4.11 NOISE

4.11.1 Introduction

The purpose of this section is to describe both construction-related and operational noise and vibration levels to on-site and surrounding land uses resulting from the Beaumont Summit Station Specific Plan (Project). The analysis in the section evaluates the level of noise impacts the proposed Project would have on the environment. Noise data and assumptions that are used for quantifying the proposed Project's emissions are based on the following sources completed by Kimley-Horn. The noise data and calculations are included in **Appendix J** of this EIR.

4.11.2 Environmental Setting

Existing Noise Sources

The City of Beaumont is impacted by various noise sources. Mobile sources of noise, especially cars, trucks, and trains are the most common and significant sources of noise. Other noise sources are the various land uses (i.e., residential, commercial, institutional, and recreational and parks activities) throughout the City that generate stationary-source noise.

Mobile Sources

Existing roadway noise levels were calculated for the roadway segments in the Project vicinity. This task was accomplished using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) and existing traffic volumes from the Project traffic analysis (prepared by Kimley-Horn, 2022). The noise prediction model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (also referred to as energy rates) used in the FHWA model have been modified to reflect average vehicle noise rates identified for California by the California Department of Transportation (Caltrans). The Caltrans data indicates that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels. The average daily noise levels along roadway segments in proximity to the Project site are included in **Table 4.11-1, Existing Traffic Noise Levels**.

Table 4.11-1: Existing Traffic Noise Levels

Roadway Segment		ADT	dBA CNEL 100 Feet from Roadway Centerline
Cherry Valley Blvd	I-10 EB Ramps to I-10 WB Ramps	8,547	65.1
	I-10 WB Ramps to Hannon Rd	6,706	64.0
	Hannon Rd to Union St	6,073	63.6
	Union St to Nancy Ave	5,140	62.9
	Nancy Ave to Beaumont Ave	4,715	62.5
Brookside Ave	Hannon Rd to Union St	2,099	56.6
	Union St to Nancy Ave	2,366	57.1
	Nancy Ave to Oak View Dr	2,757	57.8
	Oak View Dr to Beaumont Ave	2,557	57.4

Roadway Segment		ADT	dBA CNEL 100 Feet from Roadway Centerline
Oak Valley Pkwy	I-10 EB Ramps to I-10 WB Ramps	10,996	62.8
	I-10 WB Ramps to Oak View Dr	12,837	63.7
Hannon Rd	Cherry Valley Blvd to Brookside	733	48.7
Union St	Cherry Valley Blvd to Brookside	383	45.9
Nancy Ave	Cherry Valley Blvd to Brookside	916	49.7
Oak View Dr	Brookside Ave to Oak Valley Pkwy	4,723	60.1
Beaumont Ave	Cherry Valley Blvd to Brookside	6,906	61.7
	Brookside Ave to Oak Valley Pkwy	9,488	63.1
ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level			
Source: Based on traffic data within the *Traffic Impact Study*, prepared by Kimley-Horn, 2021. Refer to Appendix J for traffic noise modeling assumptions and results.			

As depicted in **Table 4.11-1**, the existing traffic-generated noise level on Project-vicinity roadways currently ranges from 45.9 dBA CNEL to 65.1 dBA CNEL 100 feet from the centerline. CNEL is 24-hour average noise level with a 5 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively.

Stationary Sources

The nearest source of stationary noise in the Project vicinity would come from existing single-family residential properties to the east. Noise sources from residential uses typically include mechanical equipment such as heating, ventilation, and air conditioning (HVAC), automobile related noise such as cars starting and doors slamming, and landscaping equipment. The noise associated with these sources may represent a single-event noise occurrence or short-term noise. The noise associated with these sources may represent a single-event noise occurrence or short-term noise.

Noise Measurements

The Project site was formerly used as an egg and poultry ranch but is currently vacant and unoccupied. To quantify existing ambient noise levels in the Project area, Kimley-Horn conducted four short-term noise measurements and one long-term noise measurement on July 21, 2021; see **Appendix J**. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the Project site. The 10-minute measurements were taken between 9:46 a.m. and 11:00 a.m., the 24-hour measurement began at 11:15 a.m. on July 21, 2021 and ended on July 22, 2021. Measurements of L_{eq} are considered representative of the noise levels throughout the day. The average noise levels and sources of noise measured at each location are listed in **Table 4.11-2, Existing Noise Measurements** and shown on **Exhibit 4.11-1, Noise Measurement Locations**.

Table 4.11-2: Existing Noise Measurements

Site	Location	Measurement Period	Duration	Daytime Average L_{eq} (dBA)	Nighttime Average L_{eq} (dBA)
ST-1	N. Deodar Drive and Katherine Court	9:46 – 9:57 a.m.	10 Minutes	56.2	-
ST-2	Southern side of Brookside Avenue, approximately 1,400 feet east of I-10	10:02 – 10:12 a.m.	10 Minutes	66.3	-
ST-3	Northeast corner of Calimesa Blvd. and Coit Avenue	10:25 – 10:35 a.m.	10 Minutes	63.8	-
ST-4	Along the south side of Cherry Valley Boulevard, adjacent to the northwest corner of the Project site boundary.	10:50 – 11:00 a.m.	10 Minutes	69.8	-
LT-1	Along the south side of Cherry Valley Boulevard, adjacent to the northwest corner of the Project site boundary.	7/21/2021 at 11:15 a.m. to 7/22/2021 at 11:35 a.m.	24 hours	68.3	61.8
Source: Noise measurements taken by Kimley-Horn, July 21, 2021. See **Appendix J** for noise measurement results.					

Sensitive Receptors

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. Noise sensitive uses typically include residences, hospitals, schools, childcare facilities, and places of assembly. Vibration sensitive receivers are generally similar to noise sensitive receivers but may also include businesses, such as research facilities and laboratories that use vibration-sensitive equipment. The Project site is primarily surrounded by residential properties to the east and south of Brookside Avenue, the properties immediately to the north and west are vacant and undeveloped. Sensitive land uses nearest to the Project are listed in **Table 4.11-3, Sensitive Receptors**.

Table 4.11-3: Sensitive Receptors

Receptor Description	Distance and Direction from the Project to Property Line	Jurisdiction
Single-family Residences	Adjacent to the east	Riverside County
Single-family Residences	160 feet to the south	City of Beaumont
Single-family Residences	530 feet to the southeast	City of Beaumont
Single-family Residences	740 feet to the west	Riverside County
Source: Google Earth		

Acoustic Fundamentals

Acoustics is the science of sound. Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a medium (e.g., air) to human (or animal) ear. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second, or hertz (Hz).

Noise is defined as loud, unexpected, or annoying sound. In acoustics, the fundamental model consists of a noise source, a receptor, and the propagation path between the two. The loudness of the noise source, obstructions, or atmospheric factors affecting the propagation path, determine the perceived sound level and noise characteristics at the receptor. Acoustics deal primarily with the propagation and control of sound. A typical noise environment consists of a base of steady background noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background noise is the sound from individual local sources. These sources can vary from an occasional aircraft or train passing by to continuous noise from traffic on a major highway. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a large range of numbers. To avoid this, the decibel (dB) scale was devised. The dB scale uses the hearing threshold of 20 micropascals (µPa) as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The dB scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels correspond closely to human perception of relative loudness. **Table 4.11-4, Typical Noise Levels** provides typical noise levels.

Table 4.11-4: Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	– 110 –	Rock Band
Jet fly-over at 1,000 feet		
	– 100 –	
Gas lawnmower at 3 feet		
	– 90 –	
Diesel truck at 50 feet at 50 miles per hour		Food blender at 3 feet
	– 80 –	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower, 100 feet	**– 70 –**	Vacuum cleaner at 10 feet
Commercial area		Normal Speech at 3 feet
Heavy traffic at 300 feet	**– 60 –**	
		Large business office
Quiet urban daytime	**– 50 –**	Dishwasher in next room
Quiet urban nighttime	**– 40 –**	Theater, large conference room (background)
Quiet suburban nighttime		
	– 30 –	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	– 20 –	
		Broadcast/recording studio
	– 10 –	
Lowest threshold of human hearing	**– 0 –**	Lowest threshold of human hearing
Source: California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.		

Noise Descriptors

The dB scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The equivalent noise level (L_{eq}) represents the continuous sound pressure level over the measurement period, while the day-night noise level (L_{dn}) and Community Equivalent Noise Level (CNEL) are measures of energy average during a 24-hour period, with dB weighted sound levels from 7:00 p.m. to 7:00 a.m. Most commonly, environmental sounds are described in terms of L_{eq} that has the same acoustical energy as the summation of all the time-varying events. Each is applicable to this analysis and defined in **Table 4.11-5, Definitions of Acoustical Terms**.

Table 4.11-5: Definitions of Acoustical Terms

Term	Definitions
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. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in µPa (or 20 micronewtons per square meter), where 1 pascals is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in dB as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 µPa). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level (dBA)	The sound pressure level in dB as measured on a sound level meter using the A-weighting filter network. The A-weighting 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.
Equivalent Noise Level (L_{eq})	The average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
Maximum Noise Level (L_{max}) Minimum Noise Level (L_{min})	The maximum and minimum dBA during the measurement period.
Exceeded Noise Levels (L_{01}, L_{10}, L_{50}, L_{90})	The dBA values that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day-Night Noise Level (L_{dn})	A 24-hour average L_{eq} with a 10 dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity at nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
Community Noise Equivalent Level (CNEL)	A 24-hour average L_{eq} with a 5 dBA weighting during the hours of 7:00 a.m. to 10:00 a.m. and a 10 dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

The A-weighted decibel (dBA) sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source.

A-Weighted Decibels

The perceived loudness of sounds is dependent on many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by dBA values. There is a strong correlation between dBA and the way the human ear perceives sound. For this reason, the dBA has become the standard tool of environmental noise assessment. All noise levels reported in this document are in terms of dBA, but are expressed as dB, unless otherwise noted.

Addition of Decibels

The dB scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic dB is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dBA higher than one source under the same conditions. Under the dB scale, three sources of equal loudness together would produce an increase of 5 dBA.

Sound Propagation and Attenuation

Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics. No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. For line sources, an overall attenuation rate of 3 dB per doubling of distance is assumed.

Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA. The way older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA, the following relationships should be noted:

- Except in carefully controlled laboratory experiments, a 1-dBA change cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A minimum 5-dBA change is required before any noticeable change in community response would be expected. A 5-dBA increase is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Effects of Noise on People

Hearing Loss

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise. The Occupational Safety and Health Administration has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over 8 hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. A noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance.[1]

[1] Federal Interagency Committee on Noise, *Federal Agency Review of Selected Airport Noise Analysis Issues*, August 1992.

Groundborne Vibration

Sources of groundborne vibrations include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides, etc.) or man-made causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions). Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

Table 4.11-6, **Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibrations**, displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Table 4.11-6: Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibrations

Maximum PPV (in/sec)	Vibration Annoyance Potential Criteria	Vibration Damage Potential Threshold Criteria	FTA Vibration Damage Criteria
0.008	--	Extremely fragile historic buildings, ruins, ancient monuments	--
0.01	Barely Perceptible	--	--
0.04	Distinctly Perceptible	--	--
0.1	Strongly Perceptible	Fragile buildings	--
0.12	--	--	Buildings extremely susceptible to vibration damage
0.2	--	--	Non-engineered timber and masonry buildings
0.25	--	Historic and some old buildings	--
0.3	--	Older residential structures	Engineered concrete and masonry (no plaster)
0.4	Severe	--	--
0.5	--	New residential structures, Modern industrial/commercial buildings	Reinforced-concrete, steel or timber (no plaster)

PPV = peak particle velocity; in/sec = inches per second; FTA = Federal Transit Administration

Source: California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, 2020 and Federal Transit administration, Transit Noise and Vibration Assessment Manual, 2018.

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. Common sources for groundborne vibration are planes, trains, and construction activities such as earth-moving which requires the use of heavy-duty earth moving equipment. For the purposes of this analysis, a PPV descriptor with units of inches per second (in/sec) is used to evaluate construction-generated vibration for building damage and human complaints.

4.11.3 Regulatory Setting

Federal

To limit population exposure to physically or psychologically damaging as well as intrusive noise levels, the Federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise.

Federal Transit Administration Noise and Vibration Guidance

The Federal Transit Administration (FTA) has published the Transit Noise and Vibration Impact Assessment report to provide guidance on procedures for assessing impacts at different stages of transit project development. The report covers both construction and operational noise impacts and describes a range of measures for controlling excessive noise and vibration. The specified noise criteria are an earlier version of the criteria provided by the Federal Railroad Administration's High-Speed Ground Transportation Noise and Vibration Impact Assessment. In general, the primary concern regarding vibration relates to potential damage from construction. The guidance document establishes criteria for evaluating the potential for damage for various structural categories from vibration.

State

California Government Code

California Government Code (CGC) § 65302(f) mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines established by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable" noise levels for various land use types. Single-family homes are "normally acceptable" in exterior noise environments up to 60 CNEL and "conditionally acceptable" up to 70 CNEL. Multiple-family residential uses are "normally acceptable" up to 65 CNEL and "conditionally acceptable" up to 70 CNEL. Schools, libraries, and churches are "normally acceptable" up to 70 CNEL, as are office buildings and business, commercial, and professional uses.

California Noise Control Act of 1973

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

California Code of Regulations, Title 24 (California Noise Insulation Standards)

The State's noise insulation standards are codified in the California Code of Regulations, Title 24: Part 1, Building Standards Administrative Code, and Part 2, California Building Code. These noise standards are applied to new construction in California for interior noise compatibility from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, hotel rooms, or hospitals, are located near major transportation noise sources, and where such noise sources create an exterior noise level of 65 dBA CNEL or higher. Acoustical studies that accompany building plans must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new multi-family residential buildings and habitable rooms (including hotels), the acceptable interior noise limit for new construction is 45 dBA CNEL.

California Vehicle Code

A number of California vehicle noise regulations can be enforced by local authorities, as well as the California Highway Patrol. These include §§ 23130, 23130.5, 27150 and 38275 of the California Vehicle Code (CVC), as well as excessive speed laws, which may also be applied to curtail traffic noise.

California Vehicle Code (CVC §§ 23130 and 23130.5) establish maximum noise emission limits for the operation of all motor vehicles at any time under any conditions of grade, load, acceleration, or deceleration.

CVC § 27150 requires motor vehicles to be equipped with an adequate muffler to prevent excessive noise.

CVC § 38275 requires off-highway motor vehicles to be equipped with an adequate muffler to prevent excessive noise.

Local

City of Beaumont 2040 General Plan

The Beaumont 2040 Plan goals, policies, and implementation actions that reduce potential noise impacts include:

Land Use and Community Design Element

Goal 3.4: **A City that maintains and expands its commercial, industrial and other employment-generating land uses.**

Policy 3.4.8 Where industrial uses are near existing and planned residential development, require that industrial projects be designed to limit the impact of truck traffic, air and noise pollution on sensitive receptors.

Noise Element

Goal 10.1:	**A City where noise exposure is minimized for those living, working, and visiting the community**
Policy 10.1.1	Protect public health and welfare by eliminating existing noise problems and by preventing significant degradation of the future acoustic environment.
Policy 10.1.2	Adopt, maintain, and enforce planning guidelines that establish the acceptable noise standards identified in Table 10.1 and 10.2.
Policy 10.1.2	Protect noise-sensitive uses, such as residences, schools, health care facilities, hotels, libraries, parks and places of worship, from excessive noise levels through land use adjacency, building design, and noise ordinance enforcement.
Policy 10-1.4	Incorporate noise considerations into land use planning decisions. Require the inclusion of noise mitigation measures, as may be necessary to meet standards, in the design of new development projects in the City.
Policy 10.1.5	Require projects involving new development or modifications to existing development to implement measures, where necessary, to reduce noise levels to at least the normally compatible range. Design measures should focus on architectural features and building design and construction, rather than site design features, such as excessive setbacks, berms, and sound walls, to maintain compatibility with adjacent and surrounding uses.
Policy 10.1.6	Encourage reduction of stationary noise impacts from commercial and industrial land uses, activities, events, and businesses on noise-sensitive land uses.
Policy 10.1.7	Limit delivery or service hours for stores and businesses with loading areas, docks, or trash bins that front, side, border, or gain access on driveways next to residential and other noise sensitive areas, such as residences, schools, hospitals, religious meeting spaces, and recreation areas.
Policy 10.1.8	Promote the effective enforcement of Federal, State, and City noise standards by all appropriate City departments.
Goal 10.2:	**A City with minimal mobile source-generated noise levels.**
Policy 10.2.1	Work with Caltrans and the Federal Highway Administration to reduce noise impacts to sensitive receptors along I-10, SR-60 and SR-70.
Policy 10.2.2	Regulate traffic flow to enforce speed limits to reduce traffic noise. Periodically evaluate and enforce established truck and bus routes to avoid noise impacts on sensitive receptors.
Policy 10.2.3	Prohibit truck routes through neighborhoods with sensitive receptors, where feasible.
Policy 10.2.4	Reduce the impacts of roadway noise on noise-sensitive receptors where roadway noise exceeds the normally compatible range.

Policy 10.2.5 Require the use of traffic calming measures such as reduced speed limits or roadway design features to reduce noise levels where roadway noise exceeds the normally compatible range.

Policy 10.2.6 Encourage the use of noise-reducing paving materials, such as open-grade or rubberized asphalt, for public and private road surfacing projects in proximity to existing and proposed residential land uses.

Policy 10.2.7 Consider the noise effects of City purchases and or leases of vehicles and other noise generating equipment. Take reasonable and feasible actions to reduce the noise generated from City-owned or leased vehicles and equipment, where possible.

Policy 10.2.8 Ensure that noise and vibration from existing rail lines is considered during the land use planning and site development processes.

Policy 10.2.9 If Metrolink or other passenger rail service is initiated, work with the rail service providers to address noise and vibration considerations adjacent to the rail corridor.

Implementation N1 Update the City's Noise Ordinance. Provide development standards and project design guidelines that include a variety of mitigation measures that can be applied to meet City standards for projects exceeding the City's noise standards.

Implementation N2 Requirement for Acoustical Studies. Amend development application requirements so that projects that could result in noise environments above normally acceptable noise ranges or all new development complete acoustical studies prepared by qualified professionals to ensure that the noise levels are at acceptable levels, per the Municipal Code.

Implementation N3 Project Design Guidelines. Integrate project design guidelines that integrate features into new developments that minimize impacts associated with the operation of air conditioning and heating equipment, on-site traffic, and use of parking, loading, and trash storage facilities.

Implementation N4 Freeway Noise Reduction. Work collaboratively with Caltrans and the Federal Highway Administration to install measures that mitigate noise impacts along freeways.

Implementation N5 Traffic Noise Assessment. Periodically review and assess the sources of noise and vibration, strategies for mitigating impacts, and specific actions that can be applied.

Implementation N6 Construction Noise Limits. Review the hours of allowed construction activity to ensure they effectively lead to compliance within the limits (maximum noise levels, hours and days of allowed activity) established in the City's noise regulations.

Implementation N7 Stationary Equipment. Enforce requirements that all stationary construction equipment shall be operated with closed engine doors, equipped with properly operating and maintained mufflers, and placed so that emitted noise is directed away from the nearest sensitive receptors.

Implementation N8 Equipment Staging Areas. Require that equipment staging shall be in areas that will create the greatest distance feasible between construction-related noise sources and noise-sensitive receptors.

Implementation N9 Additional Noise Attenuation Techniques. Require that temporary sound barriers are installed and maintained between the construction site and the sensitive receptors during the clearing, earth moving, grading, and foundation/conditioning phases of construction. Temporary sound barriers shall consist of sound blankets affixed to construction fencing along all sides of the construction site boundary facing potentially sensitive receptors.

Implementation N10 Vehicle and Equipment Idling. Establish requirements that construction vehicles and equipment are not left idling for longer than five minutes when not in use.

City of Beaumont Municipal Code

The Beaumont Municipal Code (MC) establishes the following provisions for noise relative to the proposed Project:

Section 9.02.050 – Special Provisions

All ambient noise measurements shall commence at the base ambient noise levels in decibels within the respective times and zones as follows:

Table 4.11-7*: *Base Ambient Noise Level

Decibels	Time	Zone Use
45 dBA	10:00 p.m. – 7:00 a.m.	Residential
55 dBA	7:00 a.m. – 10: p.m.	Residential
50 dBA	10:00 p.m. – 7:00 a.m.	Industrial and Commercial
75 dBA	7:00 a.m. – 10: p.m.	Industrial and Commercial
Source: City of Beaumont, City of Beaumont Municipal Code, 2019		

Actual decibel measurements exceeding the levels set forth hereinabove at the times and within the zones corresponding thereto shall be employed as the "base ambient noise level." Otherwise, no ambient noise shall be deemed to be than the above specified levels.

Section 9.02.110 – Special Provisions

F. Construction, Landscape. Maintenance or Repair

1. It shall be unlawful for any person to engage in or permit the generation of noise related to landscape maintenance, construction including erection, excavation, demolition, alteration or repair of any structure or improvement, at such sound levels, as measured at the property line of the nearest adjacent occupied property, as to be in excess of the sound levels permitted under this Chapter, at other times than between the hours of 7:00 a.m. and 6:00 p.m. The person engaged in such activity is hereby permitted to exceed sound levels otherwise set forth in this Chapter for the duration of the activity during the above

described hours for purposes of construction. However, nothing contained herein shall permit any person to cause sound levels to at any time exceed 55 dB(A) for intervals of more than 15 minutes per hour as measured in the interior of the nearest occupied residence or school.

2. Whenever a construction site is within one-quarter of a mile of an occupied residence or residences, no construction activities shall be undertaken between the hours of 6:00 p.m. and 6:00 a.m. during the months of June through September and between the hours of 6:00 p.m. and 7:00 a.m. during the months of October through May. Exceptions to these standards shall be allowed only with the written consent of the building official.

County of Riverside General Plan

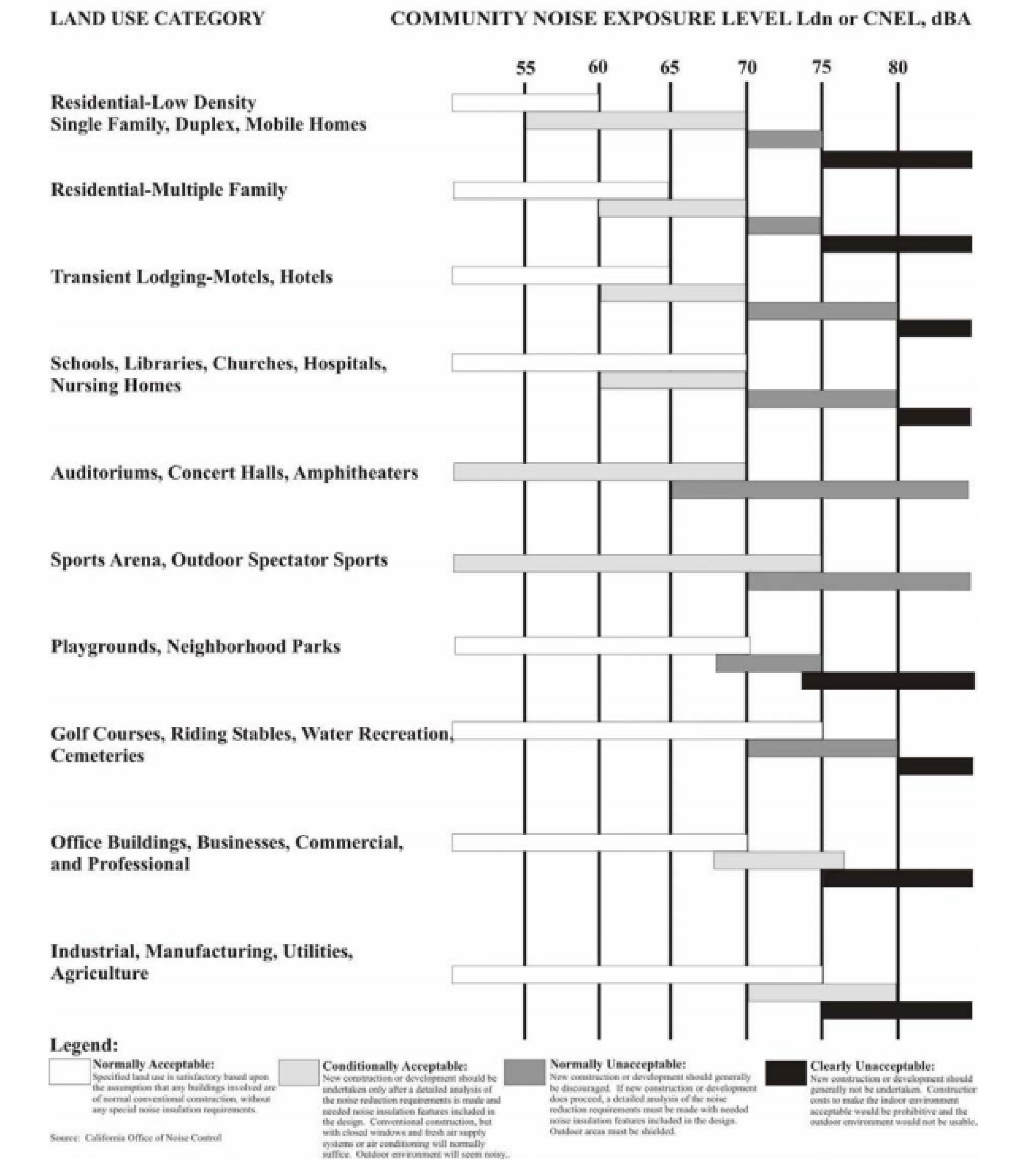
The County of Riverside General Plan contains the following policies addressing noise as part of the Noise Element:

Policy N 1.1 Protect noise-sensitive land uses from high levels of noise by restricting noise-producing land uses from these areas. If the noise-producing land use cannot be relocated, then noise buffers such as setbacks, landscaping, or blockwalls shall be used.

Policy N 1.5 Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors, and noise-sensitive uses of Riverside County.

Policy N 1.6 Minimize noise spillover or encroachment from commercial and industrial land uses into adjoining residential neighborhoods or noise-sensitive uses.

Table 4.11-8: Land Use Compatibility for Community Noise Exposure



Source: County of Riverside, County of Riverside General Plan, 2015.

4.11.4 Impact Thresholds and Significance Criteria

CEQA Thresholds

State CEQA Guidelines Appendix G contains the Environmental Checklist Form, which includes questions concerning noise. The questions presented in the Environmental Checklist Form have been utilized as significance criteria in this section. Accordingly, the Project would have a significant effect on the environment if it would:

- Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generate excessive groundborne vibration or groundborne noise levels; and
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the Project area to excessive noise levels.

Methodology and Assumptions

Construction

Construction noise levels were based on typical noise levels generated by construction equipment published by the FTA and the FHWA. Construction noise is assessed in dBA Leq. This unit is appropriate because Leq can be used to describe noise level from operation of each piece of equipment separately, and levels can be combined to represent the noise level from all equipment operating during a given period.

Construction noise modeling was conducting using the FHWA Roadway Construction Noise Model (RCNM). Reference noise levels are used to estimate operational noise levels at nearby sensitive receptors based on a standard noise attenuation rate of 6 dB per doubling of distance (line-of-sight method of sound attenuation for point sources of noise). Noise level estimates do not account for the presence of intervening structures or topography, which may reduce noise levels at receptor locations. Therefore, the noise levels presented herein represent a conservative, reasonable worst-case estimate of actual temporary construction noise. The City of Beaumont does not establish quantitative construction noise standards; therefore, this analysis conservatively uses the FTA's threshold of 80 dBA (8-hour L_{eq}) for residential uses and 90 dBA (8-hour L_{eq}) for non-residential uses to evaluate construction noise impacts.[2]

Operations

The analysis of the Without Project and With Project noise environments is based on noise prediction modeling and empirical observations. Reference noise level data are used to estimate the Project operational noise impacts from stationary sources. Noise levels are collected from field noise measurements and other published sources from similar types of activities are used to estimate noise levels expected with the Project's stationary sources. The reference noise levels are used to represent a

2 Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, Table 7-2, Page 179, September 2018.

worst-case noise environment as noise level from stationary sources can vary throughout the day. Operational noise is evaluated based on the standards within the City's Noise Ordinance and General Plan.

An analysis was conducted of the Project's effect on traffic noise conditions at offsite land uses. Without Project traffic noise levels were compared to With Project traffic noise levels. The environmental baseline is the Without Project condition. The Without Project and With Project traffic noise levels in the Project vicinity were calculated using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108). The actual sound level at any receptor location is dependent upon such factors as the source-to-receptor distance and the presence of intervening structures (walls and buildings), barriers, and topography. The noise attenuating effects of changes in elevation, topography, and intervening structures were not included in the model. Therefore, the modeling effort is considered a worst-case representation of the roadway noise.

In general, a 3-dBA increase in traffic noise is barely perceptible to people, while a 5-dBA increase is readily noticeable. The City has identified a two-step process for evaluating traffic noise impacts in previous CEQA documents. A potentially significant impact would occur if the Project would cause ambient noise levels to increase by 3 dBA CNEL or more and the resulting noise falls on a noise-sensitive land use that exceeds the noise and land use compatibility standards (i.e., causing the noise level of a noise sensitive land use within an area to be categorized as either "Normally Unacceptable" or "Clearly Unacceptable"). Note that noise level changes less than 3 dBA are not detectable by the human ear.

The City of Beaumont does not specifically provide noise and land use compatibility standards (i.e., noise standards using a 24-hour metric such as Ldn or CNEL and with Normally Acceptable, Conditionally Acceptable, Normally Unacceptable, and Clearly Unacceptable designations). In these cases, the County's noise and land use compatibility standards (as recommended by the State Office of Planning and Research) are relied upon. Noise levels up to 60 dBA CNEL are considered Normally Acceptable and noise levels up to 70 dBA CNEL are considered Conditionally Acceptable. Meeting the conditionally acceptable standards are appropriate as long as the 45 dBA interior noise standard can be met. Therefore, the proposed Project would result in a significant increase in existing traffic noise levels if Project traffic would increase the noise level by 3 dBA CNEL to over 70 dBA CNEL at an outdoor use area of a residence.

Vibration

Groundborne vibration levels associated with construction-related activities for the Project were evaluated utilizing typical groundborne vibration levels associated with construction equipment, obtained from FTA published data for construction equipment. Potential groundborne vibration impacts related to building/structure damage and interference with sensitive existing operations were evaluated, considering the distance from construction activities to nearby land uses and typically applied criteria.

For a structure built traditionally, without assistance from qualified engineers, the FTA guidelines show that a vibration level of up to 0.20 in/sec is considered safe and would not result in any vibration damage. FTA guidelines show that modern engineered buildings built with reinforced-concrete, steel or timber can withstand vibration levels up to 0.50 in/sec and not experience vibration damage. The Caltrans 2020 *Transportation and Construction Vibration Guidance Manual* identifies the vibration threshold for human annoyance, vibrations levels of 0.04 in/sec begin to cause annoyance and levels of 0.2 in/sec are considered annoying.

4.11.5 Impacts and Mitigation Measures

Impact 4.11-1 ***Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?***

Level of Significance: Less than Significant Impact

On-Site Construction Noise

Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, grading, excavation, paving). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. During construction, exterior noise levels could affect the residential neighborhoods surrounding the construction site. The nearest sensitive receptors to the Project construction area are existing residential uses to the east with the nearest residential building located approximately 67 feet from the construction area. However, it is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at a single point near sensitive receptors. Construction activities would include demolition, site preparation, grading, building construction, paving, and architectural coating. Such activities would require industrial saws, excavators, and dozers during demolition; dozers and tractors during site preparation; excavators, graders, dozers, scrapers, and tractors during grading; cranes, forklifts, generators, tractors, and welders during building construction; pavers, rollers, and paving equipment during paving; and air compressors during architectural coating. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 to 4 minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). Typical noise levels associated with individual construction equipment are listed in **Table 4.11-9, Typical Construction Noise Levels**.

Table 4.11-9: Typical Construction Noise Levels

Equipment	Typical Noise Level (dBA) at 50 feet from Source	Typical Noise Level (dBA) at 67 feet from Source[1]
Air Compressor	80	77
Backhoe	80	77
Compactor	82	79
Concrete Mixer	85	82
Concrete Pump	82	79
Concrete Vibrator	76	73
Crane, Mobile	83	80
Dozer	85	82
Generator	82	79
Grader	85	82
Impact Wrench	85	82
Jack Hammer	88	85
Loader	80	77

Equipment	Typical Noise Level (dBA) at 50 feet from Source	Typical Noise Level (dBA) at 67 feet from Source[1]
Paver	85	82
Pneumatic Tool	85	82
Pump	77	74
Roller	85	82
Saw	76	73
Scraper	85	82
Shovel	82	79
Truck	84	81
1. Calculated using the inverse square law formula for sound attenuation: $dBA_2 = dBA_1 + 20Log(d_1/d_2)$ Where: dBA_2 = estimated noise level at receptor; dBA_1 = reference noise level; d_1 = reference distance; d_2 = receptor location distance		
Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.		

Although the construction equipment noise levels in **Table 4.11-9** are from FTA's 2018 *Transit Noise and Vibration Impact Assessment Manual*, the noise levels are based on measured data from a U.S. Environmental Protection Agency report which uses data from the 1970s[3], the FHWA Roadway Construction Noise Model which uses data from the early 1990s, and other measured data. Since that time, construction equipment has been required to meet more stringent emissions standards and the additional necessary exhaust systems also reduce noise from what is shown in the table.

The City's MC does not establish quantitative exterior construction noise standards; however, § 9.02.111 states that construction activities within one-quarter mile of an occupied residence can only occur between 6:00 a.m. and 6:00 p.m. during the months of June through September and between 7:00 a.m. and 6:00 p.m. during the months of October through May. In addition, no sound can exceed 55 dBA for intervals of more than 15 minutes per hour as measured in the interior of the nearest occupied residence or school. While the Beaumont MC does not establish quantitative construction noise standards, this analysis conservatively uses the FTA's threshold of 80 dBA (8-hour L_{eq}) for residential uses and 90 dBA (8-hour L_{eq}) for non-residential uses to evaluate construction noise impacts.[4] Standard construction provides 25 dBA of exterior-to-interior noise attenuation with windows closed and 15 dBA with windows open.[5] Therefore, it can be assumed that exterior noise levels of 80 dBA would equal 55 dBA when measured from the interior with windows closed.

Phase 1 and Phase 2 Construction Noise

The noise levels calculated in **Table 4.11-10, Phase 1 and Phase 2 Construction Noise Levels**, show estimated exterior construction noise for each phase of construction without accounting for attenuation from intervening barriers, structures, or topography. Because building construction, paving, and architectural coating activities are anticipated to overlap, the equipment from these phases have been combined. During construction, equipment would operate throughout the Project site and the associated noise levels would not occur at a fixed location for extended periods of time. The closest sensitive receptors are located along the eastern property line.

[3] U.S. Environmental Protection Agency, *Noise from Construction Equipment and Operations, Building Equipment and Home Appliances*, NTID300.1, December 31, 1971.
[4] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, Table 7-2, Page 179, September 2018.
[5] United States Environmental Protection Agency, *Protective Noise Levels (EPA 550/9-79-100)*, 1979.

Table 4.11-10: Phase 1 and Phase 2 Construction Noise Levels at Nearest Receptor

Construction Phase	Modeled Exterior Construction Noise Level (dBA L_{eq})	FTA Noise Threshold (dBA L_{eq})	Exceed Threshold?
Demolition	69	80	No
Site Preparation	65	80	No
Grading	69	80	No
Building Construction/Paving/Architectural Coating	67	80	No

1. Following FTA methodology, all equipment is assumed to operate at the center of the Project site because equipment would operate throughout the Project site and not at a fixed location for extended periods of time. Thus, the worst-case distance used in the RCNM model was 350 feet to the property line east of the construction zone.

Source: Federal Highway Administration, *Roadway Construction Noise Model,* 2006. Refer to **Appendix J** for noise modeling results.

As shown in **Table 4.11-10**, exterior construction noise levels would not exceed the FTA's 80 dBA threshold at the property line. Additionally, as noise levels would not exceed 70 dBA, interior noise levels would attenuate to 55 dBA or less (conservatively assuming 15 dBA outdoor to indoor noise reduction with windows open). Therefore, noise levels when measured in the interior of the nearest occupied residence would not exceed the City's threshold of 55 dBA at any time. In addition, as required by the City MC, construction activities may only occur between the hours of 6:00 a.m. and 6:00 p.m. during the months of June through September and between the hours of 7:00 a.m. and 6:00 p.m. during the months of October through May. Construction noise would therefore have a less than significant impact.

Off-Site Construction Traffic Noise. Construction noise may be generated by passenger cars from worker trips and trucks to deliver materials and haul soil to and from the Project site. Delivery trucks, haul trucks, and worker vehicles associated with the construction of the proposed Project would vary from day to day, with the highest volumes generally occurring during construction initiation. The Project's off-site construction noise impact from haul trucks was analyzed by using the FHWA RD-77-108 model to quantify noise from the Project's maximum estimated haul truck usage with existing traffic and roadway noise levels along the potential haul routes. The location of roadside sensitive receptors was also considered. As the Project would require haul trucks over the course of the construction period to accommodate the soil off haul necessary for construction. The addition of haul trucks would alter the fleet mix of haul route roadways. This effect was accounted for by adjusting the fleet mix (i.e., increasing the truck percentages) in the FHWA RD-77-108 model.

Table 4.11-11, Construction Traffic Noise Levels provides the predicted noise levels along Cherry Valley Boulevard as all construction traffic is anticipated to access the site from this roadway. **Table 4.11-11** shows that roadway noise levels would range from 62.5 dBA to 65.1 dBA under existing conditions and from 62.5 dBA to 66.8 dBA under existing conditions plus Project construction. The greatest change in noise levels would occur along Cherry Valley Boulevard from the Project access to Hannon Road. Construction traffic would result in an increase in ambient noise levels of up to 2.1 dBA. This increase in ambient noise levels is below the perceptible range (3.0 dBA). Therefore, a less than significant impact would occur.

Table 4.11-11: Construction Traffic Noise Levels

Roadway Segment		Existing Conditions		Existing Plus Construction		Change	Noise Threshold	Significant Impact
		ADT	dBA CNEL at 100 feet from Roadway Centerline	ADT	dBA CNEL at 100 feet from Roadway Centerline			
Cherry Valley Blvd.	I-10 EB Ramps to I-10 WB Ramps	8,547	65.1	9,054	66.8	1.7	70	No
	I-10 WB Ramps to Project Access	6,706	64.0	7,213	66.0	2.0	70	No
	Project Access to Hannon Rd	6,706	63.9	7,213	66.0	2.1	60	No
	Hannon Rd to Union St	6,073	63.6	6,406	65.3	1.7	60	No
	Union St to Nancy Ave	5,140	62.9	5,473	64.8	1.9	60	No
	Nancy Ave to Beaumont Ave	4,715	62.5	4,715	62.5	0	60	No

ADT = average daily traffic; dBA = A-weighted decibels; CNEL = community noise equivalent level.

Source: Based on traffic data within the *Traffic Impact Study*, prepared by Kimley-Horn, 2022. Refer to **Appendix J** for traffic noise modeling assumptions and results.

Operations

Implementation of the proposed Project would create new sources of noise in the Project vicinity. The major noise sources associated with the Project would include stationary noise equipment (i.e., trash compactors, air conditioners, etc.); truck and loading dock (i.e., slow moving truck on the site, maneuvering and idling trucks, equipment noise); parking areas (i.e., car door slamming, car radios, engine start-up, and car pass-by); drive-thru noise; and off-site traffic noise.

Mechanical Equipment

The Project is located near residential properties to the east and south, while properties to the north and west are vacant. The nearest sensitive receptor to the Project site is approximately 67 feet east of the property boundary. Potential stationary noise sources related to long-term operation of the Project site would include mechanical equipment. Mechanical equipment (e.g., heating ventilation and air conditioning [HVAC] equipment) typically generates noise levels of approximately 52 dBA at 50 feet.[6] Based on current site plans, the nearest Project structure would be a retail building located approximately 230 feet west of the nearest residential and non-residential property lines. At a minimum distance of 230 feet, mechanical equipment noise levels would attenuate to 39 dBA, which is below the City's noise ambient noise standards of 45 dBA for nighttime (10:00 p.m. – 7:00 a.m.) and 55 dBA for daytime (7:00 a.m. – 10:00 p.m.) for residential receptors (refer to **Table 4.11-7**). Noise from mechanical equipment would also be below the City's non-residential 50 dBA nighttime standard and 75 dBA daytime standard. Noise impacts associated with HVAC equipment would be less than significant. Operation of mechanical equipment would not increase ambient noise levels beyond the acceptable compatible land use noise levels. Therefore, the proposed Project would result in a less than significant impact related to stationary noise levels. Further, the Project would be required to comply with the General Plan and Municipal Code noise standards.

Warehouse Truck and Loading Dock Noise

During loading and unloading activities, noise would be generated by the trucks' diesel engines, exhaust systems, and brakes during low gear shifting' braking activities; backing up toward the docks; dropping

[6] Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, July 6, 2010.

down the dock ramps; and maneuvering away from the docks. The proposed warehouse building includes dock-high doors for truck loading/unloading and manufacturing/light industrial operations. The dock-high doors are approximately 250 feet from the closest property line (non-residential uses located to the east). The closest residential property line is approximately 675 feet to the northeast. Intervening terrain/slope and a retaining wall and is also located between the Building 2 Warehouse. Based on the Project plot plans, the elevation of the site would be approximately 48 feet lower than the grade at the property line of the receptors. The retaining wall and terrain would block the line of sight between the loading docks and the receptors, providing a minimum 5 dBA reduction.[7] Truck and loading dock noise is typically 64.4 dBA L_{eq} at 50 feet.[8]

Based on distance attenuation, noise levels due to loading/unloading would be reduced to 45 dBA at the closest residential property line located 675 feet to the northeast of the loading areas. Note that this noise level conservatively assumes activity would occur at the three closest loading docks simultaneously. Loading dock operations would occur throughout the Project site and would be at average distances further away. As noted above, the Project would be grade separated by approximately 48 feet and would include a retaining wall that would attenuate noise between the loading docks and receptors to the east. Due to the grade differences and intervening wall, noise levels would be attenuated by 5 to 8 dB[9] to at least 40 dBA at the closest residential property line. At the closest non-residential property line, noise levels would be 49 dBA. Therefore, loading/unloading noise levels would be below the City's 45 dBA nighttime residential standard and below the 50 dBA non-residential standard. It should be noted that this noise level does not assume any reductions for topographical differences and intervening terrain. Furthermore, loading dock doors would also be surrounded with protective aprons, gaskets, or similar improvements that, when a trailer is docked, would serve as a noise barrier between the interior warehouse activities and the exterior loading area. This would attenuate noise emanating from interior activities, and as such, interior loading and associated activities would be permissible during all hours of the day. Conservatively, this analysis does not take credit for these protective aprons/gaskets. As described above, noise levels associated with trucks and loading/unloading activities would not exceed the City's standards and impacts would be less than significant.

Parking Noise

Parking would be scattered throughout the site and located on the north, west, south, and center portions of the Project site. The proposed Project would provide 1,482 automobile parking stalls and 918 trailer stalls. Traffic associated with parking lots is typically not of sufficient volume to exceed community noise standards, which are based on a time-averaged scale such as the CNEL scale. The instantaneous maximum sound levels generated by a car door slamming, engine starting up, and car pass-bys range from 53 to 61 dBA.[10] Conversations in parking areas may also be an annoyance to adjacent sensitive receptors. Sound levels of speech typically range from 33 dBA at 50 feet for normal speech to 50 dBA at 50 feet for very loud speech.[11] It should be noted that parking lot noises are instantaneous noise levels compared to noise

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7 Federal Highway Administration, *Roadway Construction Noise Model User's Guide*, 2006.
8 Loading dock reference noise level measurement (single truck) conducted by Kimley-Horn on December 18, 2018.
9 Federal Highway Administration, *Roadway Construction Noise Model User's Guide*, 2006.
10 Kariel, H. G., *Noise in Rural Recreational Environments*, Canadian Acoustics 19(5), 3-10, 1991.
11 Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden. Noise Navigator Sound Level Database with Over 1700 Measurement Values, July 6, 2010.

standards in the hourly L_{eq} metric, which are averaged over the entire duration of a time period. As a result, actual noise levels over time resulting from parking lot activities would be far lower than the reference levels identified above.

For the purpose of providing a conservative, quantitative estimate of the noise levels that would be generated from the vehicles entering and exiting the parking lot, the methodology recommended by FTA for the general assessment of stationary transit noise sources is used. Using the methodology, the Project's peak hourly noise level that would be generated by the on-site parking levels was estimated using the following FTA equation for a parking lot:

$$L_{eq(h)} = SEL_{ref} + 10 \log (NA/1{,}000) – 35.6$$

Where:

$L_{eq(h)}$ = hourly L_{eq} noise level at 50 feet

SEL_{ref} = reference noise level for stationary noise source represented in sound exposure level (SEL) at 50 feet

NA = number of automobiles per hour

35.6 is a constant in the formula, calculated as 10 times the logarithm of the number of seconds in an hour

Based on the peak hour trip generation rates in the Traffic Study, approximately 585 trips during the worst-case peak hour (Phase 1 and Phase 2 combined) would be made to the Project site each day. Using the FTA's reference noise level of 92 dBA SEL[12] at 50 feet from the noise source, the Project's highest peak hour vehicle trips would generate noise levels of approximately 54 dBA L_{eq} at 50 feet from the parking lot. The nearest property line is 160 feet east of the closest parking area. Based strictly on distance attenuation, parking lot noise at the nearest receptor would be 44 dBA which is below the City's nighttime residential and non-residential noise standards of 45 dBA and 50 dBA, respectively. Therefore, noise impacts from parking lots would be less than significant.

Drive-Thru Noise

Phase 2 of the proposed Project would include two drive-thru restaurants. Project noise sources from drive-thru operations include amplified speech from the intercom, idling vehicles, vehicles circulating along the drive-thru lanes. The measured noise level associated with active drive-thru operations is 64 dBA at a distance of 20 feet.[13] The restaurants would be located approximately 560 feet and 700 feet from the eastern property line and based on distance attenuation, drive-thru noise levels would be 35.1 and 33.1 dBA, respectively. The combined noise levels from these two drive-thru restaurants operating simultaneously would be 37.2 dBA, which is below the City's nighttime residential and non-residential noise standards of 45 dBA and 50 dBA, respectively.

Off-Site Phase 1 Traffic Noise

Implementation of the Project would generate increased traffic volumes along nearby roadway segments. Based on the Traffic Impact Analysis, Phase 1 of the proposed Project would result in approximately

12 Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.
13 Drive-thru noise sample collected by Kimley-Horn on August 17, 2018.

3,692 daily trips. The Phase 1 Opening Year "2024 Without Project" and "2024 With Project" scenarios are compared in **Table 4.11-12, Phase 1 Traffic Noise Levels**. As shown in **Table 4.11-12**, roadway noise levels without the Project, would range from 46.2 dBA CNEL to 68.5 dBA CNEL and with the Project between 48.6 dBA CNEL and 69.6 dBA CNEL. Project generated traffic would result in a maximum increase of 2.4 dBA. In general, a 3-dBA increase in traffic noise is barely perceptible to people, while a 5-dBA increase is readily noticeable. **Table 4.11-12** shows that none of the roadway segments would exceed both 3.0 dBA and the County's 60 CNEL land use compatibility standard for residential uses (refer to **Table 4.11-8**).[14] Therefore, Phase 1 Opening Year traffic noise would result in a less than significant impact.

Table 4.11-12: Phase 1 Traffic Noise Levels

Roadway Segment		2024 Without Project		2024 With Project		Change	Normally / Conditionally Acceptable Standard[1]	Significant Impacts
		ADT	dBA CNEL at 100 feet from Centerline	ADT	dBA CNEL at 100 feet from Centerline			
Cherry Valley Blvd	I-10 EB Ramps to I-10 WB Ramps	18,933	68.5	20,550	69.6	1.1	70 / 77.5	No
	I-10 WB Ramps to Project Access	12,022	66.5	15,139	68.3	1.8	70 / 77.5	No
	Project Access to Hannon Rd	12,022	66.5	14,480	67.3	0.8	60 / 70	No
	Hannon Rd to Union St	9,602	65.6	10,933	66.1	0.6	60 / 70	No
	Union St to Nancy Ave	8,612	65.1	9,639	65.6	0.5	60 / 70	No
	Nancy Ave to Beaumont Ave	7,578	64.5	8,184	64.9	0.3	60 / 70	No
Brookside Ave	Hannon Rd to Union St	2,227	56.8	2,379	57.1	0.3	60 / 70	No
	Union St to Nancy Ave	2,511	57.4	2,967	58.1	0.7	60 / 70	No
	Nancy Ave to Oak View Dr	2,926	58.0	3,803	59.2	1.1	60 / 70	No
	Oak View Dr to Beaumont Ave	2,714	57.7	3,018	58.1	0.5	60 / 70	No
Oak Valley Pkwy	I-10 EB Ramps to I-10 WB Ramps	29,962	67.2	30,307	67.2	0.0	70 / 77.5	No
	I-10 WB Ramps to Oak View Dr	39,313	68.5	39,886	68.6	0.1	70 / 77.5	No
Hannon Rd	Cherry Valley Blvd to Brookside	953	49.9	1,105	50.5	0.6	60 / 70	No
Union St	Cherry Valley Blvd to Brookside	406	46.2	710	48.6	2.4	60 / 70	No
Nancy Ave	Cherry Valley Blvd to Brookside	1,555	52.0	1,976	53.0	1.0	60 / 70	No
Oak View Dr	Brookside Ave to Oak Valley Pkwy	5,012	60.3	5,585	60.8	0.5	60 / 70	No
Beaumont Ave	Cherry Valley Blvd to Brookside	11,844	64.1	12,146	64.2	0.1	60 / 70	No
	Brookside Ave to Oak Valley Pkwy	14,034	64.8	14,488	64.9	0.1	60 / 70	No

ADT = average daily traffic; dBA = A-weighted decibels; CNEL = community noise equivalent level.
1. Potential impacts occur when the Project change exceeds 3 dBA and the land use compatibility standard is exceeded (i.e., both must occur).
Source: Based on traffic data within the *Traffic Impact Study*, prepared by Kimley-Horn, 2022. Refer to **Appendix J** for traffic noise modeling assumptions and results.

Off-Site Phase 1 Plus Phase 2 Traffic Noise

Phase 2 of the Project is anticipated to be complete by 2027. Based on the Traffic Impact Analysis, Phase 2 of the proposed Project would generate an additional 8,485 trips for a combined total of 12,177 daily trips. The Project Buildout Opening Year "2027 Without Project" and "2027 With Project" scenarios are compared in **Table 4.11-13, Project Buildout (Phase 1 Plus Phase 2) Traffic Noise Levels**. As shown in **Table 4.11-13**, roadway noise levels without the Project, would range from 48.6 dBA CNEL to 69.6 dBA CNEL and with the Project between 52.0 dBA CNEL and 69.9 dBA CNEL. Project generated traffic would result in a maximum increase of 5.7 dBA. In general, a 3-dBA increase in traffic noise is barely perceptible to people, while a 5-dBA increase is readily noticeable. **Table 4.11-13** shows that an increase in traffic noise levels along the following roadway segments would exceed 3.0 dBA:

[14] As noted above in the thresholds section. the City of Beaumont does not specifically provide noise and land use compatibility standards for traffic noise. However, the City has identified a two-step process for evaluating traffic noise impacts in previous CEQA documents. The County's noise and land use compatibility standards (as recommended by the State Office of Planning and Research) are relied upon for receptors within the City and unincorporated County.

- Brookside Avenue from Nancy Avenue to Oak View Drive
- Union Street from Cherry Valley Boulevard to Brookside Avenue
- Nancy Avenue from Cherry Valley Boulevard to Brookside Avenue

However, although the "2027 With Project" traffic noise along these roadway segments may be noticeably louder, the traffic noise would remain below 60 CNEL, the County's normally acceptable land use compatibility standard for residential uses (refer to **Table 4.11-8**), except for Brookside Avenue from Nancy Avenue to Oak View Drive. However, 61.5 dBA is the noise level at 100 feet from the roadway centerline. There is one residence along this segment, and it is 150 feet from the roadway centerline. At 150 feet, the noise level attenuates to 58.8 dBA, which is within the 60 dBA Normally Acceptable standard. Additionally, the primary outdoor space for this receptor appears to be in the back yards and not along the roadway (i.e., further than 150 feet away). Additionally, a golf course is located along the south side of this segment. The golf course would be within the 75 dBA normally acceptable standard. Therefore, traffic noise at Project Buildout would result in a less than significant impact.

Table 4.11-13: Project Buildout (Phase 1 Plus Phase 2) Traffic Noise Levels

Roadway Segment		2027 Without Project		2027 With Project		Change	Normally / Conditionally Acceptable Standard[1]	Significant Impacts
		ADT	dBA CNEL at 100 feet from Roadway Centerline	ADT	dBA CNEL at 100 feet from Roadway Centerline			
Cherry Valley Blvd	I-10 EB Ramps to I-10 WB Ramps	19,488	68.6	23,439	69.9	1.2	70 / 77.5	No
	I-10 WB Ramps to Project Access	12,458	66.7	19,818	68.8	2.1	70 / 77.5	No
	Project Access to Hannon Rd	12,458	66.6	19,159	68.5	1.9	60 / 70	No
	Hannon Rd to Union St	9,996	65.7	15,144	67.5	1.8	60 / 70	No
	Union St to Nancy Ave	8,945	65.3	12,941	66.9	1.6	60 / 70	No
	Nancy Ave to Beaumont Ave	7,884	64.7	10,186	65.8	1.1	60 / 70	No
Brookside Ave	Hannon Rd to Union St	2,364	57.1	2,940	58.0	0.9	60 / 70	No
	Union St to Nancy Ave	2,665	57.6	4,393	59.8	2.2	60 / 70	No
	Nancy Ave to Oak View Dr	3,105	58.3	6,527	61.5	3.2	60 / 70	No[2]
	Oak View Dr to Beaumont Ave	2,880	57.9	4,032	59.4	1.5	60 / 70	No
Oak Valley Pkwy	I-10 EB Ramps to I-10 WB Ramps	30,676	67.3	32,082	67.5	0.2	70 / 77.5	No
	I-10 WB Ramps to Oak View Dr	40,147	68.6	42,417	68.9	0.2	70 / 77.5	No
Hannon Rd	Cherry Valley Blvd to Brookside	1,000	50.1	1,576	52.0	2.0	60 / 70	No
Union St	Cherry Valley Blvd to Brookside	431	46.4	1,583	52.1	5.7	60 / 70	No
Nancy Ave	Cherry Valley Blvd to Brookside	1,615	52.1	3,309	55.3	3.1	60 / 70	No
Oak View Dr	Brookside Ave to Oak Valley Pkwy	5,319	60.6	7,589	62.1	1.5	60 / 70	No
Beaumont Ave	Cherry Valley Blvd to Brookside	12,292	64.2	13,442	64.6	0.4	60 / 70	No
	Brookside Ave to Oak Valley Pkwy	14,650	65.0	16,376	65.5	0.5	60 / 70	No

ADT = average daily traffic; dBA = A-weighted decibels; CNEL = community noise equivalent level.

1. Potential impacts occur when the Project change exceeds 3 dBA and the land use compatibility standard is exceeded (i.e., both must occur).
2. There is one residence along this segment, and it is 150 feet from the roadway centerline. At 150 feet, the noise level attenuates to 58.8 dBA, which is within the 60 dBA Normally Acceptable standard and impacts are less than significant.

Source: Based on traffic data within the *Traffic Impact Study*, prepared by Kimley-Horn, 2022. Refer to **Appendix J** for traffic noise modeling assumptions and results.

Off-Site Horizon Year (Phase 1 Plus Phase 2) Traffic Noise

The Horizon Year "2040 Without Project" and "2040 Plus Project" scenarios were also compared. As shown in **Table 4.11-14, Horizon Year (Phase 1 Plus Phase 2) Traffic Noise Levels**, roadway noise levels would range between 48.8 dBA CNEL and 68.6 dBA CNEL at 100 feet from the centerline and between

52.9 dBA CNEL and 69.9 dBA CNEL with the Project. The Project would result in a maximum increase of 4.0 dBA CNEL. **Table 4.11-14** shows that an increase in traffic noise levels along the following roadway segments would exceed 3.0 dBA:

- Union Street from Cherry Valley Boulevard to Brookside Avenue
- Nancy Avenue from Cherry Valley Boulevard to Brookside Avenue

However, although the "2040 With Project" traffic noise along these roadway segments may be noticeably louder, the traffic noise would remain below 60 CNEL, the County's normally acceptable land use compatibility standard for residential uses (refer to **Table 4.11-8**). Therefore, the Horizon Year "2040 Plus Project" scenario would result in a less than significant traffic noise impact.

Table 4.11-14: Horizon Year (Phase 1 Plus Phase 2) Traffic Noise Levels

Roadway Segment		2040 Without Project		2040 With Project		Change	Normally / Conditionally Acceptable Standard[1]	Significant Impacts
		ADT	dBA CNEL at 100 feet from Roadway Centerline	ADT	dBA CNEL at 100 feet from Roadway Centerline			
Cherry Valley Blvd	I-10 EB Ramps to I-10 WB Ramps	19,488	68.6	23,439	69.9	1.2	70 / 77.5	No
	I-10 WB Ramps to Project Access	13,961	67.2	21,321	69.1	1.9	70 / 77.5	No
	Project Access to Hannon Rd	13,961	67.1	20,662	68.9	1.8	60 / 70	No
	Hannon Rd to Union St	13,528	67.1	18,676	68.5	1.4	60 / 70	No
	Union St to Nancy Ave	12,337	66.7	16,333	67.9	1.2	60 / 70	No
	Nancy Ave to Beaumont Ave	10,229	65.8	12,531	66.7	0.9	60 / 70	No
Brookside Ave	Hannon Rd to Union St	2,982	58.1	3,558	58.9	0.8	60 / 70	No
	Union St to Nancy Ave	3,265	58.5	4,993	60.3	1.8	60 / 70	No
	Nancy Ave to Oak View Dr	3,807	59.2	7,229	61.9	2.8	60 / 70	No
	Oak View Dr to Beaumont Ave	3,540	58.8	4,692	60.1	1.2	60 / 70	No
Oak Valley Pkwy	I-10 EB Ramps to I-10 WB Ramps	30,676	67.3	32,082	67.5	0.2	70 / 77.5	No
	I-10 WB Ramps to Oak View Dr	40,147	68.6	42,417	68.9	0.2	70 / 77.5	No
Hannon Rd	Cherry Valley Blvd to Brookside	8,197	59.2	8,773	59.5	0.3	60 / 70	No
Union St	Cherry Valley Blvd to Brookside	750	48.8	1,902	52.9	4.0	60 / 70	No
Nancy Ave	Cherry Valley Blvd to Brookside	1,615	52.1	3,309	55.3	3.1	60 / 70	No
Oak View Dr	Brookside Ave to Oak Valley Pkwy	5,319	60.6	7,589	62.1	1.5	60 / 70	No
Beaumont Ave	Cherry Valley Blvd to Brookside	16,110	65.4	17,260	65.7	0.3	60 / 70	No
	Brookside Ave to Oak Valley Pkwy	18,534	66.0	20,260	66.4	0.4	60 / 70	No

ADT = average daily traffic; dBA = A-weighted decibels; CNEL = community noise equivalent level.
1. Potential impacts occur when the Project change exceeds 3 dBA and the land use compatibility standard is exceeded (i.e., both must occur).
Source: Based on traffic data within the *Traffic Impact Study*, prepared by Kimley-Horn, 2022. Refer to **Appendix J** for traffic noise modeling assumptions and results.

As discussed, construction and operation of the Project would not result in significant noise impacts.

Mitigation Measures

No mitigation is required.

Level of Significance

Less than significant impact.

Impact 4.11-2 Generation of excessive groundborne vibration or groundborne noise levels?

Level of Significance: Less than Significant Impact

Construction Vibration

Construction can generate varying degrees of ground vibration, depending on the construction procedures and equipment. Operation of construction equipment generates vibrations that spread through the ground and diminish with distance from the source. Construction on the Project site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved.

The FTA has published standard vibration velocities for construction equipment operations. In general, the FTA architectural damage criterion for continuous vibrations (i.e., 0.2 in/sec) appears to be conservative. The types of construction vibration impacts include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. Ordinary buildings that are not particularly fragile would not experience any cosmetic damage (e.g., plaster cracks) at distances beyond 30 feet. This distance can vary substantially depending on the soil composition and underground geological layer between vibration source and receiver. In addition, not all buildings respond similarly to vibration generated by construction equipment. For example, for a building that is constructed with reinforced concrete with no plaster, the FTA guidelines show that a vibration level of up to 0.20 in/sec is considered safe and would not result in any construction vibration damage.

Table 4.11-15, Typical Construction Equipment Vibration Levels, lists vibration levels at 25 feet for typical construction equipment. Vibration levels at 67 feet, the distance from the Project boundary to the nearest existing structure is also included in **Table 4.11-15**. Groundborne vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. As indicated in **Table 4.11-15**, based on FTA data, vibration velocities from typical heavy construction equipment operations that would be used during Project construction range from 0.003 to 0.089 in/sec PPV at 25 feet from the source of activity.

Table 4.11-15: Typical Construction Equipment Vibration Levels

Equipment	Peak Particle Velocity at 25 Feet (in/sec)	Peak Particle Velocity at 67 Feet (in/sec)[1]
Large Bulldozer	0.089	0.0203
Caisson Drilling	0.089	0.0203
Loaded Trucks	0.076	0.0173
Jackhammer	0.035	0.0080
Small Bulldozer/Tractors	0.003	0.0007

[1] Calculated using the following formula: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$, where: PPV_{equip} = the peak particle velocity in in/sec of the equipment adjusted for the distance; PPV_{ref} = the reference vibration level in in/sec from Table 7-4 of the Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, 2018; D = the distance from the equipment to the receiver.

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, 2018.

The nearest structure to the Project construction site is approximately 67 feet away. **Table 4.11-15** shows that at 67 feet the vibration velocities from construction equipment would not exceed 0.0203 in/sec PPV, which is below the FTA's 0.20 in/sec PPV threshold for building damage and below the 0.04 in/sec PPV annoyance threshold. It is also acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to the nearest structure. Therefore, vibration impacts associated with Project construction would be less than significant.

Operational Vibration

The Project would include truck movement activity at the Project site. These movements would generally be low-speed (i.e., less than 15 miles per hour) and would occur over new, smooth surfaces. For perspective, Caltrans has studied the effects of propagation of vehicle vibration on sensitive land uses and notes that "heavy trucks, and quite frequently buses, generate the highest earthborn vibrations of normal traffic." Caltrans further notes that the highest traffic-generated vibrations are along freeways and state routes. Their study finds that "vibrations measured on freeway shoulders (five meters from the centerline of the nearest lane) have never exceeded 0.08 inches per second, with the worst combinations of heavy trucks and poor roadway conditions (while such trucks were moving at freeway speeds). This level coincides with the maximum recommended safe level for ruins and ancient monuments (and historic buildings)".[15] Since the Project's truck movements would be at low speed (not at freeway speeds) and would be over smooth surfaces (not under poor roadway conditions), Project-related vibration associated with truck activity would not result in excessive groundborne vibrations; no vehicle-generated vibration impacts would occur. In addition, there are no sources of substantial groundborne vibration associated with the Project, such as rail or subways. The Project would not create or cause any vibration impacts due to operations.

Mitigation Measures

No mitigation is required.

Level of Significance

Less than significant impact.

Impact 4.11-3 ***For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?***

Level of Significance: Less than Significant Impact

The closest airport to the Project site is the Banning Municipal Airport located approximately 9 miles to the southeast. The Project is not within 2.0 miles of a public airport or within an airport land use plan. Additionally, there are no private airstrips located within the Project vicinity. Therefore, the Project would not expose people working in the Project area to excessive airport- or airstrip-related noise levels and no mitigation is required.

Mitigation Measures

No mitigation is required.

Level of Significance

Less than significant impact.

[15] California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol ("TeNS")*, September 2013.

4.11.6 Cumulative Impacts

Cumulative Construction Noise

The Project's construction activities would not result in a substantial temporary increase in ambient noise levels. Construction noise would be periodic and temporary noise impacts that would cease upon completion of construction activities. The Project would contribute to other proximate construction project noise impacts if construction activities were conducted concurrently. However, based on the noise analysis above, the Project's construction-related noise impacts would be less than significant following the City of Beaumont Municipal Code.

Construction activities at other planned and approved projects near the Project site would be required to comply with applicable City rules related to noise and would take place during daytime hours on the days permitted by the applicable Municipal Code, and projects requiring discretionary City approvals would be required to evaluate construction noise impacts, comply with the City's standard conditions of approval, and implement mitigation, if necessary, to minimize noise impacts. Construction noise impacts are by nature localized. Based on the fact that noise dissipates as it travels away from its source, noise impacts would be limited to the Project site and vicinity. Therefore, Project construction would not result in a cumulatively considerable contribution to significant cumulative impacts, assuming such a cumulative impact existed, and impacts in this regard are not cumulatively considerable.

Cumulative Operational Noise

Cumulative Off-Site Traffic Noise

Cumulative noise impacts describe how much noise levels are projected to increase over existing conditions with the development of the proposed Project and other foreseeable projects. Cumulative noise impacts would occur primarily as a result of increased traffic on local roadways due to buildout of the proposed Project and other projects in the vicinity. Cumulative increases in traffic noise levels were estimated by comparing the Existing and Opening Year Without Project scenarios to the Opening Year Plus Project scenario. The traffic analysis considers cumulative traffic from future growth assumed in the transportation model, as well as cumulative projects.

A project's contribution to a cumulative traffic noise increase would be considered significant when the combined effect exceeds perception level (i.e., auditory level increase) threshold. The following criteria is used to evaluate the combined and incremental effects of the cumulative noise increase.

- *Combined Effect*. The cumulative with Project noise level ("Opening Year With Project") would cause a significant cumulative impact if a 3.0 dB increase over "Existing" conditions occurs and the resulting noise level exceeds the applicable exterior standard at a sensitive use. Although there may be a significant noise increase due to the proposed Project in combination with other related projects (combined effects), it must also be demonstrated that the Project has an incremental effect. In other words, a significant portion of the noise increase must be due to the proposed Project.
- *Incremental Effects*. The "Opening Year With Project" causes a 1.0 dBA increase in noise over the "Opening Year Without Project" noise level.

A significant impact would result only if both the combined and incremental effects criteria have been exceeded. Noise, by definition, is a localized phenomenon and reduces as distance from the source increases. Consequently, only the proposed Project and growth due to occur in the general area would contribute to cumulative noise impacts.

Table 4.11-16, Opening Year Plus Project Conditions Predicted Traffic Noise Levels identifies the traffic noise effects along roadway segments in the Project vicinity for "Existing," "Opening Year Without Project," and "Opening Year With Project," conditions, including incremental and net cumulative impacts.

Table 4.11-16: Opening Year Plus Project Conditions Predicted Traffic Noise Levels

Roadway Segment		Existing[1]	2040 Without Project[1]	2040 With Project[1]	Combined Effects	Incremental Effects	Normally/ Conditionally Acceptable Standard[3]	Cumulatively Significant Impact?
					Difference In dBA Between Existing and 2040 With Project	Difference In dBA Between 2040 Without Project and 2040 With Project		
Cherry Valley Blvd	I-10 EB Ramps to I-10 WB Ramps	65.1	68.6	69.9	**4.8**	**1.2**	70 / 77.5	No
	I-10 WB Ramps to Project Access	64.0	67.2	69.1	**5.1**	**1.9**	70 / 77.5	No[2]
	Project Access to Hannon Rd	63.9	67.1	68.9	**5.0**	**1.8**	60 / 70	Yes[3]
	Hannon Rd to Union St	63.6	67.1	68.5	**4.9**	**1.4**	60 / 70	yes[3]
	Union St to Nancy Ave	62.9	66.7	67.9	**5.0**	**1.2**	60 / 70	Yes[3]
	Nancy Ave to Beaumont Ave	62.5	65.8	66.7	**4.2**	0.9	60 / 70	No
Brookside Ave	Hannon Rd to Union St	56.6	58.1	58.9	2.3	0.8	60 / 70	No
	Union St to Nancy Ave	57.1	58.5	60.3	**3.2**	**1.8**	60 / 70	No
	Nancy Ave to Oak View Dr	57.8	59.2	61.9	**4.2**	**2.8**	60 / 70	No
	Oak View Dr to Beaumont Ave	57.4	58.8	60.1	2.6	**1.2**	60 / 70	No
Oak Valley Pkwy	I-10 EB Ramps to I-10 WB Ramps	62.8	67.3	67.5	**4.7**	0.2	70 / 77.5	No
	I-10 WB Ramps to Oak View Dr	63.7	68.6	68.9	**5.2**	0.2	70 / 77.5	No
Hannon Rd	Cherry Valley Blvd to Brookside	48.7	59.2	59.5	**10.8**	0.3	60 / 70	No
Union St	Cherry Valley Blvd to Brookside	45.9	48.8	52.9	**7.0**	**4.0**	60 / 70	No
Nancy Ave	Cherry Valley Blvd to Brookside	49.7	52.1	55.3	**5.6**	**3.1**	60 / 70	No
Oak View Dr	Brookside Ave to Oak Valley Pkwy	60.1	60.6	62.1	2.1	**1.5**	60 / 70	No
Beaumont Ave	Cherry Valley Blvd to Brookside	61.7	65.4	65.7	4.0	0.3	60 / 70	No
	Brookside Ave to Oak Valley Pkwy	63.1	66.0	66.4	3.3	0.4	60 / 70	No

ADT = average daily trips; dBA = A-weighted decibels; CNEL = Community Noise Equivalent Level
1. Traffic noise levels are at 100 feet from the roadway centerline. The actual sound level at any receptor location is dependent upon such factors as the source-to-receptor distance and the presence of intervening structures, barriers, and topography.
2. Future development along this segment would be industrial/warehouse. There is one residence approximately 200 feet from the roadway centerline. At this distance, traffic noise levels would attenuate to 64.6 dBA CNEL. Additionally, planned roadway improvements along this segment include a 10-foot earthen berm that would reduce noise levels by approximately 10 dBA or more, resulting in 54.6 dBA, which is below the 60 dBA residential standard.
3. Noise levels are between the 60 dBA Normally Acceptable level and the 70 dBA CNEL Conditionally Acceptable level. Standard construction provides 25 dBA of exterior-to-interior noise attenuation. Therefore, interior noise levels would be below the 45 dBA CNEL interior standard with windows closed.

Source: Based on traffic data within the *Traffic Impact Study*, prepared by Kimley-Horn, 2022. Refer to **Appendix J** for traffic noise modeling assumptions and results.

Table 4.11-16 shows the volume of traffic generated by the Project would potentially meet the criteria for cumulative noise increases along several road segments. The noise levels along the following roadway segments result in combined effects and incremental effects:

- Cherry Valley Boulevard from I-10 eastbound ramps to I-10 westbound ramps. Noise levels would be 69.9 dBA and would not exceed the 70 dBA Normally Acceptable noise standard. Impacts along this segment would be less than significant.
- Cherry Valley Boulevard from I-10 westbound ramps to Project access. Noise levels would be 69.1 and would not exceed the 70 dBA Normally Acceptable noise standard. Future development along this segment would be industrial/warehouse. There is one residence approximately 200 feet from the roadway centerline. At this distance, traffic noise levels would attenuate to 64.6 dBA CNEL. Additionally, planned roadway improvements along this segment include a 10-foot earthen berm that would reduce noise levels by approximately 10 dBA or more, resulting in 54.6 dBA, which is below the 60 dBA residential standard. Impacts along this segment would be less than significant.
- Cherry Valley Boulevard from Project access to Hannon Road. Although noise levels would exceed the 60 dBA Normally Acceptable standard, the 70 dBA conditionally acceptable standard would not be exceeded. The With Project noise level would be 68.9 dBA. Interior noise levels would be 43.9 dBA with the standard 25 dBA exterior-to-interior attenuation rate. There are four residences located along this segment. However, the primary outdoor space appears to be in the backyard and not along the roadway. Impacts along this segment would be potentially significant.
- Cherry Valley Boulevard from Hannon Road to Union Street. Although noise levels would exceed the 60 dBA Normally Acceptable standard, the 70 dBA conditionally acceptable standard would not be exceeded. The With Project noise level would be 68.5 dBA. Interior noise levels would be 43.5 dBA with the standard 25 dBA exterior-to-interior attenuation rate. There are three residences located along this segment. However, the primary outdoor space appears to be in the back yards and not along the roadway. Impacts along this segment would be potentially significant.
- Cherry Valley Boulevard from Union Street to Nancy Avenue. Although noise levels would exceed the 60 dBA Normally Acceptable standard, the 70 dBA conditionally acceptable standard would not be exceeded. The With Project noise level would be 67.9 dBA. Interior noise levels would be 42.9 dBA with the standard 25 dBA exterior-to-interior attenuation rate. A landscape supply, a place of worship, agricultural uses, and approximately seven residences are located along this segment. However, the primary outdoor space appears to be in the back yards and not along the roadway. It should be noted that commercial and agricultural uses are normally acceptable up to 70 dBA and 75 dBA, respectively. Impacts along this segment would be potentially significant.
- Brookside Avenue from Union Street to Nancy Avenue. Although noise levels would exceed the 60 dBA Normally Acceptable standard, the 70 dBA conditionally acceptable standard would not be exceeded. The With Project noise level would be 60.3 dBA. There are several residences along the south side of this roadway segment, but they all are above the roadway grade and include a solid block wall barrier that would attenuate noise levels by 8 dBA. Therefore, exterior noise levels in the backyard activity areas would be 52.3 dBA, which is below the 60 dBA normally acceptable

standard. Additionally, interior noise levels would be 27.3 dBA with the standard 25 dBA windows closed exterior-to-interior attenuation rate and 37.3 dBA with the standard 15 dBA windows open attenuation rate. Impacts along this segment would be less than significant.

- Brookside Avenue from Nancy Avenue to Oak View Drive. However, 61.9 dBA is the noise level at 100 feet from the roadway centerline. There is one residence along this segment, and it is 150 feet from the roadway centerline. At 150 feet, the noise level attenuates to 59.3 dBA, which is within the 60 dBA Normally Acceptable standard. Additionally, the primary outdoor space appears to be in the back yards and not along the roadway (i.e., further than 150 feet away). Additionally, a golf course is located along the south side of this segment. The golf course would be within the 75 dBA normally acceptable standard. Impacts along this segment would be less than significant.
- Union Street from Cherry Valley Boulevard to Brookside Avenue. Noise levels would be 52.9 dBA and would not exceed the 60 dBA Normally Acceptable noise standard. Impacts along this segment would be less than significant.
- Nancy Avenue from Cherry Valley Boulevard to Brookside Avenue. Noise levels would be 55.3 dBA and would not exceed the 60 dBA Normally Acceptable noise standard. Impacts along this segment would be less than significant.

As noted above, locations are conditionally acceptable when interior standards can still be met. Standard construction provides 25 dBA of exterior-to-interior noise attenuation with windows closed[16] and interior noise levels would be below the 45 dBA CNEL interior standard. However, the exterior-to-interior noise attenuation rate is 15 dBA with windows open[17] and interior noise levels could exceed the 45 dBA standard in a windows open condition. Therefore, traffic noise impacts along Cherry Valley Boulevard (from Project access to Hannon Road, from Hannon Road to Union Street, and from Union Street to Nancy Avenue) would be potentially significant.

Feasible mitigation is not available to reduce traffic noise. Typically, feasible mitigation measures for off-site roadway noise impacts include repairing the roads with rubberized asphalt and developing sound walls or attenuation barriers to minimize noise impacts. However, this mitigation can only be imposed on on-site roadways since the Applicant would not have authorization or control to make off-site improvements. As impacts would also occur on off-site roadways and properties, it is usually infeasible for the Applicant to implement these measures. Sound walls would be infeasible due to impacts on right of way, restricted views, and not being proportional to the barely perceptible[18] increase in sound compared with the No Project scenario. Rubberized asphalt could be considered by the City's public works department in the future as part of scheduled maintenance funding, but it would not be roughly proportional to impose paving costs on the Project for a barely perceptible sound level increase. Therefore, mitigation measures to reduce the potentially significant traffic noise impact along Cherry Valley Boulevard are not feasible. Noise levels along this segment of Cherry Valley Boulevard would still be within the Conditionally Acceptable standard. However, as the Normally Acceptable standard

[16] United States Environmental Protection Agency, *Protective Noise Levels (EPA 550/9-79-100)*, 1979.
[17] Ibid.
[18] Per the Caltrans *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013), a 3-dBA increase in traffic noise is barely perceptible to people, while a 5-dBA increase is readily noticeable. The incremental effects noise increase for Cherry Valley Boulevard shown on Table 19 range from 0.9 dBA to 1.9 dBA and would be below the 3-dBA barely perceptible standard.

would be exceeded, cumulative operational noise impact from related projects, in conjunction with Project-specific noise impacts would not be cumulatively considerable along Cherry Valley Boulevard (from Project access to Hannon Road, from Hannon Road to Union Street, and from Union Street to Nancy Avenue) and impacts would be significant and unavoidable.

Cumulative Stationary Noise

Stationary noise sources of the proposed Project would result in an incremental increase in non-transportation noise sources in the Project vicinity. However, as discussed above, operational noise caused by the proposed Project would be less than significant. Similar to the proposed Project, other planned and approved projects would be required to mitigate for stationary noise impacts at nearby sensitive receptors, if necessary. As stationary noise sources are generally localized, there is a limited potential for other projects to contribute to cumulative noise impacts.

No known past, present, or reasonably foreseeable projects would combine with the operational noise levels generated by the Project to increase noise levels above acceptable standards because each project must comply with applicable City regulations that limit operational noise. Therefore, the Project, together with other projects, would not create a significant cumulative impact, and even if there was such a significant cumulative impact, the Project would not make a cumulatively considerable contribution to significant cumulative operational noises.

Given that noise dissipates as it travels away from its source, operational noise impacts from on-site activities and other stationary sources would be limited to the Project site and vicinity. Thus, cumulative operational noise impacts from related projects, in conjunction with Project specific noise impacts, would not be cumulatively significant.

4.11.7 Significant Unavoidable Impacts

Noise impacts would be less than significant with the exception of cumulative off-site traffic noise along Cherry Valley Boulevard (from Project access to Hannon Road, from Hannon Road to Union Street, and from Union Street to Nancy Avenue). Cumulative traffic noise impacts would occur primarily as a result of increased traffic on local roadways due to buildout of the proposed Project and other projects in the vicinity. Noise levels along the affected segments of Cherry Valley Boulevard would be Conditionally Acceptable. However, mitigation was determined to be infeasible to reduce mobile traffic noise to Normally Acceptable levels in accordance with the Land Use Compatibility standards.

4.11.8 References

California Department of Transportation, *California Vehicle Noise Emission Levels*, 1987.

California Department of Transportation, *Traffic Noise Analysis Protocol*, 2020.

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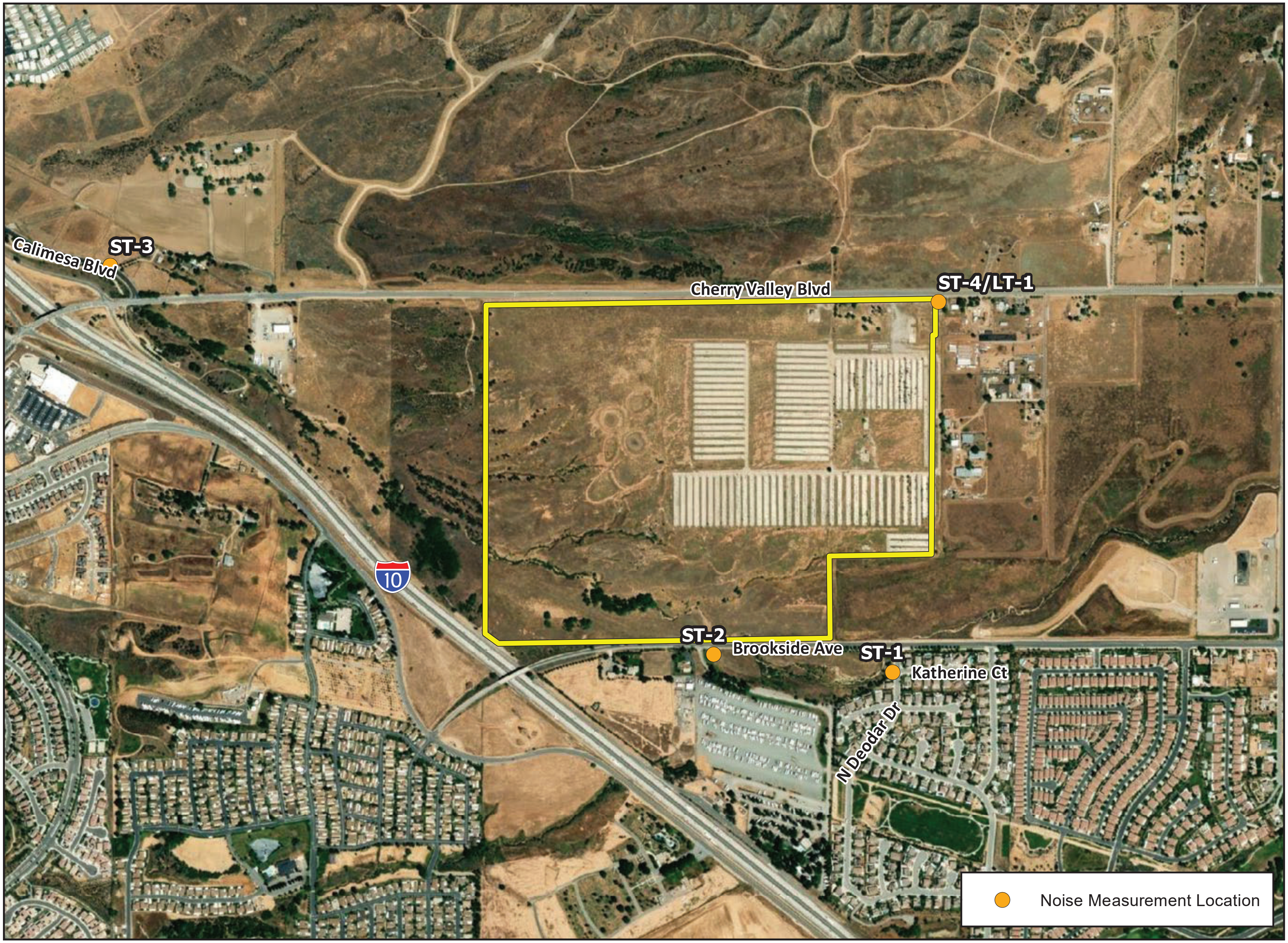

Exhibit 4.11-1: Noise Measurement Locations
Beaumont Summit Station Specific Plan EIR
City of Beaumont

Not to scale

Kimley»Horn

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