be 5.9 dBA CNEL under the existing plus project scenario, and 4.5 dBA under the cumulative traffic plus project scenario. Hence the range of increases from 4.6 to 6.2 dBA CNEL is approximately equivalent to the range in the FEIR (2016), and the

differences would again not be discernible to the human ear. Therefore, increases in noise levels associated with project traffic at the Microtel motel, under all of the scenarios, is considered less than significant (consistent with the FEIR (2016) conclusion).

Proposed Noise Sensitive Land Uses

In general, project implementation would include paved travel lanes, parkways, and sidewalks within 50 feet of the proposed roadway centerline. In areas where future roadway traffic noise levels at 50 feet from the roadway centerline were determined to be 65 dBA CNEL or less, significant impacts upon adjacent noise sensitive land uses would not be anticipated to occur. In areas where the future traffic noise level is predicted to exceed 65 dBA CNEL at 50 feet from the roadway centerline, potentially significant noise impacts upon adjacent noise sensitive land uses could occur.

The additional analysis of traffic-related noise levels along future roadways within the Plan area compares the FEIR (2016), Updated 28.7% HBW ICR analysis, Scenario A, Scenario B, Scenario C, Scenario D, and Scenario E traffic levels. Only roadways associated with the ten intersections examined for greater percentage medium and/or heavy trucks are included in the noise analysis (Table 4.12-8).

Table 4.12-8. On-Site Future Roadway Noise Levels: CNEL at 50 Feet From Roadway Centerline - Comparison of FEIR (2016), Updated 28.7% HBW ICR Analysis and Five Reduced ICR Scenarios

	Street C G to A	Street C A to H	Street C H to B	Street A D to I	Street A J to L	Street A L to N	Street D B to A	Street D A to Del Oro	Street D Edmnd. to B
FEIR (2016) Cumulative Plus Project (CPP)	73	72	69	74	71	68	71	67	66
Updated 28.7% HBW ICR Analysis CPP	72.8	71.9	68.9	73.9	70.9	67.9	70.9	66.9	65.9
Updated 28.7% HBW ICR Analysis change from FEIR (2016) CPP	(-0.2)	(-0.1)	(-0.1)	(-0.1)	(-0.1)	(-0.1)	(-0.1)	(-0.1)	(-0.1)
Scenario A	72.7	71.7	68.7	73.9	70.9	67.9	70.8	66.8	65.8
Scenario A Change from Updated 28.7% HBW ICR Analysis CPP	(-0.1)	(-0.2)	(-0.2)	0	0	0	0.1	0.2	0.1
Scenario B	72.8	71.7	68.7	74.1	71.1	68.1	71.1	67.2	66.1
Scenario B Change from Updated 28.7% HBW ICR Analysis CPP	0	(-0.2)	(-0.2)	0.2	0.2	0.2	0.2	0.3	0.2
Scenario C	72.9	72.1	69.0	73.7	70.7	67.7	70.7	66.7	65.7
Scenario C Change from Updated 28.7% HBW ICR Analysis CPP	0.1	0.2	0.1	(-0.2)	(-0.2)	(-0.2)	(-0.2)	(-0.2)	(-0.2)

Table 4.12-8. On-Site Future Roadway Noise Levels: CNEL at 50 Feet From Roadway Centerline - Comparison of FEIR (2016), Updated 28.7% HBW ICR Analysis and Five Reduced ICR Scenarios

	Street C G to A	Street C A to H	Street C H to B	Street A D to I	Street A J to L	Street A L to N	Street D B to A	Street D A to Del Oro	Street D Edmnd. to B
Scenario D	73.0	71.4	68.3	74.0	71.0	68.0	70.8	66.6	65.8
Scenario D Change from Updated 28.7% HBW ICR Analysis CPP	0.2	(-0.5)	(-0.6)	0.1	0.1	0.1	(-0.1)	(-0.3)	(-0.1)
Scenario E	72.6	71.1	68.1	73.4	70.4	67.4	70.1	66.2	65.1
Scenario E Change from Updated 28.7% HBW ICR Analysis CPP	(-0.2)	(-0.8)	(-0.8)	(-0.5)	(-0.5)	(-0.5)	(-0.8)	(-0.7)	(-0.8)

Source: Dudek, 2019b

Roadway segment traffic noise increases would in every case remain below 1 dBA, when comparing each scenario against the FEIR (2016) values. For many of these segments, a noise level decrease is calculated to occur, also less than 1 dBA in magnitude. Because all of the noise level differences identified are well below perceptibility by the human ear, the noise levels reported in the FEIR (2016) for future on-site roadway remain accurate. Consequently, as with the FEIR (2016), future proposed noise sensitive land uses under the identified scenarios could be exposed to traffic-related noise levels that exceed 65 dBA CNEL, resulting in a potentially significant impact.

Conclusion

Project traffic noise contributions at the cumulative level have been demonstrated not to trigger the significance threshold of an increase greater then 3 dBA CNEL at existing noise sensitive uses in the project vicinity. In most cases, the five Reduced ICR Scenarios would contribute moderate increases of less than 2 dBA, when compared to the levels identified in the FEIR (2016). The conclusions of the FEIR (2016) remain accurate with respect to traffic noise exposure for existing NSLU; project traffic noise, even under each of the analyzed five Reduced ICR Scenarios, would remain a less than significant impact. No mitigation is required.

Changes to project traffic noise contributions at the cumulative level along future on-site roadways under all analysis scenarios was found to be less than 1 dBA CNEL, compared to the values reported in the FEIR (2016). In most cases, the Reduced ICR Scenarios would contribute increases of less than 0.5 dBA, and in many cases the change is a reduction in the noise level. However, noise exposure levels along all roadway segments evaluated would be greater than 65 dBA CNEL at 50 feet from the roadway centerline. The conclusions of the FEIR (2016) remain accurate with respect to future on-site roadway traffic noise exposure—namely, that potentially significant impacts could

occur. Mitigation Measure MM 4.12-4, as identified in the FEIR (2016), would continue to apply, and would reduce impacts to less than significant levels.

Mitigation Measures

MM 4.12-1 The following shall be implemented by the project proponent during project construction:

1) Project construction hours shall comply with Kern County Noise Ordinance.
2) The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors.
3) The construction contractor shall locate pile drivers, or other machinery capable of causing strong vibrations or load noises, such that the rear of the vibratory pile driver or machinery faces toward the noise sensitive receptor when the machine is being utilized.
4) The construction contractor shall locate equipment staging in areas that will create the greatest possible distance between construction –related noise sources and noise sensitive receptors nearest the project site during all project construction to the extent practical.
5) The construction contractor shall ensure proper maintenance and working order of equipment and vehicles, and that all construction equipment is equipped with manufacturer's approved mufflers and baffles.
6) The construction contractor shall install sound-control devices in all construction and impact equipment, no less effective than those provided ion the original equipment.
7) The construction contractor shall establish a noise disturbance coordinator for the project during construction. The disturbance coordinator shall be responsible for responding to any complaints about construction noise. The disturbance coordinator shall determine the cause of the complaint and shall be required to implement reasonable measures to resolve the complaint.

MM 4.12-2 Prior to the issuance of grading permits, the project operator shall submit evidence of the following: Construction contracts shall specify that notices shall be sent out to all residences located within 1,000 feet from the project site at least 15 days prior to commencements of construction. The notices shall include the construction schedule and a telephone number where complaints can be registered with the noise disturbance coordinator. A sign, legible at a distance of 50 feet, shall also be posted at the construction sites throughout construction which includes the same details as the notices.

MM 4.12-3 Prior to issuance of grading permits, the project proponent shall submit evidence of methods of implementation and shall continuously comply with the following during construction: A "noise disturbance coordinator" shall be established. The disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of

the noise complaint (e.g., starting to early, bad muffler, etc.) and shall be required to implement reasonable measures such that the complaint is resolved.

MM 4.12-4

a) Prior to approval of any subdivision map that would authorize residential development, park site, or other sensitive noise receptor within 1,000 feet of the centerline of Interstate 5, the project proponent shall provide to the County a noise assessment prepared by a qualified, County-approved acoustical engineer. The noise assessment shall identify noise reduction measures necessary to ensure that sensitive noise receptors located adjacent to Interstate-5 will not be exposed to ambient noise levels that exceed 65 dBA (outside) and 45 dBA (inside) respectively. Acceptable noise reduction measures could include, but not be limited to, sound barriers, vegetated buffers, ventilation filters, noise attenuating window glazing, and noise attenuating insulation. Noise reduction measures identified in the required noise assessment shall be required as conditions of approval to the final subdivision map, commercial site plan, and/or building permit to assure compliance with the County's ambient noise standards.

b) Prior to approval of any subdivision map that would authorize residential development, park site, or other sensitive noise receptor within 500 feet of the centerline of any internal roadway, the project proponent shall provide to the County a noise assessment prepared by a qualified, County-approved acoustical engineer. The noise assessment shall identify noise reduction measures necessary to ensure sensitive noise receptors located adjacent to internal project roadways will not be exposed to ambient noise levels that exceed 65 dBA (outside) and 45 dBA (inside) respectively. Acceptable noise reduction measures could include, but not be limited to, sound barriers, vegetated buffers, ventilation filters, noise attenuating window glazing, and noise attenuating insulation. Noise reduction measures identified in the required noise assessment shall be required as conditions of approval to the final subdivision map, commercial site plan, and/or building permit to assure compliance with the County's ambient noise standards.

MM 4.12-5 Prior to issuance of final occupancy, the project proponent shall reduce noise impacts by ensuring the installation of acoustical shielding around all new rooftop heating-ventilation-air-conditioning (HVAC) equipment, or by placing the HVAC equipment below grade in basement space, as needed to assure that that exterior noise levels do not exceed 65 dBA CNEL at the property line of the nearest noise-sensitive land use.

MM 4.12-6 Prior to the submittal of any Commercial/Industrial Site Development Plan or modification to an approved Commercial Site/Industrial Development Plan, the project proponent shall demonstrate that a distance of not less than 35 feet will be established between proposed school, park, or community center activity areas (playgrounds, athletic fields etc.) and neighboring residential neighborhoods.

MM 4.12-7 Prior to the submittal of any Commercial Site/Industrial Development Plan or modification to an approved Commercial Site/Industrial Development Plan, the

project proponent shall demonstrate that pump stations located adjacent to residential land uses or water treatment / wastewater treatment facilities located within 55 feet of residential land uses shall place pumps, emergency generators, and any other motorized equipment within a masonry enclosure that minimizes noise levels outside the enclosure. Prior to operation, the noise levels from stationary motorized equipment (including emergency generators) shall be measured to ensure that operation of the equipment would not exceed an exterior noise level of 65 dBA CNEL at the nearest residential property line.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.12-2: Exposure of Persons to, or Generate, Excessive Ground Borne Vibration or Ground Borne Noise Levels

Groundborne vibration and groundborne noise level impacts would be the same as the impacts considered in FEIR (2016) analysis.

Mitigation Measures

The project would comply with the goals, policies, and implementation measures of the KCGP. No additional mitigation measures are proposed.

Level of Significance

Impacts would be less than significant.

Impact 4.12-3: Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project

Substantial permanent increase in ambient noise level impacts would be the same as the impacts considered in FEIR (2016) analysis.

Mitigation Measures

Implement Mitigation Measures MM 4.12-1 through MM 4.12-7, as described above.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.12-4: Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project

Substantial temporary or periodic increase in ambient noise level impacts would be the same as the impacts considered in FEIR (2016) analysis.

Mitigation Measures

Implement Mitigation Measures MM 4.12-1 through MM 4.12-3, as described above.

Level of Significance after Mitigation

Impacts would be significant and unavoidable.

Impact 4.12-5: For a Project within the Vicinity of a Private Airstrip, Exposure of People Residing or Working in the Project Area to Excessive Noise Levels

Tejon Ag Airport is the nearest private airstrip, located on Laval Road, approximately 1.5 miles east of the TRCC, between the project's Plan Areas 6c and 6d. Impacts associated with exposure of people residing or working in the project area to excessive noise levels would be the same as the impacts considered in FEIR (2016) analysis.

Mitigation Measures

The project would comply with the goals, policies, and implementation measures of the KCGP. No additional mitigation measures are proposed.

Level of Significance

Impacts would be less than significant.

Cumulative Setting Impacts and Mitigation Measures

Cumulative Setting

The cumulative impact analysis considers the combined noise impacts of the project with future regional growth and nearby related projects.

Impact 4.12-6: Contribute to Cumulative Noise Impacts

Cumulative noise impacts would be the same as the impacts considered in FEIR (2016) analysis.

Mitigation Measures

Implement Mitigation Measures MM 4.12-1 through MM 4.12-7, as described above.

Level of Significance after Mitigation

Impacts would be significant and unavoidable.