Acoustical Assessment
Strada Verde Innovation Park
San Benito County, California

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LIST OF ABBREVIATED TERMS

ADT	average daily traffic
dBA	A-weighted sound level
CEQA	California Environmental Quality Act
CNEL	community equivalent noise level
L_{dn}	day-night noise level
dB	decibel
L_{eq}	equivalent noise level
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HVAC	heating ventilation and air conditioning
Hz	hertz
in/sec	inches per second
L_{max}	maximum noise level
μPa	micropascals
L_{min}	minimum noise level
PPV	peak particle velocity
RMS	root mean square
UPRR	Union Pacific Railroad
VdB	vibration velocity level

1 INTRODUCTION

This report documents the results of an Acoustical Assessment completed for the Strada Verde Innovation Park project (Project). The purpose of this Acoustical Assessment is to evaluate the potential construction and operational noise and vibration levels associated with the Project and determine the level of impact the Project would have on the environment.

1.1 Project Location

The Project site is located in an unincorporated area of northwest San Benito County (County), 2.5 miles southeast of the U.S. Highway 101/State Route 25 (SR-25) interchange. The Project site is bound to the east by the existing Union Pacific Railroad tracks, to the west by the Pajaro River, and to the south by the foothills of the Gabilan Mountains. Specifically, the Project is located eighty-five miles south of San Francisco, forty miles south of San Jose, seven miles south of the City of Gilroy, and nine miles north of the City of Hollister; refer to Exhibit 1: Regional Location Map and Exhibit 2: Project Vicinity Map. Surrounding land uses primarily consist of agricultural land and rangeland. Direct access to the Project site is provided via U.S. Highway 101 to the west and SR-25 to the north.

1.2 Project Description

The purpose of the Project is to guide the development and operation of the Strada Verde Innovation Park Specific Plan (Specific Plan). The approximate 2,767-acre Project site (Specific Plan Area) would primarily be composed of a technology-based automated vehicle and research and development business center. As shown in Table 1: Land Use Summary and Exhibit 3: Conceptual Site Plan, land uses within the Specific Plan Area consist of 1,077 acres of Testing Grounds, 127 acres of Research Park, 253 acres of E-Commerce, 24 acres of Commercial, 227 acres of Agriculture, and 252 acres of Greenway. Additional land uses associated with biological preserves and infrastructure are also proposed within the Specific Plan area; refer to Table 1. The total Project area encompasses approximately 2,767 acres and is currently used for agriculture and open space. Land use districts within the Specific Plan Area are described as follows:

- Testing Grounds (SVIP-TG): The Testing Grounds district will serve as an area for testing new technology in the mobility sector, including electrified and automated vehicles. It will consist primarily of open area, roads, tracks, and other features designed for the testing and engineering of vehicles and their components. Intended land uses include a three-mile straight track adjacent to the Union Pacific Railroad. Supporting ancillary office, research and development, labs, storage, maintenance, and fueling facilities are also envisioned.
- Research Park (SVIP-RP): The Research Park district will be situated in the southwestern portion of the Specific Plan Area. It will provide space for research, office, and light manufacturing uses. Premium research and development facilities will be encouraged. The SVIP-RP district may also include education facilities and a driver experience center with associated tracks, retail, and hospitality.
- E-Commerce (SVIP-EC): The E-commerce district includes a range of commercial and light industrial facilities, including distribution and logistics, data centers, research and development, and large footprint laboratories.
- Commercial (SVIP-C): The Commercial district will consist of ancillary commercial land uses including hospitality and retail establishments, as well as public service facilities such as fire and

police stations. It is adjacent to the Central Greenway which, with its on-site pathways/trail, will provide direct access to walking and biking.

- Agriculture (SVIP-A): The Agricultural district will be limited to agriculture uses, including row crop production and the use of new agricultural technologies and practices that increase farming efficiency, maintaining the agricultural heritage and regional identity that is so predominant in the County.
- Greenway (SVIP-G): The Greenway areas serve several functions including the provision of open space, buffer zones, and stormwater management.
- Biological Preserves: Two areas are designated as biological preserves to protect and enhance natural resources in the Specific Plan Area, the Pajaro River Wetlands and Riparian Preserve (SVIP-BPP) and the California Tiger Salamander Upland Habitat Preserve (SVIP-BPC). The Preserves will provide areas to create mitigation areas for wetlands disturbed in the developed Specific Plan Area.
- Infrastructure (SVIP-I): Infrastructure-related land uses within the Specific Plan Area will include potable water storage, water and wastewater treatment and storage, and street right-of-way.

Table 1: Land Use Summary

Designation	Land Use District	Gross Acres [1]	Net Acres [2]	Max Floor Area Ratio (FAR)	Building Area (square feet) [3]
SVIP – TG	Testing Grounds	1,077	915	0.025	996,435
SVIP – RP	Research Park	127	108	0.3	1,411,344
SVIP – EC	E-Commerce	253	215	0.5	4,682,700
SVIP – C	Commercial	24	20	0.150	130,680
SVIP – A	Agriculture	227			
SVIP – CG	Greenway	252			
Biological Preserves					
SVIP – BPP	Pajaro River Wetlands & Riparian Preserve	394			
SVIP – BPC	California Tiger Salamander Upland Habitat Preserve	153			
Infrastructure					
SVIP – SM	Stormwater Management	157			
SVIP – I	Potable Water Storage	2			
SVIP – I	Water and Wastewater Treatment & Storage	16			
SVIP – I	Street Right-of-way	85			
	TOTAL	**2,767**			**7,221,159**
	Built Area as a % of Specific Plan Area				**< 6%**

1. All acreages are rounded to the nearest whole number.
2. Net buildable acres is 85% of gross due to loss for internal streets, parking, utilities, & landscaping.
3. Building square footage is rounded to the nearest tenth.
4. Up to 10% of building area in each district may be transferred to other buildable districts so long as the total building area in the Specific Plan area is not exceeded.

Source: SVIP Specific Plan, February 2022.

The Specific Plan would establish the necessary plans, development standards, regulations, zoning, infrastructure requirements, design guidelines and implementation programs on which subsequent project-related development activities (i.e., future implementing development projects) are to be founded. It is intended that Site and Architectural Review, grading permits, and building permits, or any other action requiring ministerial or discretionary approval applicable to this area be consistent with the Specific Plan. This Project does not propose individual development projects, but would facilitate future development in the Specific Plan Area. Construction and operations of the land use districts would be project-specific and future development would be subject to project-specific County discretionary review and approval.

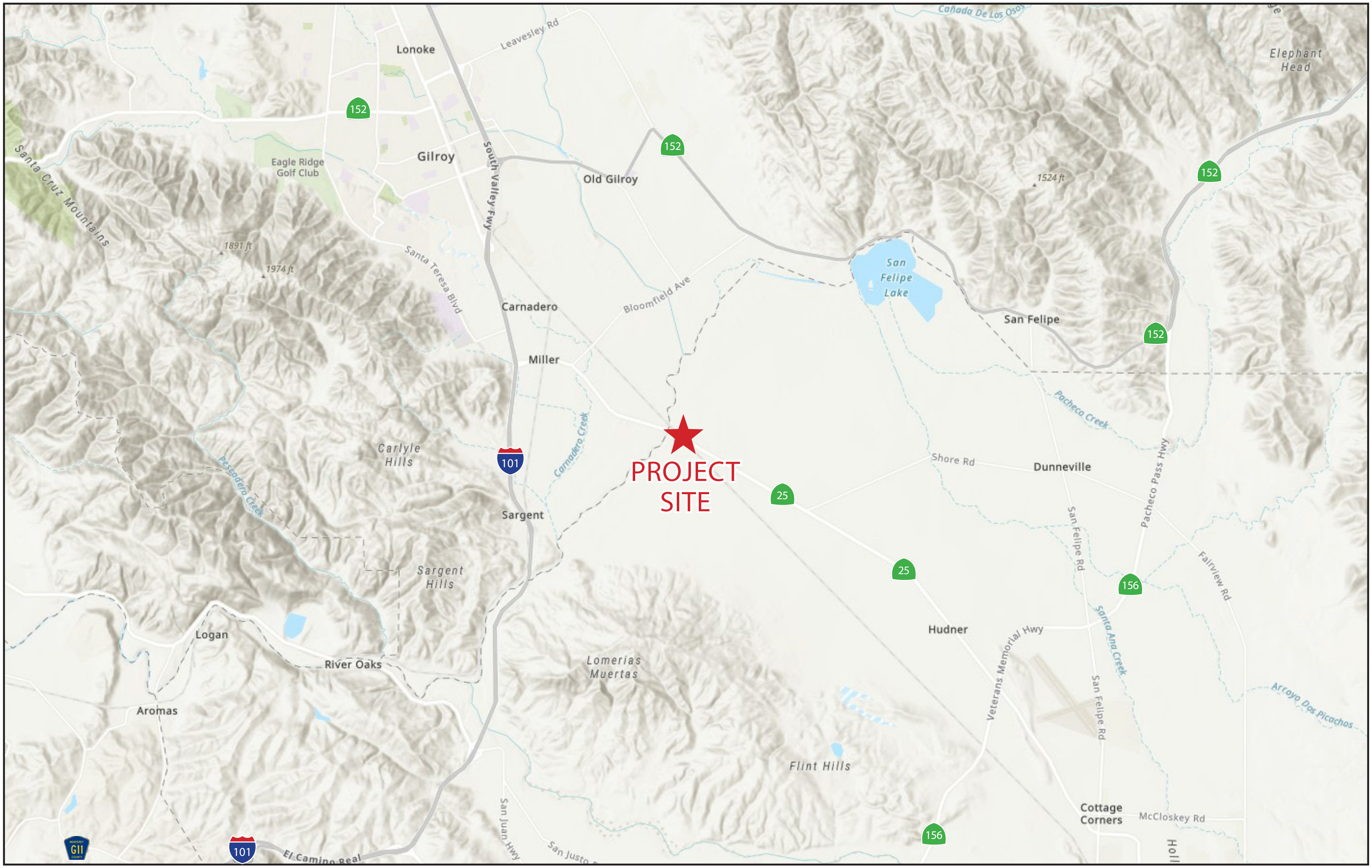

EXHIBIT 1: Regional Location Map
Strada Verde Innovation Park Project
County of San Benito

Not to Scale

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EXHIBIT 2: Project Vicinity Map
Strada Verde Innovation Park Project
County of San Benito

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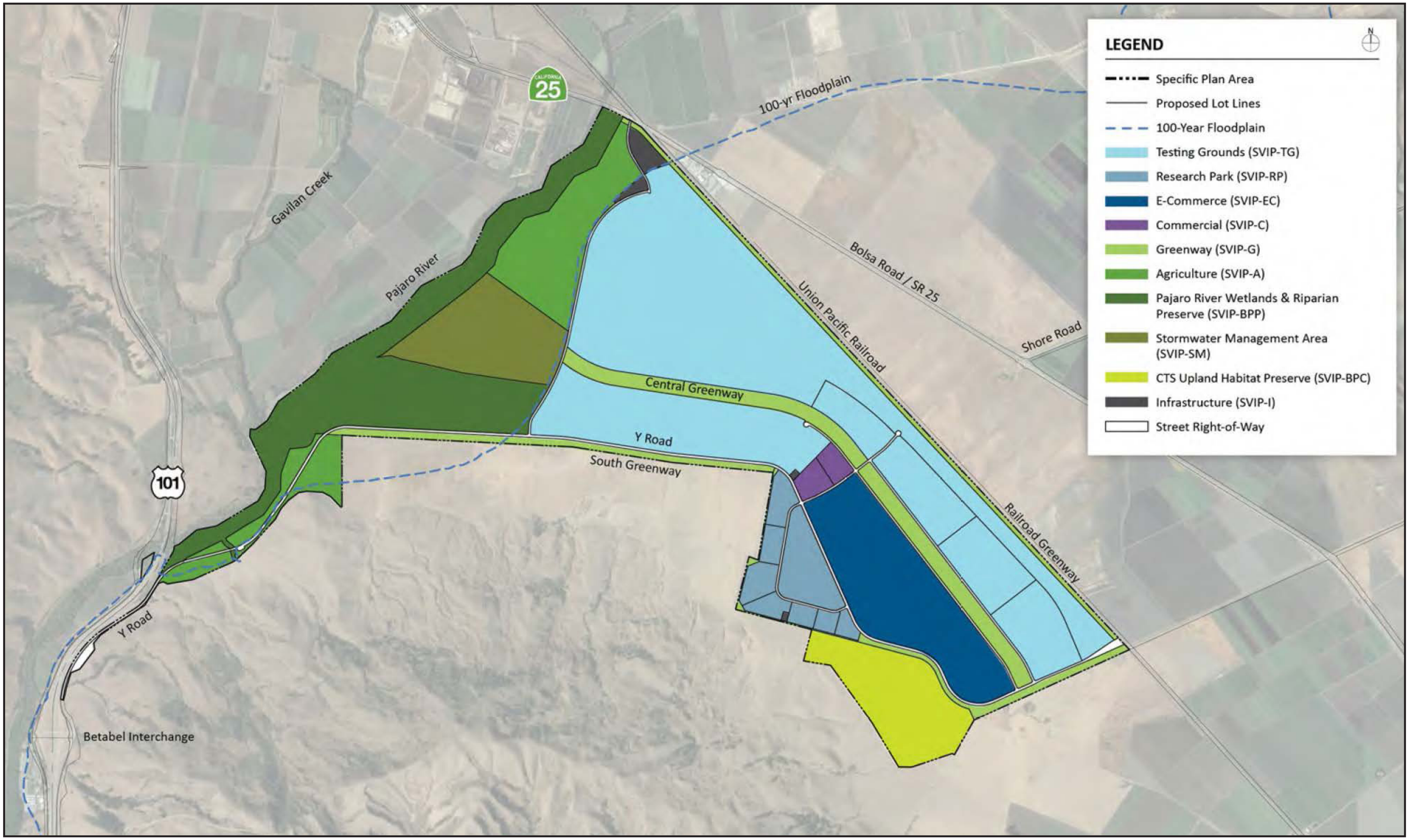

EXHIBIT 3: Conceptual Site Plan
Strada Verde Innovation Park Project
County of San Benito

Not to Scale

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2 ACOUSTIC FUNDAMENTALS

2.1 Sound and Environmental Noise

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. The fundamental acoustics model consists of a noise source, 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 ambient noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this ambient 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 2: Typical Noise Levels provides typical noise levels.

Table 2: 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 3: Definitions of Acoustical Terms.

Table 3: 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.

A-Weighted Decibels

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 used. 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.

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 decibel scale is logarithmic, not linear. For example, a 70 dBA sound is half as loud as an 80 dBA sound and twice as loud as a 60 dBA sound.[1] 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.[2] Under the dB scale, three sources of equal loudness together would produce an increase of approximately 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.[3] 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

[1] *Noise Sources and Their Effects*. Available at: https://www.chem.purdue.edu/chemsafety/Training/PPETrain/dblevels.htm
[2] FHWA, *Noise Fundamentals,* 2017. Available at: https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm
[3] California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, Page 2-29, September 2013.

reduces noise levels by 5 to 10 dBA.[4] 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.

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.[5] 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[6]:

- 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.

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[4] James P. Cowan, *Handbook of Environmental Acoustics,* 1994.
[5] Compiled from James P. Cowan, *Handbook of Environmental Acoustics,* 1994 and Cyril M. Harris, Handbook of Noise Control, 1979.
[6] Compiled from California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013, and FHWA, *Noise Fundamentals,* 2017.

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[7].

2.2 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: 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 Table 4 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.

Both construction and operation of development projects can generate ground-borne vibration. However, vibrations associated with construction are the most likely to result in perceptible vibrations to surrounding use. Most development projects do not include sources of vibration which are likely to be perceptibly at off-site uses. Construction equipment such as vibratory compactors or rollers, pile drivers, and pavement breakers can generate perceptible vibration during construction activities. Heavy trucks can also generate ground-borne vibrations that vary depending on vehicle type, weight, and pavement conditions.

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

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

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.

Table 4: 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.

3 REGULATORY SETTING

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.

3.1 Federal

Occupational Safety and Health Administration

Under the Occupational Safety and Health Act of 1970 (29 U.S.C. § 651 et seq.), the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) adopted regulations (29 CFR § 1910.95) designed to protect workers against the effects of occupational noise exposure. These regulations identify limits on noise exposure levels as a function of the amount of time during which the worker is exposed. The regulations further specify requirements for a hearing conservation program (§ 1910.95(c)), a monitoring program (§ 1910.95(d)), an audiometric testing program (§ 1910.95(g)), and hearing protection (§ 1910.95(i)). There are no Federal laws governing community noise.

3.2 State of California

California Government Code

California Government Code Section 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.

Title 24 – Building Code

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, 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, the acceptable interior noise limit for new construction is 45 dBA CNEL.

3.3 Local

San Benito County 2035 General Plan

The Noise Element of the *San Benito County 2035 General Plan* (General Plan), last amended in December of 2019, includes land use compatibility guidelines for environmental noise in the community. These guidelines are shown in Table 5: Land Use Compatibility for Community Noise Environments. Table 6: Non-Transportation Noise Level Performance Standards for Noise-Sensitive Uses summarizes the noise level standards for noise-sensitive uses (e.g., residential development, transient lodging, hospitals, nursing homes, schools, day care centers) affected by non-transportation noise sources in the County.

Table 5: Land Use Compatibility for Community Noise Environments

Land Use Category	Community Noise Exposure L_{dn} / CNEL, dB						
	55	60	65	70	75	80	
Residential – Low Density Single Family, Duplex, Mobile Homes							
Residential – Multi. Family							
Transient Lodging – Motels, Hotels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arena, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial and Professional							
Industrial, Manufacturing Utilities, Agriculture							

CLEARLY ACCEPTABLE

The noise exposure is such that the activities associated with the land use may be carried out with essentially no interference from aircraft noise. (Residential areas: both indoor and outdoor noise environments are pleasant.)

NORMALLY ACCEPTABLE

The noise exposure is great enough to be of some concern, but common building construction will make the indoor environment acceptable, even for sleeping quarters.

NORMALLY UNACCEPTABLE

The noise exposure is significantly more severe so that unusual and costly building construction is necessary to insure adequate performance of activities. (Residential areas: barriers must be created between the site and prominent noise sources to make the outdoor environment tolerable.)

CLEARLY UNACCEPTABLE

The noise exposure is so severe that construction costs to make the indoor environment acceptable for performance of activities would be prohibitive. (Residential areas: the outdoor environment would be intolerable for normal residential use.)

Source: San Benito County 2035 General Plan Table 9-2.

Table 6: Non-Transportation Noise Level Performance Standards for Noise-Sensitive Uses		
Noise Level Descriptor	**Daytime (7:00 a.m. – 10:00 p.m.)**	**Nighttime (10:00 p.m. – 7:00 a.m.)**
Hourly L_{eq}, dB	55	45
Maximum Level, dB	70	65
Note: These standards apply to new or existing residential areas affected by new or existing non-transportation sources.		
Source: San Benito County 2035 General Plan.		

Project relevant General Plan goals and policies are listed here:

Goal HS-8: To protect the health, safety, and welfare of county residents through elimination of annoying or harmful noise levels.

HS-8.1: **Project Design.** The County shall require new development to comply with the noise standards through proper site and building design and building construction practices.

HS-8.2: **Acoustical Analysis.** The County shall require an acoustical analysis to be performed prior to development approval where proposed land may produce or be exposed to noise levels exceeding the "normally acceptable criteria".

HS-8.3: **Construction Noise.** The County shall control the operation of construction equipment at specific sound intensities and frequencies during daytime hours (7:00 a.m. – 6:00 p.m. on weekdays & 8:00 a.m.-5:00 p.m. on weekends).

HS-8.6: **Vibration Screening Distances.** The County shall require new residential and commercial uses located adjacent to major freeways or railroad tracks to follow the Federal Transit Administration (FTA) screening distance criteria. (RDR)

HS-8.7: **Acceptable Vibration Levels**. The County shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby noise-sensitive uses based FTA criteria.

HS-8.11: **New Project Noise Mitigation Requirements**. Require new projects to include appropriate noise mitigation measures to reduce noise levels in compliance with Table 5 and Table 6 standards within sensitive areas.

HS-8.12: **Construction Noise Control Plans**. Require all construction projects to be constructed within 500 feet of sensitive receptors to develop and implement construction noise control plans that consider the following available controls in order to reduce construction noise levels as low as practical:

- Utilize 'quiet' models of air compressors and other stationary noise sources where technology exists;
- Equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment;

- Locate all stationary noise-generating equipment, such as air compressors and portable power generators, as far away as possible from adjacent land uses;
- Locate staging areas and construction material areas as far away as possible from adjacent land uses;
- Prohibit all unnecessary idling of internal combustion engines;
- Notify all abutting land uses of the construction schedule in writing; and
- Designate a "disturbance coordinator" (e.g. contractor foreman or authorized representative) who would be responsible for responding to any local complaints about construction noise

San Benito County Noise Ordinance

Chapter 19.39 of the San Benito County Code of Ordinances (County Code) limits acceptable noise levels generated by any source to the following standards. The limitations are measured based on noise impacts to receiving properties at the property line, as shown in Table 7: Maximum Noise Level at the Property Line.

Table 7: Maximum Noise Level at the Property Line

Receiving Land Use	Day Hourly L_{eq} Limit (dBA)	Night Hourly L_{eq} Limit (dBA)
Ag Rangeland Ag Productive Rural	45	35
Rural Transitional Rural Residential	45	35
Single-Family (R1) Residential Multiple (RM) Planned Unit Development	50	40
Commercial (C-1) Commercial (C-2)	65	55
Controlled Manufacturing (CM) Light Industrial (M-1) Heavy Industrial (M-2)	70	60

Source: San Benito County Zoning Ordinance Section 19.39.030

The County Code identifies the following exemptions:

- Safety signals, warning devices, emergency vehicle sirens;
- Temporary construction, demolition, or maintenance of structures between the hours of 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays;
- Agricultural equipment, including but not limited to water well pumps, pest-repelling devices, and other related necessary and agricultural oriented uses;
- Yard maintenance equipment operated between the hours of 7:00 a.m. and 7:00 p.m.; and/or
- Other uses as set forth by a Resolution or as Conditions of Approval by the Planning Commission or Board of Supervisors.

4 EXISTING CONDITIONS

4.1 Existing Noise Sources

The existing noise environment in and around the Project site varies, but is predominantly the result of local roadway noise sources (e.g., Highway 25), trains on the UPRR track, occasional aircraft, agricultural equipment, and mechanical equipment at local businesses (e.g., Trical, Inc.).

Existing Roadway Noise Source

Highway 25 runs approximately in an east/west direction adjacent to the project site. The California Department of Transportation (Caltrans) is in the process of a widening project for Highway 25, which would replace the existing two-lane highway with a four-lane expressway and use portions of the existing route as a frontage road. The widening project would include a grade separation (overpass) where Highway 25 crosses the Union Pacific Railroad (UPRR) track.

US 101 runs in the north/south direction adjacent to the southwestern portion of the Site. Intervening hills separate US 101 from the majority of the Site. Shore Road runs in the north/south direction and divides the northern portion of the Project. The roadway currently originates at Highway 25 and runs northeast through the Site.

Existing noise levels for the roadway segments in the project vicinity were measured using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) and existing traffic volumes from the *Strada Verde Innovation Park Specific Plan Local Transportation Analysis* (Transportation Analysis) prepared by Kimley-Horn (dated 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, adapted to reflect average vehicle noise rates identified 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 the project vicinity are shown in Table 8: Existing Traffic Noise Levels.

Table 8: Existing Traffic Noise Levels

Roadway Segment	Existing Conditions	
	ADT	dBA CNEL[1]
SR 25		
County Line to Shore Road	22,722	69.0
Shore Road to SR 156	19,389	68.3
SR 156 to San Felipe Road	15,889	67.7
US 101		
SR 25 to County Line	47,056	74.2
County Line to Y Road	47,056	74.2
Y Road to SR 129	47,111	74.2
SR 129 to SR 156	40,389	73.7
SR 156 to County Line	40,389	73.7

ADT = average daily traffic; dBA = A-weighted decibels; L_{dn} = day-night noise level;

Source: Based on traffic data within the *Strada Verde Innovation Park Specific Plan Local Transportation Analysis*, prepared by Kimley-Horn (dated 2022). Refer to Appendix B: Noise Modeling Data for traffic noise modeling assumptions and results.

Existing Railway Noise Sources

The Hollister Branch Line runs from Hollister to Carnado Creek in Santa Clara County, and a short segment of the coast mainline in Aromas. This line runs just adjacent to the northern portion of the Project site and is operated by the Union Pacific Railroad, which transports approximately 10,000 gross tons of good on this line each year.

Existing Airport Noise Sources

The Hollister Municipal Airport is located approximately three miles south of the Project site. Chapter 5 of the *Hollister Municipal Airport Master Plan,* titled "Airport Plans," includes existing and projected year 2025 noise exposure contours for aircraft noise. The CNEL 65 dB airport noise contour is projected to expand in the future; however, the contour will remain south of State Route 156, which is located outside and east of the Project site. The document states: "The 65 CNEL contour has been established as the threshold of incompatibility, meaning that noise levels below 65 CNEL are considered compatible with underlying land uses."

In addition to the *Hollister Municipal Airport Master Plan*, the *Hollister Municipal Airport Land Use Compatibility Plan* includes Exhibit 3-6 titled "Compatibility Factors: Safety". The Project site is located outside of the Inner and Outer Safety Zones surrounding the airport. The Frazier Lake Airpark is located approximately two miles north of the Project site. The Project site is located outside of the CNEL 55 dB airport noise contour. The northern portions of the Project site are located adjacent to the Airport Influence Area.

Stationary Noise Sources

Trical Inc. is a stationary source, located adjacent to the northeast portion of the Project site in a triangular area between Highway 25 and the UPRR track. Trical is a distribution center for soil fumigants used mainly on fresh fruits and vegetables. Noise associated with this business includes loading and un-loading of trucks and train cars. A spur railroad track, located adjacent to the Trical site, appears to be used for storage and weekly drop-off or pick-up of train cars. The Trical site includes an undeveloped portion immediately south of their facility.

Noise sources associated with other agricultural uses adjacent to the Project site include tractors, trucks, farm equipment, well pumps, etc. The noise associated with agricultural land uses fluctuates seasonally. Existing adjacent farms were in operation at the time that on-site environmental noise measurements were conducted

4.2 Ambient Noise Measurements

To determine ambient noise levels in the Project area, four 10-minute noise measurements were taken between 10:00 a.m. and 11:00 a.m. on March 10, 2020. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the Project site. Short-term (L_{eq}) measurements are considered representative of the noise levels in the project vicinity. Meteorological conditions were clear skies, cool temperatures, with light wind speeds (0 to 5 miles per hour), and low humidity. Noise monitoring equipment used for the ambient noise survey consisted of a 3M SoundPro DL-1 Type-1. Detailed information pertaining to the noise measurement process can be found in Appendix A: Existing Ambient Noise Measurements. The primary noise sources measured were major roadway traffic and agricultural activities and machinery. Measurement results are summarized in Table 9: Noise Measurements. Approximate measurement locations are shown in Exhibit 4: Approximate Noise Measurement Locations.

Table 9: Noise Measurements

Site No.	Location	L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)
1	Bloomfield Avenue and SR 25	67.7 dBA	51.4 dBA	80.9 dBA
2	Betabel Road near RV Resort	64.3 dBA	53.5 dBA	98.0 dBA
3	Hunder Road and SR 25	65.1 dBA	39.0 dBA	96.4 dBA
4	Shore Road and SR 25	63.8 dBA	45.4 dBA	90.3 dBA
Source: Noise measurements taken by Kimley-Horn on March 10, 2020. See Appendix A for noise measurement results.				

4.3 Sensitive Receptors

Noise exposure standards and guidelines for various types of land uses reflect the varying noise sensitivities associated with each of these uses. Residences, hospitals, schools, guest lodging, libraries, and churches are treated as the most sensitive to noise intrusion and therefore have more stringent noise exposure targets than do other uses, such as manufacturing or agricultural uses that are not subject to impacts such as sleep disturbance. As shown in Table 10: Sensitive Receptors, sensitive receptors near the Project site include a single-family residence adjacent to the southeastern boundary, approximately 50 feet from the project boundary line. Clusters of single-family residences are located in the Project vicinity. However, majority of the single-family residences are located more than 1,000 feet from the Project site. These distances are from the Project site to the sensitive receptor property line.

Table 10: Sensitive Receptors

Receptor Type/ Description	Distance and Direction from the Project Site	Receptor Type/ Description
Single Family Residential	50 feet south of the southeastern portion of the Project site	Single Family Residential
Single Family Residential	0.9 miles southeast of the southeastern portion of the Project site	Single Family Residential
Betabel RV Resort	1.10 miles southwest of the southwestern portion of the Project site	Betabel RV Resort
Note: Distance calculated from property line of proposed Project site and property line of the sensitive receptors.		
Source: Google Earth		

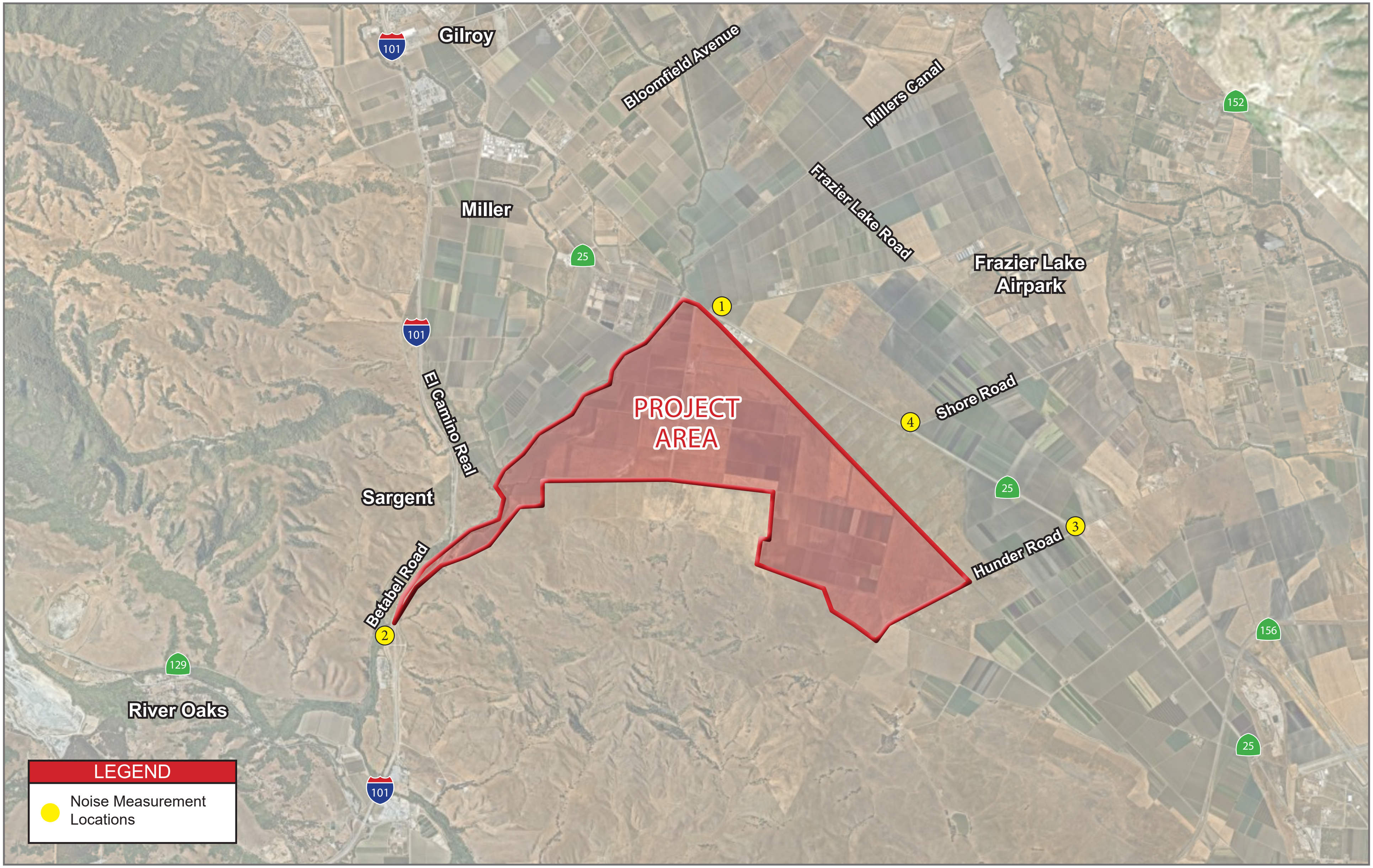

EXHIBIT 4: Noise Measurement Locations
Strada Verde Innovation Park Project
County of San Benito

N Not to Scale

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Expect More. Experience Better.

5 SIGNIFICANCE CRITERIA AND METHODOLOGY

5.1 CEQA Thresholds

The following significance criteria for geography were derived from the Environmental Checklist in CEQA Guidelines Appendix G. An impact of the Project would be considered significant and would require mitigation if it would meet one of the following criteria:

- **NOI-1** 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?
- **NOI-2** Generate excessive groundborne vibration or groundborne noise levels?
- **NOI-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, expose people residing or working in the project area to excessive noise levels?

5.2 Methodology

The analysis of noise impacts considers the effects of both temporary construction-related noise and operational noise associated with long-term project-related activities, including, without limitation, project-generated traffic.

Construction

Construction noise estimates are based upon noise levels from the Federal Highway Administration (FHWA) Roadway Construction Noise Model (FHWA-HEP-05-054) as well as the distance to nearby receptors. Reference noise levels from FHWA are used to estimate 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). Construction 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 County Code does not establish quantitative construction noise standards. Instead, County Code Section 19.39.051(H) establishes allowable hours for construction between 7:00 a.m. and 7:00 p.m. (excluding Sundays and Federal holidays). Additionally, County General Plan Policy HS-8.3 requires the construction equipment to be controlled during daytime hours (7:00 a.m. – 6:00 p.m. on weekdays & 8:00 a.m.-5:00 p.m. on weekends). As the County has not established numerical construction noise thresholds, 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.

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 structural damage and human annoyance were evaluated, considering the distance from construction activities to nearby land uses and typically applied criteria for structural damage and human annoyance.

Operations

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. Traffic noise impacts are assessed using the U.S. Federal Highway Traffic Noise Prediction Model (FHWA-RD-77-108). Model input data includes without- and with-project average daily traffic volumes on adjacent roadway segments, day/night percentages of autos, medium and heavy trucks, vehicle speeds, ground attenuation factors, and roadway widths. The roadway speeds are based on the posted speed limits observed during site visits. The model analyzed the noise impacts from the nearby roadways onto the project vicinity, which consists of the area that has the potential of being impacted from the on-site noise sources as well as the project-generated traffic on the nearby roadways. 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. The roadway traffic model input assumptions are presented in Appendix B: Noise Modeling Data.

An off-site traffic noise impact typically occurs when there is a discernable increase in traffic and the resulting noise level exceeds an established noise standard. In community noise considerations, changes in noise levels greater than 3 dB are often identified as substantial, while changes less than 1 dB will not be discernible to local residents. In the range of 1 to 3 dB, residents who are very sensitive to noise may perceive a slight change. In laboratory testing situations, humans are able to detect noise level changes of slightly less than 1 dB. However, this is based on a direct, immediate comparison of two sound levels. Community noise exposures occur over a long period of time and changes in noise levels occur over years (rather than the immediate comparison made in a laboratory situation). Therefore, the level at which changes in community noise levels become discernible is likely to be some value greater than 1 dB, and 3 dB is the most commonly accepted discernable difference. A 5 dB change is generally recognized as a clearly discernable difference.

Stationary source noise (e.g., mechanical equipment, on-site trucks/loading docks, etc.) is evaluated by identifying the noise levels generated by calculating the noise level from each noise source at sensitive receiver property lines and comparing such noise levels to existing ambient noise levels. Stationary noise is calculated using a reference noise level from manufacturer specifications or environmental noise publications and the inverse square law of sound propagation (i.e., a decay rate of 6 dBA per doubling of distance).

Operational noise is evaluated based on the standards within the County's Noise ordinance (Ch. 19.39: Noise Regulations). A significant noise impact would occur if the Project exceeds the noise level standards contained in the County's Noise Ordinance or will increase ambient noise levels by more than 3 dB, whichever is greater.

6 POTENTIAL IMPACTS AND MITIGATION

6.1 Acoustical Impacts

Impact NOI-1 Would the Project 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?

Construction

Construction for the proposed Project is expected to occur in two phases, Phase 1 and Phase 2, over approximately ten years. There will be two types of noise generated by this construction: noise from equipment and noise from increased traffic flow on local streets.

Equipment Noise

Project construction has the potential to impact exterior noise levels in the portions of residential uses closest to the construction site. Project construction activities would occur as close as 200 feet from the nearest residential property line to the southeast. However, the vast majority of Project construction activities would occur beyond 200 feet from the existing residence.

Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, grading, excavation, paving). Activities would include site preparation, grading, building construction, paving, and architectural coating applications. Such activities would require graders, scrapers, and tractors during site preparation; graders, dozers, and tractors during grading; cranes, forklifts, generators, tractors, and welders during building construction; pavers, rollers, mixers, tractors, and paving equipment during paving; and air compressors during architectural coating. According to the project civil engineer, no pile-driving would occur during construction activities. 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). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels.

Because construction of the Project would occur in phases over an extended period of time, construction equipment would not operate at an individual site or location for an extended period of time. Additionally, each construction sub-phase (e.g., grading, paving, building, etc.) would have different noise profiles and would occur at various locations throughout the Project site as the construction progresses. Grading and excavation phases of project construction tend to be the shortest in duration and create the highest construction noise levels due to the operation of heavy equipment required to complete these activities. It should be noted that only a limited amount of equipment can operate near a given location at a particular time.

Typical noise levels associated with individual construction equipment are listed in Table 11: Typical Construction Noise Levels. Because the property line of the nearest sensitive receptor is 50 feet from the Project site, Table 11 shows typical noise levels starting at 50 feet from the source, however the property line of the nearest receptor is 200 feet from the nearest construction zone area.

Table 11: Typical Construction Noise Levels			
Equipment	**Typical Noise Level (dBA)**		
	50 feet from Source[1]	**100 feet from Source[2]**	**200 feet from Source[2]**
Air Compressor	80	74	68
Backhoe	80	74	68
Ballast Equalizer	82	76	70
Ballast Tamper	83	77	71
Compactor	82	76	70
Concrete Mixer	85	79	73
Concrete Pump	82	76	70
Concrete Vibrator	76	70	64
Crane, Derrick	88	82	76
Crane, Mobile	83	77	71
Dozer	85	79	73
Generator	82	76	70
Grader	85	79	73
Impact Wrench	85	79	73
Jack Hammer	88	82	76
Loader	80	74	68
Paver	85	79	73
Pneumatic Tool	85	79	73
Pump	77	71	65
Rail Saw	90	84	78
Rock Drill	95	89	82
Roller	85	79	73
Saw	76	70	64
Scarifier	83	77	71
Scraper	85	79	73
Shovel	82	76	70
Spike Driver	77	71	65
Tie Cutter	84	78	72
Tie Handler	80	74	68
Tie Inserter	85	79	73
Truck	84	78	72

1. Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, 2018.
2. Based on reference levels for 50 feet from source and calculating increased distances 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.

Table 11 provides the typical noise levels associated with certain construction activities and the noise that would typically be heard at a distance of 50 feet, 100 feet, and 200 feet from the source. The property limit of the nearest sensitive receptor is approximately 50 feet south of the project boundary; however the nearest project construction would occur at least 200 feet from the sensitive receptor's property limit. These sensitive uses may be exposed to elevated noise levels during project construction.

The noise levels calculated in Table 12: Project Construction Noise Levels, show estimated exterior construction noise for Phase 1 and Phase 2 without accounting for attenuation from existing physical barriers. The property line of the nearest noise sensitive receptor is 200 feet to the south. All construction equipment was assumed to operate simultaneously at a construction area nearest to the sensitive receptor. These assumptions represent a worst-case noise scenario as construction activities would routinely be spread throughout the construction site further away from noise sensitive receptors.

Table 12: Project Construction Noise Levels

Construction Phase	Modeled Exterior Construction Level at Property Line of Nearest Sensitive Receptor		FTA Noise Threshold (dBA L_{eq})	Exceed Threshold?
	dBA L_{eq}	dBA L_{max}		
Phase 1				
Demolition	37.5	40.6	80	No
Site Preparation	72.2	69.6	80	No
Grading	79.8	73.0	80	No
Paving	71.5	68.0	80	No
Construction	69.8	68.6	80	No
Painting/Architectural Coating	61.6	65.6	80	No
Phase 2				
Site Preparation	72.2	69.6	80	No
Grading	78.0	73.0	80	No
Construction	69.8	68.6	80	No
Paving	72.7	68.6	80	No
Painting/Architectural Coating	61.6	65.6	80	No

Source: Refer to Appendix B: Noise Modeling Data for construction noise modeling assumptions and results.

Table 12 shows unobstructed construction noise levels could reach 79.8 dBA during Phase 1 and 78.0 dBA during Phase 2 at the property line of the nearest sensitive receptor. Construction equipment would operate throughout the Project site during each phase and the associated noise levels would not occur at a fixed location for extended periods of time. Construction noise would be acoustically dispersed throughout the Project site and would be masked by freeway noise and railway noise. The County Code does not establish quantitative construction noise standards. Instead, County Code Section 19.39.051(H) establishes allowable hours for construction between 7:00 a.m. and 7:00 p.m. (excluding Sundays and Federal holidays). However, the General Plan states that the County shall control the operation of construction equipment at specific sound intensities and frequencies during daytime hours.

Standard Condition NOI-1-1 requires the development and implementation of a Construction Noise Control Plan that would include various measures to reduce construction noise levels as low as practical, as stated in County General Plan policy HS-8.12. With the implementation of Standard Condition NOI-1-1, construction noise impacts would be less than significant.

Construction Traffic Noise

In addition to the construction activities themselves, noise during the construction phase would be generated by large trucks that would require the use of local roadways including Y Road to haul materials to and from the project site. Construction of the project would require vehicle trips both from workers and larger trucks needed to transport materials needed for construction. Large trucks would be necessary to deliver building materials as well as remove dump materials. Excavation and cut and fill would be required. Soil hauling would not be required as the earthwork would balance on-site. Based on the California Emissions Estimator Model (CalEEMod) default assumptions for this Project, the Project would generate the highest number of daily trips during the building construction phase. The model estimates that the Project would generate up to 8,318 worker trips and 4,233 vendor trips per day. Because of the logarithmic nature of noise levels, a doubling of the traffic volume (assuming that the speed and vehicle mix do not also change) would result in a noise level increase of 3 dBA. As shown in Table 8: Existing Traffic Noise Levels, US 101, the main access route for project construction has an average daily trip volume between 15,889 and 47,056 vehicles. Therefore, a maximum of 12,551 project construction trips (8,318 worker trips plus 4,233 vendor trips), while a significant increase in traffic numbers, would not double the existing traffic volume of 15,889 vehicles per day. Construction related traffic noise would not be noticeable and would not create a significant noise impact. Large trucks would be necessary to deliver building materials, remove waste materials, and depending on the final earthwork quantities, possibly import or export soil to and from off-site locations. This would be temporary and short-term. The highest number of worker and vendor trips are during the building construction phase.

Larger trucks needed to haul materials could result in additional noise from acceleration from engines, braking, and loading and unloading. At the time the project construction phasing is implemented, access to future projects would be strategically designed to avoid, to the extent feasible, through routing truck traffic on roadways that would be at the greatest distance from sensitive receptors.

The State of California establishes noise limits for vehicles licensed to operate on public roads using a pass-by test procedure. Pass-by noise refers to the noise level produced by an individual vehicle as it travels past a fixed location. The pass-by procedure measures the total noise emissions of a moving vehicle with a microphone. When the vehicle reaches the microphone, the vehicle is at full throttle acceleration at an engine speed calculated for its displacement. For heavy trucks, the State pass by standard is consistent with the federal limit of 80 decibels (dB). The State pass by standard for light trucks and passenger cars (less than 4.5 tons gross vehicle rating) is also 80 dB at 15 meters from the centerline. According to the FHWA, dump trucks typically generate noise levels of 76 dBA and flatbed trucks typically generate noise levels of 74 dBA, at a distance of 50 feet from the truck (FHWA, 2018). As such, noise from truck trips associated with the proposed project would not exceed FTA threshold levels of 90 dBA (one-hour L_{eq}) or 80 dBA (eight-hour L_{eq}) (FTA, 2018).

Summary

The nearest sensitive receivers to the Project site include an existing residence to the south (the sensitive receptor property line is 50 feet south of the southeastern Project boundary). Based on the discussion above, if every piece of equipment were in operation at the same time at the closest point to the nearest residence, the exterior noise level at that sensitive receptor property line could reach 78.0 dBA. As a result, standard construction noise measures required by General Plan policies for any project within 500 feet of a sensitive receptor would be required to ensure that impacts are reduced to the maximum extent feasible. With the implementation of the Standard Conditions NOI-1-1 set forth below, Project construction would not generate a substantial temporary increase in ambient noise levels in the vicinity of the Project in excess of standards established in the General Plan or noise ordinance. Construction noise impacts would be less than significant.

Standard Conditions

SC N-1-1 Construction Noise Reduction

Prior to the issuance of demolition or grading permits, the County of San Benito shall ensure that the project applicant develops a Construction Noise Control Plan and includes the following on all construction contracts for the proposed Project:

- Construction Hours. Limit construction activity to 7:00 a.m. to 6:00 p.m. on weekdays and 8:00 a.m. to 5:00 p.m. on Saturdays. Construction on Sundays and Federal holidays is prohibited.

- Construction Equipment. Properly maintain construction equipment and ensure that all internal combustion engine driven machinery with intake and exhaust mufflers and engine shrouds (if the equipment had such devices installed as part of its standard equipment package) that are in good condition and appropriate for the equipment. Equipment engine shrouds shall be closed during equipment operation. The developer shall require all contractors, as a condition of contract, to maintain and tune-up all construction equipment to minimize noise emissions.

- Vehicle and Equipment Idling. Construction vehicles and equipment shall not be left idling for longer than five minutes when not in use.

- Stationary Equipment. All noise-generating stationary equipment such as air compressors or portable power generators shall be located as far as possible from sensitive receptors. Temporary noise barriers shall be constructed to screen stationary noise generating equipment when located near adjoining sensitive land uses. Temporary noise barriers could reduce construction noise levels by 10 dBA.

- Construction Route. All construction traffic to and from the project site shall be routed via designated truck routes where feasible. All construction-related heavy truck traffic in residential areas shall be prohibited where feasible.

- Workers' Radios. All noise from workers' radios shall be controlled to a point that they are not audible at sensitive receptors near the construction activity.

- Construction Plan. Prior to issuance of any grading and/or building permits, the contractor shall prepare and submit to the County of San Benito for approval a detailed construction plan identifying the schedule for major noise-generating construction activity.

- Disturbance Coordinator. A "noise disturbance coordinator" shall be designated by the contractor. The noise disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator shall determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and shall require that reasonable measures warranted to correct the problem be implemented. The coordinator shall conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

Operational

Traffic Noise

The Project would increase future traffic volumes along State Route 25 (SR 25) and US 101. The Project would add three collector roads, currently called Road A, Road B, and Road C in the Specific Plan. Road A would connect US 101 to the Project site, Road B would connect Road A and Road C, and Road C would provide access to SR 25/Bolsa Road. Additionally, the Project would include local streets throughout the Project site.

Implementation of the Project would generate increased traffic volumes along study roadway segments. According to the Transportation Analysis (Kimley-Horn, 2022), the Project Phase 1 would result in a net of 3,612 daily trips and Project Buildout would result in a net of 20,303 daily trips, which would result in noise increases on Project area roadways.

Typically, in high noise environments a project is considered to have a significant impact if the project would increase L_{dn} by more than 3 dB (the minimum increase generally perceptible to most people), cause ambient noise levels to exceed the guidelines outlined in the General Plan, or would expose people to vibration levels exceeding the FTA guidelines. Where existing noise levels are well below the General Plan guidelines, a somewhat higher increase (i.e., 5 dB) may be tolerated before the impact is considered significant.

Table 13: Year 2022 Traffic Noise shows the Year 2022 traffic noise levels on Project-vicinity roadways at 100 feet from the roadway centerline. As show in Table 13**: Year 2022 Traffic Noise**, the "Year 2022 With Project" scenario noise levels would range from 67.8 to 74.5 dBA. The highest increase in noise levels would occur along US 101 between SR 25 and Y Road. Noise levels along this roadway segment would increase 0.3 dBA over the "Year 2022 Without Project" scenario. Therefore, traffic noise levels generated from the "Year 2022 With Project" scenario would not exceed the 3 dB threshold.

Table 13: Year 2022 Traffic Noise

Roadway Segment	Year 2022 Without Project		Year 2022 With Project		Project Change	Significant Impact?
	ADT	dBA CNEL[1]	ADT	dBA CNEL[1]		
SR 25						
County Line to Shore Road	22,722	69.0	23,211	69.1	0.1	No
Shore Road to SR 156	19,389	68.3	19,778	68.4	0.1	No
SR 156 to San Felipe Road	15,889	67.7	16,223	67.8	0.1	No
US 101						
SR 25 to County Line	47,056	74.2	50,056	74.5	0.3	No
County Line to Y Road	47,056	74.2	50,056	74.5	0.3	No
Y Road to SR 129	47,111	74.2	48,388	74.4	0.2	No
SR 129 to SR 156	40,389	73.7	41,389	73.8	0.1	No
SR 156 to County Line	40,389	73.7	41,055	73.8	0.1	No

ADT = average daily traffic; dBA = A-weighted decibels; L_{dn} = day-night noise level; N/A = applies to a future planned roadway
1. Traffic noise levels are at 100 feet from the roadway centerline.

Source: Based on traffic data within the *Strada Verde Innovation Park Specific Plan Local Transportation Analysis*, prepared by Kimley-Horn (dated 2022). Refer to Appendix B for traffic noise modeling assumptions and results.

Table 14: Year 2025 Traffic Noise shows Year 2025 traffic noise levels on Project-vicinity roadways at 100 feet from the roadway centerline. As shown in Table 14, the "Year 2025 With Project" scenario noise levels would range from 68.0 to 74.6 dBA. The highest increase in noise levels would occur along US 101 between SR 25 to Y Road. Noise levels along this roadway segment would increase 0.3 dBA over the "Year 2025 Without Project" scenario. Therefore, traffic noise levels generated from the "Year 2025 With Project" scenario would not exceed the 3 dB threshold.

Table 14: Year 2025 Traffic Noise

Roadway Segment	Year 2025 Without Project		Year 2025 With Project		Project Change	Significant Impact?
	ADT	dBA CNEL[1]	ADT	dBA CNEL[1]		
SR 29						
County Line to Shore Road	23,655	69.2	24,144	69.3	0.1	No
Shore Road to SR 156	20,188	68.5	20,577	68.6	0.1	No
SR 156 to San Felipe Road	16,544	67.9	16,878	68.0	0.1	No
US 101						
SR 25 to County Line	47,933	74.3	50,933	74.6	0.3	No
County Line to Y Road	47,933	74.3	50,933	74.6	0.3	No
Y Road to SR 129	48,000	74.3	49,277	74.4	0.1	No
SR 129 to SR 156	41,144	73.8	42,144	73.9	0.1	No
SR 156 to County Line	41,145	73.8	41,811	73.9	0.1	No

ADT = average daily traffic; dBA = A-weighted decibels; L_{dn} = day-night noise level; N/A = applies to a future planned roadway
1. Traffic noise levels are at 100 feet from the roadway centerline.
Source: Based on traffic data within the *Strada Verde Innovation Park Specific Plan Local Transportation Analysis*, prepared by Kimley-Horn (dated 2022). Refer to Appendix B for traffic noise modeling assumptions and results.

Table 15: Year 2030 Traffic Noise shows the Year 2030 traffic noise levels on Project-vicinity roadways at 100 feet from the roadway centerline. As shown in Table 15, the "Year 2030 With Project" scenario noise levels would range from 68.3 to 75.2 dBA. The highest increase in noise levels would occur along US 101 between SR 25 to Y Road. Noise levels along this roadway segment would increase 0.5 dBA over the "Year 2030 Without Project" scenario. Therefore, traffic noise levels generated from the "Year 2030 With Project" scenario would not exceed the 3 dB threshold.

Table 15: Year 2030 Traffic Noise

Roadway Segment	Year 2030 Without Project		Year 2030 With Project		Project Change	Significant Impact?
	ADT	dBA CNEL[1]	ADT	dBA CNEL[1]		
SR 29						
County Line to Shore Road	25,290	69.5	26,267	69.6	0.1	No
Shore Road to SR 156	21,577	68.8	22,355	68.9	0.1	No
SR 156 to San Felipe Road	17,677	68.2	18,322	68.3	0.1	No
US 101						
SR 25 to County Line	52,378	74.7	58,389	75.2	0.5	No
County Line to Y Road	52,378	74.7	58,389	75.2	0.5	No
Y Road to SR 129	52,445	74.7	54,967	74.9	0.2	No
SR 129 to SR 156	44,955	74.2	46,966	74.4	0.2	No
SR 156 to County Line	44,955	74.2	46,322	74.3	0.1	No

Notes: ADT = average daily traffic; dBA = A-weighted decibels; L_{dn} = day-night noise level; N/A = applies to a future planned roadway
1. Traffic noise levels are at 100 feet from the roadway centerline.
Source: Based on traffic data within the *Strada Verde Innovation Park Specific Plan Local Transportation Analysis*, prepared by Kimley-Horn (dated 2022). Refer to Appendix B for traffic noise modeling assumptions and results.

As shown above, the "Year 2022 With Project", "Year 2025 With Project", and "Year 2030 With Project" traffic noise levels would exceed CNEL 65 dB. Therefore, the "normally unacceptable" level for residential uses identified in the San Benito County General Plan (i.e., CNEL 65 dB) would be exceeded. However, the existing noise levels in the Project area currently exceed CNEL 65 dB, the "normally unacceptable" level for residential uses. The highest increase in noise levels would be 0.5 during the "Year 2030 With Project" scenario, which is not a noticeable increase in noise as an increase of 3 dBA is barely detectible. Therefore, impacts would be less than significant.

Mechanical Equipment

Mechanical equipment (HVAC units) would be located within the Project area. HVAC units typically generate noise levels of approximately 50 dBA at 50 feet. Noise generated by mechanical equipment on the Project site would not exceed the County's 65 dBA standard at off-site sensitive receptors. These types of on-site mechanical equipment would be acoustically engineered with mufflers and barriers to minimize noise and to ensure that the noise emissions do not exceed the County's maximum noise level limits. Compliance with General Plan Policy HS-8.12 would ensure that operation of mechanical equipment would not increase ambient noise levels beyond the acceptable compatible land use noise levels. Compliance with the County Code and General Plan policies would reduce potential on-site noise impacts from mechanical equipment. Therefore, the proposed Project would result in a less than significant impact related to stationary noise levels.

Delivery Trucks

Truck loading and unloading areas may be included at future potential commercial uses. Noise sources at truck loading areas may include maneuvering and idling trucks, truck refrigeration units, forklifts, banging and clanging of equipment (i.e., hand carts and roll-up doors), and voices of truck drivers and employees. The maximum noise levels of slow-moving heavy and small trucks range between 70 and 73 dBA at 50 feet. Although the final location of loading docks has not been determined, future commercial loading docks within the E-commerce district may be located as close as 200 feet from the residential sensitive receptors to the south. At this distance, loading dock noise levels would be reduced to 61.0 dBA. Therefore, loading dock activities at future commercial uses have the potential to exceed the County's 55 dBA acceptable noise standards.

Loading dock noise levels would be reduced to 54.9 dBA at a distance of 400 feet, which is below the County's 55 dBA acceptable noise standards. Therefore, the project would implement Mitigation Measure NOI-1 to mitigate noise levels resulting from activities at loading docks within 400 feet of a residential use. In accordance with Mitigation Measure NOI-1, loading docks constructed within 400 feet of a residential use shall be designed to have either a depressed (i.e., below grade) loading dock area; an internal bay; or a wall to break the line of sight between residential land uses and other noise sensitive uses, and loading operations. Prior to issuance of conditional use permits, an acoustical analysis as required by Mitigation Measure NOI-1, shall be performed to demonstrate that operation of potential loading docks do not result in noise levels that exceed County Code standard for exteriors of nearby residences' living areas or other sensitive uses.

Testing Grounds and Research Park Districts Operations

The Project proposes automotive testing tracks within the Testing Grounds and Research Park districts; refer to Exhibit 3: Conceptual Site Plan. The Testing Grounds district would serve as an area for testing new technology in the mobility sector, including electrified and automated vehicles. It would consist primarily of open area, roads, tracks, and other features designed for the testing and engineering of vehicles and their components. The Testing Grounds district would feature a three-mile straight track adjacent to the Union Pacific Railroad. The Research Park district would provide space for research, office, and light manufacturing uses. The Research Park district may also include education facilities and a driver experience center with associated tracks, retail, and hospitality.

The nearest sensitive receptor is the single-family residence located approximately 1,315 feet from the Testing Grounds district and 3,440 feet from the Research Park district. At the time of this analysis, specific operations within the Testing Grounds and Research Park districts are unknown. Therefore, implementation of Mitigation Measure NOI-1 would be required to ensure that normal project operations would not result in noise violations at the adjacent residential property line to the south.

E-commerce District Operations

The E-commerce district would include a range of commercial and light industrial facilities, including distribution and logistics, data centers, research and development, and large footprint laboratories. The nearest sensitive receptor is the single-family residence located approximately 200 feet from the E-commerce district. At the time of this analysis, specific operations within the E-commerce district are unknown. Therefore, implementation of Mitigation Measure NOI-1 would be required to ensure that normal project operations would not result in noise violations at the adjacent residential property line to the south.

Landscape Maintenance Activities

Development and operation of the proposed Project would introduce new landscaping requiring periodic maintenance. Noise generated by a gasoline-powered lawnmower is estimated to be approximately 70 dBA at a distance of five feet. However, maintenance activities would operate during daytime hours for brief periods of time as allowed by the County Code and would not permanently increase ambient noise levels in the project vicinity. Therefore, with adherence to the County Code, impacts associated with landscape maintenance would be less than significant.

Parking

Parking activities have the potential to be an annoyance to adjacent sensitive receptors. The instantaneous maximum sound levels generated by a car door slamming, engine starting up, and car pass-bys range from 53 to 61 dBA.[8] 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.[9] These activities are expected to occur intermittently throughout the day, as visitors and employees arrive and leave the parking areas. As such, noise 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.

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[8] Kariel, H. G., *Noise in Rural Recreational Environments*, Canadian Acoustics 19(5), 3-10, 1991.

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

The nearest sensitive receptor would be the single family residence located approximately 200 feet to the south of the proposed Ecommerce district. At this distance, parking activity noise levels would range from 21 to 49 dBA. Therefore, parking lot noise levels would not exceed the County's 55 dBA acceptable noise standards and impacts would be less than significant.

Summary

Construction noise levels would be less than significant with the implementation of Standard Conditions required by the County Code. Overall, with mitigation and/or adherence to the County Code requirements, operational noise impacts from mechanical equipment, deliveries, loading/unloading activities, specific operations within the Testing Grounds, Research Park, and E-commerce districts, landscape maintenance, and parking areas would be reduced to a less than significant impact. It should be noted that the various land use districts would be distributed throughout the approximate 2,767-acre Project site. Mitigation Measure NOI-1-1 would require the applicant to prepare Focused Acoustical Analyses for each project land use. If noise levels exceed County thresholds a noise management plan would be required to reduce noise impacts. Therefore, noise impacts would be less than significant with mitigation incorporated.

Mitigation Measures:

NOI-1-1 **Acoustical Analysis.** Prior to the issuance of building permits, the Applicant shall prepare a Focused Acoustical Analysis to demonstrate compliance with the County's Noise Ordinance requirements. The Focused Acoustical Analysis would ensure that normal project operations would not result in noise violations at the adjacent residential property line to the south. If the Focused Acoustical Analysis determines that normal project operations would exceed ordinance requirements, a noise management program would be prepared to provide sufficient noise attenuation measures to meet the County's Noise Ordinance requirements. The noise management program would include, but is not limited to, specifications for a monitoring system and sound wall barrier or berm, requirements for vehicle operational hours and procedures, and noise-level limits on the use of a public address system. The noise management program shall be submitted to the Building and Safety and Planning Divisions of the Development Services Department for review and approval.

Level of Significance: Less than significant impact.

Impact NOI-2 Would the Project generate excessive groundborne vibration or groundborne noise levels?

Construction Vibration

Increases in groundborne vibration levels attributable to the proposed Project would be primarily associated with construction-related activities. Construction on the Project area would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effect on buildings located in the vicinity of the construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Groundborne vibrations from construction activities rarely reach levels that damage structures.

The Federal Transit Administration (FTA) has published standard vibration velocities for construction equipment operations. In general, depending on the building category of the nearest buildings adjacent to the vibration-generating construction equipment, the potential construction vibration damage criteria vary. 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 0.50 inch per second (in/sec) peak particle velocity (PPV) is considered safe and would not result in any construction vibration damage. The FTA architectural damage criterion for continuous vibrations for non-engineered timber and masonry buildings (i.e., 0.20 in/sec) appears to be conservative; refer to Table 16: Groundborne Vibration Criteria: Architectural Damage. The types of construction vibration impact 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.

Table 16: Groundborne Vibration Criteria: Architectural Damage

	Building Category	PPV (in/sec)	L_v (VDB)[1]
I.	Reinforced concrete, steel, or timber (no plaster)	0.5	102
II.	Engineered concrete and masonry (no plaster)	0.3	98
III.	Non-engineered timber and masonry buildings	0.2	94
IV.	Buildings extremely susceptible to vibration damage	0.12	90

RMS velocity calculated from vibration level (VdB) using the reference of one micro-in/sec.

The construction techniques most likely to produce substantial groundborne vibration would result from the potential need for pile driving for structural support of buildings or to support walls of excavated areas and also could include drilling to enable use of caissons. Accordingly, pile driving has the potential to generate the highest ground vibration levels and is of primary concern to structural damage, particularly when it occurs within 100 feet of structures. Vibration levels generated by pile driving activities would vary depending on site specific conditions, such as soil characteristics, construction methods, and equipment used. Other project construction activities, such as caisson drilling, the use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.) may also potentially generate substantial vibration in the immediate vicinity.

Construction-related groundborne vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. According to the Project Applicant, the proposed Project does not expect to use pile drivers during construction activities. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. Since there are no established vibration standards in the County of San Benito, this evaluation uses the FTA (2018) recommended standard of 0.2 in/sec PPV with respect to the prevention of structural damage for normal buildings. This measurement is also the level at which vibrations may begin to annoy people inside buildings (Caltrans 2013).

Table 17: Typical Construction Equipment Vibration Levels, identifies vibration levels feet for typical construction equipment. Based on FTA data, vibration velocities from typical heavy construction equipment operations that would be used during project construction would range from 0.003 to 0.210 in/sec PPV at 25 feet from the source of activity. It is also acknowledged that construction activities would occur throughout the Project area and would not be concentrated at the point closest to the nearest structure.

Table 17: Typical Construction Equipment Vibration Levels

Equipment Type	Peak Particle Velocity at 25 Feet (in/sec)	Peak Particle Velocity at 100 Feet (in/sec)	Peak Particle Velocity at 200 Feet (in/sec)	Peak Particle Velocity at 300 Feet (in/sec)
Large Bulldozer	0.089	0.0111	0.0039	0.0021
Caisson Drilling	0.089	0.0111	0.0039	0.0021
Loaded Trucks	0.076	0.0095	0.0034	0.0018
Rock Breaker	0.059	0.0074	0.0026	0.0014
Jackhammer	0.035	0.0044	0.0015	0.0008
Vibratory Roller	0.210	0.0263	0.0093	0.0051
Small Bulldozer/Tractor	0.003	0.0004	0.0001	0.0001

Calculated using the following formula: PPV equip = PPVref x (25/D)1.5, where: PPV (equip) = the in/sec PPV of the equipment adjusted for the distance; PPV (ref) = the reference vibration level in in/sec from Table 7-4 of the FTA Transit Noise and Vibration Impact Assessment Guidelines (September 2018); D = the distance from the equipment to the receiver.

The property line of the nearest sensitive receptor would be located approximately 200 feet to the south of Project construction activities. However, the residential structure is setback an additional 100 feet. Therefore, Project construction activities could occur as close as 300 feet from the nearest structure. Based on typical vibration levels, groundborne vibration generated by heavy-duty equipment could reach levels of 0.0263 in/sec PPV at 100 feet and 0.0051 in/sec PPV at 300 feet. Therefore, Project construction activities would not result in groundborne vibration velocities above the established human annoyance and structural damage threshold of 0.2 in/sec PPV. In general, other construction activities would occur throughout the project site and would not be concentrated at the point closest to the nearest residential structure. Therefore, construction vibration impacts would be less than significant.

Operational Vibration

The proposed Project would not generate groundborne vibration that could be felt at surrounding uses. The project would not involve railroads or substantial heavy truck operations, with the exception of occasional delivery vehicles (which do not have the potential to exceed 0.2 in/sec PPV) to the project site once facilities are operational. As a result, impacts from vibration associated with Project operation would be less than significant.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

Impact NOI-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?

The Project site is located approximately one mile south of the Frazier Lake Airpark and 2.8 miles northwest of the Hollister Municipal Airport. According to the Frazier Lake Airpark and Hollister Municipal Airport land use compatibility plans, the project site is not located within the 55 dBA noise contour.[10,11] Additionally, the Project site is not located within the vicinity of a private airstrip or related facilities. Therefore, project implementation would not expose people residing or working in the project area to excessive noise levels associated with aircraft. No impacts would occur in this regard.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

6.2 Cumulative Noise Impacts

Noise by definition is a localized phenomenon, and drastically reduces as distance from the source increases. Cumulative noise impacts involve development of the proposed Project in combination with ambient growth and other related development projects. As noise levels decrease as distance from the source increases, only projects in the nearby area could combine with the proposed Project to potentially result in cumulative noise impacts.

Cumulative Construction Noise

Construction associated with related cumulative projects may also occur in other areas of the County associated with redevelopment of existing developed sites as well as new construction on undeveloped sites. Because construction activities tend to be localized and of limited duration and intensity, construction noise and vibration levels are not anticipated to contribute substantially to the cumulative environment at any given location. The project site is bounded by vacant lands and UPRR tracks. In addition, construction activities would be subject to compliance with the County Code requirements and would typically be limited to between the less noise sensitive daytime hours. For these reasons, the Project's contribution to cumulative short-term noise or vibration exposure would be considered a less than significant impact.

Cumulative Operational 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 the Project-generated traffic on local roadways in

[10] San Benito County Airport Land Use Commission, *Hollister Municipal Airport Land Use Compatibility Plan*, Map 2 - Compatibility Policy Map: Noise Impact Zones, dated June 21, 2012, available at http://sanbenitocog.org/wp-content/uploads/2018/10/ADOPTED-ALUCP-June-2012.pdf.

[11] San Benito County Airport Land Use Commission, *Frazier Lake Airpark Airport Land Use Compatibility Plan*, Figure 4 – Noise Contours, dated December 18, 2019, available at http://sanbenitocog.org/wp-content/uploads/2020/01/FLA-2019-Amended-ALUCP-Complete-Dec19-R.pdf.

combination with cumulative projects in the vicinity. However, noise from generators and other stationary sources could also generate cumulative noise levels.

Cumulative Stationary Noise

As discussed above, impacts from the Project's operations would be less than significant with General Plan Policy compliance and implementation of Mitigation Measure NOI-1. Due to site distance, intervening land uses, and the fact that noise dissipates as it travels away from its source, noise impacts from on-site activities and other stationary sources would be limited to the Project site and vicinity. No known past, present, or reasonably foreseeable projects would compound or increase the operational noise levels generated by the Project. Thus, cumulative operational noise impacts from related projects, in conjunction with Project-specific noise impacts, would not be cumulatively significant.

Cumulative Traffic Noise

The cumulative mobile noise analysis is conducted in a two-step process. First, the combined effects from both the Project and other projects are compared. Second, for combined effects that are determined to be cumulatively significant, the Project's incremental effects are then analyzed. 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 combined effect compares the "Cumulative With Project" condition to "Existing" conditions. This comparison accounts for the traffic noise increase generated by the Project combined with the traffic noise increase generated by cumulative projects.

The following criteria is used to evaluate the combined effect of the cumulative noise increase.

- Combined Effect. The cumulative with Project noise level ("Cumulative 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 Project in combination with identified cumulative 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 Project. The following criteria have been utilized to evaluate the incremental effect of the cumulative noise increase.

- Incremental Effects. The "Cumulative With Project" causes a 1.0 dBA increase in noise over the "Cumulative 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 18: Cumulative Plus Project Buildout Conditions Traffic Noise Levels identifies the traffic noise effects along roadway segments in the vicinity of the Project site for "Existing," "Cumulative Without Project," and "Cumulative With Project," conditions, and net cumulative impacts.

Table 18: Cumulative Plus Project Buildout Conditions Traffic Noise Levels						
Roadway Segment	**CNEL @ 100 feet from Centerline**			**Combined Effects**	**Incremental Effects**	**Cumulatively Significant Impact?**
	Existing	**Cumulative Without Project**	**Cumulative With Project**	**dBA Difference: Existing and Cumulative With Project**	**dBA Difference: Cumulative Without and With Project**	
SR 25						
County Line to Shore Road	69.0	69.5	69.6	0.6	0.1	No
Shore Road to SR 156	68.3	68.8	68.9	0.6	0.1	No
SR 156 to San Felipe Road	67.7	68.2	68.3	0.6	0.1	No
US 101						
SR 25 to County Line	74.2	74.7	75.2	1.0	0.5	No
County Line to Y Road	74.2	74.7	75.2	1.0	0.5	No
Y Road to SR 129	74.2	74.7	74.9	0.7	0.2	No
SR 129 to SR 156	73.7	74.2	74.4	0.7	0.2	No
SR 156 to County Line	73.7	74.2	74.3	0.6	0.1	No
ADT = average daily trips; dBA = A-weighted decibels; L_{dn} = day-night noise level; N/A = applies to a future planned roadway 1. Traffic noise levels are at 100 feet from the roadway centerline.						
Source: Based on traffic data within the *Strada Verde Innovation Park Specific Plan Local Transportation Analysis*, prepared by Kimley-Horn (dated 2022). Refer to Appendix B for traffic noise modeling assumptions and results.						

First, it must be determined whether the "Cumulative With Project" 3.0 dB increase above existing conditions (*Combined Effects*) is exceeded. Next, under the *Incremental Effects* criteria, cumulative noise impacts are defined by determining if the forecast ambient ("Cumulative Without Project") noise level is increased by 1 dB or more. As indicated in Table 18, the cumulative increase in traffic noise levels, as a result of the proposed project and cumulative projects, would not exceed the combined and incremental effects criteria along any of the surrounding roadways. Therefore, the project, in combination with cumulative background traffic noise levels, would result in a less than significant cumulative impact. The project's contribution to traffic noise would not be cumulatively considerable.

7 REFERENCES

1. California Department of Transportation, *Traffic Noise Analysis Protocol*, 2020.
2. California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, 2013.
3. California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, 2020.
4. County of San Benito, *San Benito County 2035 General Plan*, last amended December 2019.
5. County of San Benito, *Code of Ordinances*, 2022.
6. *San Benito County 2035 General Plan* (General Plan), last amended in December of 2010.
7. Cowan, James P., *Handbook of Environmental Acoustics*, 1994.
8. Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden. Noise Navigator Sound Level Database with Over 1700 Measurement Values, July 6, 2010.
9. Federal Highway Administration, *Noise Fundamentals*, 2017.
10. Federal Highway Administration, *Roadway Construction Noise Model*, 2006.
11. Federal Interagency Committee on Noise, *Federal Agency Review of Selected Airport Noise Analysis Issues*, 1992.
12. Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, 2018.
13. San Benito County Airport Land Use Commission, Hollister Municipal Airport Land Use Compatibility Plan, Map 2 - Compatibility Policy Map: Noise Impact Zones, dated June 21, 2012, available at http://sanbenitocog.org/wp-content/uploads/2018/10/ADOPTED-ALUCP-June-2012.pdf.
14. San Benito County Airport Land Use Commission, Frazier Lake Airpark Airport Land Use Compatibility Plan, Figure 4 – Noise Contours, dated December 18, 2019, available at http://sanbenitocog.org/wp-content/uploads/2020/01/FLA-2019-Amended-ALUCP-Complete-Dec19-R.pdf.
15. Kariel, H. G., Noise in Rural Recreational Environments, Canadian Acoustics 19(5), 3-10, 1991.
16. Kimley-Horn, *Strada Verde Innovation Park Specific Plan Local Transportation Analysis*, 2022.
17. United States Environmental Protection Agency, *Protective Noise Levels (EPA 550/9-79-100)*, 1979.

Appendix A

Existing Ambient Noise Measurements

Noise Measurement Field Data

Project:	Strada Verde Innovation Park Environmental Technical Analysis	**Job Number:**	
Site No.:	1	**Date:**	3/10/2020
Analyst:	Sophie La Herran	**Time:**	10:03 AM
Location:	Bloomfield Ave		
Noise Sources:	Traffic and nearby traffic from Highway 25		
Comments:	There was a tractor pile driving in the adjacent field		

Results (dBA):

	Leq:	Lmin:	Lmax:	Peak:
Measurement 1:	67.7	51.4	80.9	96.2

Equipment	
Sound Level Meter:	SoundPro DL
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	62°
Wind (mph):	< 5
Sky:	Clear
Bar. Pressure:	30.07"
Humidity:	27%

Photo:

Kimley»Horn

Noise Measurement Field Data

Project:	Strada Verde Innovation Park Environmental Technical Analysis	**Job Number:**	
Site No.:	2	**Date:**	3/10/2020
Analyst:	Sophia La Herran	**Time:**	11:10 AM
Location:	Betabel Road		
Noise Sources:	Highway 101 Traffic		
Comments:			

Results (dBA):

	Leq:	Lmin:	Lmax:	Peak:
Measurement 1:	64.3	53.5	98.0	133.4

Equipment	
Sound Level Meter:	SoundPro DL
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	62°
Wind (mph):	< 5
Sky:	Clear
Bar. Pressure:	30.07"
Humidity:	27%

Photo:

Kimley»Horn

Noise Measurement Field Data

Project:	Strada Verde Innovation Park Environmental Technical Analysis	**Job Number:**	
Site No.:	3	**Date:**	3/10/2020
Analyst:	Sophia La Herran	**Time:**	10:34 AM
Location:	Hunder Road		
Noise Sources:	Traffic		
Comments:	ATV drove by a couple of times during measurement		

Results (dBA):

	Leq:	Lmin:	Lmax:	Peak:
Measurement 1:	65.1	39.0	96.4	133.4

Equipment	
Sound Level Meter:	SoundPro DL
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	62°
Wind (mph):	< 5
Sky:	Clear
Bar. Pressure:	30.07"
Humidity:	27%

Photo:

Kimley»Horn

Noise Measurement Field Data

Project:	Strada Verde Innovation Park Environmental Technical Analysis	**Job Number:**	
Site No.:	4	**Date:**	3/10/2020
Analyst:	Sophia La Herran	**Time:**	10:42 AM
Location:	Shore Road		
Noise Sources:	Traffic		
Comments:			

Results (dBA):

	Leq:	Lmin:	Lmax:	Peak:
Measurement 1:	63.8	45.4	90.3	93.5

Equipment	
Sound Level Meter:	SoundPro DL
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	62°
Wind (mph):	< 5
Sky:	Clear
Bar. Pressure:	30.07"
Humidity:	27%

Photo:

Kimley»Horn

Appendix B

Noise Modeling Data

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/12/2022
Case Description: SVIP Phase 1 Demo

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Sensitive Receptor	Residential	1	1	1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	14000	0
Excavator	No	40		80.7	14000	0
Excavator	No	40		80.7	14000	0
Excavator	No	40		80.7	14000	0
Dozer	No	40		81.7	14000	0
Dozer	No	40		81.7	14000	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Concrete Saw		40.6	33.6	N/A	N/A	N/A	N/A
Excavator		31.8	27.8	N/A	N/A	N/A	N/A
Excavator		31.8	27.8	N/A	N/A	N/A	N/A
Excavator		31.8	27.8	N/A	N/A	N/A	N/A
Dozer		32.7	28.7	N/A	N/A	N/A	N/A
Dozer		32.7	28.7	N/A	N/A	N/A	N/A
	Total	40.6	37.5	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/12/2022
Case Description: SVIP Phase 1 Site Prep

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Sensitive Receptor	Residential	1	1	1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	200	0
Dozer	No	40		81.7	200	0
Dozer	No	40		81.7	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Dozer		69.6	65.6	N/A	N/A	N/A	N/A
Dozer		69.6	65.6	N/A	N/A	N/A	N/A
Dozer		69.6	65.6	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
	Total	69.6	72.2	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/12/2022
Case Description: SVIP Phase 1 Grading

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Sensitive Receptor	Residential	1	1	1

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	200	0
Excavator	No	40		80.7	200	0
Excavator	No	40		80.7	200	0
Excavator	No	40		80.7	200	0
Grader	No	40	85		200	0
Grader	No	40	85		200	0
Dozer	No	40		81.7	200	0
Dozer	No	40		81.7	200	0
Scraper	No	40		83.6	200	0
Scraper	No	40		83.6	200	0
Scraper	No	40		83.6	200	0
Scraper	No	40		83.6	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0
Grader	No	40	85		200	0
Grader	No	40	85		200	0
Grader	No	40	85		200	0
Grader	No	40	85		200	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Excavator		68.7	64.7	N/A	N/A	N/A	N/A
Excavator		68.7	64.7	N/A	N/A	N/A	N/A
Excavator		68.7	64.7	N/A	N/A	N/A	N/A
Excavator		68.7	64.7	N/A	N/A	N/A	N/A
Grader		73	69	N/A	N/A	N/A	N/A
Grader		73	69	N/A	N/A	N/A	N/A
Dozer		69.6	65.6	N/A	N/A	N/A	N/A
Dozer		69.6	65.6	N/A	N/A	N/A	N/A
Scraper		71.5	67.6	N/A	N/A	N/A	N/A
Scraper		71.5	67.6	N/A	N/A	N/A	N/A
Scraper		71.5	67.6	N/A	N/A	N/A	N/A
Scraper		71.5	67.6	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Grader		73	69	N/A	N/A	N/A	N/A
Grader		73	69	N/A	N/A	N/A	N/A
Grader		73	69	N/A	N/A	N/A	N/A
Grader		73	69	N/A	N/A	N/A	N/A
	Total	73	79.8	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/12/2022
Case Description: SVIP Phase 1 Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Sensitive Receptor	Residential	1	1	1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	200	0
Paver	No	50		77.2	200	0
Paver	No	50		77.2	200	0
Paver	No	50		77.2	200	0
Roller	No	20		80	200	0
Roller	No	20		80	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0
Welder / Torch	No	40		74	200	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Paver		65.2	62.2	N/A	N/A	N/A	N/A
Paver		65.2	62.2	N/A	N/A	N/A	N/A
Paver		65.2	62.2	N/A	N/A	N/A	N/A
Paver		65.2	62.2	N/A	N/A	N/A	N/A
Roller		68	61	N/A	N/A	N/A	N/A
Roller		68	61	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Welder / Torch		62	58	N/A	N/A	N/A	N/A
	Total	68	71.5	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/12/2022
Case Description: SVIP Phase 1 Construction

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Sensitive Receptor	Residential	1	1	1

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	200	0
Generator	No	50		80.6	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0
Welder / Torch	No	40		74	200	0

Results

		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		68.5	60.6	N/A	N/A	N/A	N/A
Generator		68.6	65.6	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Welder / Torch		62	58	N/A	N/A	N/A	N/A
	Total	68.6	69.8	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/12/2022
Case Description: SVIP Phase 1 Painting

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Sensitive Receptor	Residential	1	1	1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	200	0

Results

		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		65.6	61.6	N/A	N/A	N/A	N/A
	Total	65.6	61.6	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/12/2022
Case Description: SVIP Phase 2 Site Prep

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Sensitive Receptor	Residential	1	1	1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	200	0
Dozer	No	40		81.7	200	0
Dozer	No	40		81.7	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Dozer		69.6	65.6	N/A	N/A	N/A	N/A
Dozer		69.6	65.6	N/A	N/A	N/A	N/A
Dozer		69.6	65.6	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
	Total	69.6	72.2	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/12/2022
Case Description: SVIP Phase 2 Grading

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Sensitive Receptor	Residential	1	1	1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	200	0
Excavator	No	40		80.7	200	0
Excavator	No	40		80.7	200	0
Excavator	No	40		80.7	200	0
Grader	No	40	85		200	0
Grader	No	40	85		200	0
Dozer	No	40		81.7	200	0
Dozer	No	40		81.7	200	0
Scraper	No	40		83.6	200	0
Scraper	No	40		83.6	200	0
Scraper	No	40		83.6	200	0
Scraper	No	40		83.6	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Excavator		68.7	64.7	N/A	N/A	N/A	N/A
Excavator		68.7	64.7	N/A	N/A	N/A	N/A
Excavator		68.7	64.7	N/A	N/A	N/A	N/A
Excavator		68.7	64.7	N/A	N/A	N/A	N/A
Grader		73	69	N/A	N/A	N/A	N/A
Grader		73	69	N/A	N/A	N/A	N/A
Dozer		69.6	65.6	N/A	N/A	N/A	N/A
Dozer		69.6	65.6	N/A	N/A	N/A	N/A
Scraper		71.5	67.6	N/A	N/A	N/A	N/A
Scraper		71.5	67.6	N/A	N/A	N/A	N/A
Scraper		71.5	67.6	N/A	N/A	N/A	N/A
Scraper		71.5	67.6	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
	Total	73	78	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/12/2022
Case Description: SVIP Phase 2 Construction

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Nearest Sensitive Receptor	Residential	1	1	1

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Crane	No	16		80.6	200	0
Generator	No	50		80.6	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0
Welder / Torch	No	40		74	200	0

				Results			
		Calculated (dBA)			Noise Limits (dBA)		
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		68.5	60.6	N/A	N/A	N/A	N/A
Generator		68.6	65.6	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Welder / Torch		62	58	N/A	N/A	N/A	N/A
	Total	68.6	69.8	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/12/2022
Case Description: SVIP Phase 2 Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Sensitive Receptor	Residential	1	1	1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	200	0
Generator	No	50		80.6	200	0
Paver	No	50		77.2	200	0
Paver	No	50		77.2	200	0
Paver	No	50		77.2	200	0
Paver	No	50		77.2	200	0
Roller	No	20		80	200	0
Roller	No	20		80	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0
Backhoe	No	40		77.6	200	0
Welder / Torch	No	40		74	200	0

Results

		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		68.5	60.6	N/A	N/A	N/A	N/A
Generator		68.6	65.6	N/A	N/A	N/A	N/A
Paver		65.2	62.2	N/A	N/A	N/A	N/A
Paver		65.2	62.2	N/A	N/A	N/A	N/A
Paver		65.2	62.2	N/A	N/A	N/A	N/A
Paver		65.2	62.2	N/A	N/A	N/A	N/A
Roller		68	61	N/A	N/A	N/A	N/A
Roller		68	61	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Backhoe		65.5	61.5	N/A	N/A	N/A	N/A
Welder / Torch		62	58	N/A	N/A	N/A	N/A
	Total	68.6	72.7	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 5/12/2022

Case Description: SVIP Phase 2 Painting

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Nearest Sensitive Receptor	Residential	1	1	1

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	200	0

Results

		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		65.6	61.6	N/A	N/A	N/A	N/A
	Total	65.6	61.6	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Strada Verde Innovation Center
Project Number:
Scenario: Existing
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

								Vehicle Mix		Distance from Centerline of Roadway				
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour			
#	Roadway	Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
a	SR 25	SR 25 between Countyline and Shore Road	2	55	22,722	55	0	2.0%	1.0%	69.0	80	252	796	2,517
b	SR 25	SR 25 between Shore Road and SR 156	2	55	19,389	55	0	2.0%	1.0%	68.3	68	215	679	2,147
c	SR 25	SR 25 between SR 156 and San Felipe Road	4	55	15,889	55	0	2.0%	1.0%	67.7	-	186	589	1,862
d	US 101	US 101 between SR 25 and County Line	4	55	47,056	65	0	2.0%	1.0%	74.2	265	838	2,648	8,375
e	US 101	US 101 between County Line and Y Road	4	55	47,056	65	0	2.0%	1.0%	74.2	265	838	2,648	8,375
f	US 101	US 101 between Y Road and SR 129	4	55	47,111	65	0	2.0%	1.0%	74.2	265	838	2,652	8,385
g	US 101	US 101 between SR 129 and SR 156	4	65	40,389	65	0	2.0%	1.0%	73.7	235	742	2,345	7,416
h	US 101	US 101 between SR 156 and County Line	4	65	40,389	65	0	2.0%	1.0%	73.7	235	742	2,345	7,416

[1] Distance is from the centerline of the roadway segment to the receptor location.
"-" = contour is located within the roadway right-of-way.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Strada Verde Innovation Center
Project Number:
Scenario: Existing Plus Project Phase 1
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

								Vehicle Mix		Distance from Centerline of Roadway				
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour			
#	Roadway	Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
a	SR 25	SR 25 between Countyline and Shore Road	2	55	23,211	55	0	2.0%	1.0%	69.1	81	257	813	2,571
b	SR 25	SR 25 between Shore Road and SR 156	2	55	19,778	55	0	2.0%	1.0%	68.4	69	219	693	2,191
c	SR 25	SR 25 between SR 156 and San Felipe Road	4	55	16,223	55	0	2.0%	1.0%	67.8	-	190	601	1,901
d	US 101	US 101 between SR 25 and County Line	4	55	50,056	65	0	2.0%	1.0%	74.5	282	891	2,817	8,909
e	US 101	US 101 between County Line and Y Road	4	55	50,056	65	0	2.0%	1.0%	74.5	282	891	2,817	8,909
f	US 101	US 101 between Y Road and SR 129	4	55	48,388	65	0	2.0%	1.0%	74.4	272	861	2,723	8,612
g	US 101	US 101 between SR 129 and SR 156	4	65	41,389	65	0	2.0%	1.0%	73.8	240	760	2,403	7,600
h	US 101	US 101 between SR 156 and County Line	4	65	41,055	65	0	2.0%	1.0%	73.8	238	754	2,384	7,539

[1] Distance is from the centerline of the roadway segment to the receptor location.
"-" = contour is located within the roadway right-of-way.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Strada Verde Innovation Center
Project Number:
Scenario: Opening Year — Near Term Without Project
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

32620

								Vehicle Mix		Distance from Centerline of Roadway				
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour			
#	Roadway	Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
a	SR 25	SR 25 between Countyline and Shore Road	2	55	23,655	55	0	2.0%	1.0%	69.2	83	262	829	2,620
b	SR 25	SR 25 between Shore Road and SR 156	2	55	20,188	55	0	2.0%	1.0%	68.5	71	224	707	2,236
c	SR 25	SR 25 between SR 156 and San Felipe Road	4	55	16,544	55	0	2.0%	1.0%	67.9	-	194	613	1,939
d	US 101	US 101 between SR 25 and County Line	4	55	47,933	65	0	2.0%	1.0%	74.3	270	853	2,698	8,531
e	US 101	US 101 between County Line and Y Road	4	55	47,933	65	0	2.0%	1.0%	74.3	270	853	2,698	8,531
f	US 101	US 101 between Y Road and SR 129	4	55	48,000	65	0	2.0%	1.0%	74.3	270	854	2,702	8,543
g	US 101	US 101 between SR 129 and SR 156	4	65	41,144	65	0	2.0%	1.0%	73.8	239	756	2,389	7,555
h	US 101	US 101 between SR 156 and County Line	4	65	41,145	65	0	2.0%	1.0%	73.8	239	756	2,389	7,555

[1] Distance is from the centerline of the roadway segment to the receptor location.
"-" = contour is located within the roadway right-of-way.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Strada Verde Innovation Center
Project Number:
Scenario: Opening Year Plus Project — Near Term With Project
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

32620

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	Distance from Centerline of Roadway CNEL at 100 Feet	Distance to Contour 70 CNEL	65 CNEL	60 CNEL	55 CNEL
a	SR 25	SR 25 between Countyline and Shore Road	2	55	24,144	55	0	2.0%	1.0%	69.3	85	267	846	2,674
b	SR 25	SR 25 between Shore Road and SR 156	2	55	20,577	55	0	2.0%	1.0%	68.6	72	228	721	2,279
c	SR 25	SR 25 between SR 156 and San Felipe Road	4	55	16,878	55	0	2.0%	1.0%	68.0	-	198	626	1,978
d	US 101	US 101 between SR 25 and County Line	4	55	50,933	65	0	2.0%	1.0%	74.6	287	907	2,867	9,065
e	US 101	US 101 between County Line and Y Road	4	55	50,933	65	0	2.0%	1.0%	74.6	287	907	2,867	9,065
f	US 101	US 101 between Y Road and SR 129	4	55	49,277	65	0	2.0%	1.0%	74.4	277	877	2,773	8,770
g	US 101	US 101 between SR 129 and SR 156	4	65	42,144	65	0	2.0%	1.0%	73.9	245	774	2,447	7,739
h	US 101	US 101 between SR 156 and County Line	4	65	41,811	65	0	2.0%	1.0%	73.9	243	768	2,428	7,678

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FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Strada Verde Innovation Center
Project Number:
Scenario: Horizon Year
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

32620

								Vehicle Mix		Distance from Centerline of Roadway				
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour			
#	**Roadway**	**Segment**	**Lanes**	**Width**	**Volume**	**(mph)**	**Factor**	**Trucks**	**Trucks**	**100 Feet**	**70 CNEL**	**65 CNEL**	**60 CNEL**	**55 CNEL**
a	SR 25	SR 25 between Countyline and Shore Road	2	55	25,290	55	0	2.0%	1.0%	69.5	89	280	886	2,801
b	SR 25	SR 25 between Shore Road and SR 156	2	55	21,577	55	0	2.0%	1.0%	68.8	76	239	756	2,390
c	SR 25	SR 25 between SR 156 and San Felipe Road	4	55	17,677	55	0	2.0%	1.0%	68.2	-	207	655	2,072
d	US 101	US 101 between SR 25 and County Line	4	55	52,378	65	0	2.0%	1.0%	74.7	295	932	2,948	9,322
e	US 101	US 101 between County Line and Y Road	4	55	52,378	65	0	2.0%	1.0%	74.7	295	932	2,948	9,322
f	US 101	US 101 between Y Road and SR 129	4	55	52,445	65	0	2.0%	1.0%	74.7	295	933	2,952	9,334
g	US 101	US 101 between SR 129 and SR 156	4	65	44,955	65	0	2.0%	1.0%	74.2	261	825	2,610	8,255
h	US 101	US 101 between SR 156 and County Line	4	65	44,955	65	0	2.0%	1.0%	74.2	261	825	2,610	8,255

[1] Distance is from the centerline of the roadway segment to the receptor location.
"-" = contour is located within the roadway right-of-way.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Strada Verde Innovation Center
Project Number:
Scenario: Horizon Year Plus Project
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

								Vehicle Mix		Distance from Centerline of Roadway				
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour			
#	Roadway	Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
a	SR 25	SR 25 between Countyline and Shore Road	2	55	26,267	55	0	2.0%	1.0%	69.6	92	291	920	2,909
b	SR 25	SR 25 between Shore Road and SR 156	2	55	22,355	55	0	2.0%	1.0%	68.9	78	248	783	2,476
c	SR 25	SR 25 between SR 156 and San Felipe Road	4	55	18,322	55	0	2.0%	1.0%	68.3	-	215	679	2,147
d	US 101	US 101 between SR 25 and County Line	4	55	58,389	65	0	2.0%	1.0%	75.2	329	1,039	3,286	10,392
e	US 101	US 101 between County Line and Y Road	4	55	58,389	65	0	2.0%	1.0%	75.2	329	1,039	3,286	10,392
f	US 101	US 101 between Y Road and SR 129	4	55	54,967	65	0	2.0%	1.0%	74.9	309	978	3,094	9,783
g	US 101	US 101 between SR 129 and SR 156	4	65	46,966	65	0	2.0%	1.0%	74.4	273	862	2,727	8,624
h	US 101	US 101 between SR 156 and County Line	4	65	46,322	65	0	2.0%	1.0%	74.3	269	851	2,690	8,506

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