
Appendix 3-M
Ventura Steel Site Noise Study

TECHNICAL MEMORANDUM

To: SoCalGas
From: Nick Segovia (Dudek); Mark Storm, INCE Bd. Cert. (Dudek), Simon McGuire (Dudek)
Subject: Ventura Compressor Station Modernization Project
Ventura Steel Site Alternative - Noise and Vibration Technical Memorandum
Date: October 9, 2025
cc: Ronelle Candia (Dudek), Kristin Starbird (Dudek)
Attachments: Figure 1 – Sensitive Receptors in Vicinity of VCM Project – Ventura Steel Site
Figure 2 – Baseline Outdoor Ambient Sound Level Measurement Locations
Figure 3 – Isometric View of Ventura Steel Operations Sound Propagation Model Space
Figure 4 – Predicted Stationary Source Operation Noise from Proposed Ventura Steel Site
Attachment A – Baseline Noise Measurement Field Data
Attachment B – Construction Noise Prediction Model Worksheets
Attachment C – Operation Noise Prediction Model Inputs

Dudek is pleased to present Southern California Gas Company (SoCalGas®) with the following noise and vibration technical memorandum for the Ventura Compressor Station Modernization Project (VCM Project) - Ventura Steel Site Alternative, with on site features and offsite sensitive receptors (SR) that are (as applicable) located in the City of Ventura (City) and County of Ventura (County). This memorandum presents quantitative estimates of the Ventura Steel Site Alternative on site construction and post-construction operational noise emission to the surrounding sound environment, which consists of existing residential parcels and land uses near the Ventura Steel Site. Construction vibration is also estimated, along with traffic noise effects, using Federal Transit Administration (FTA) techniques. The contents and organization of this memorandum are as follows: Executive Summary, Assessment Framework, Methodology, Results, and References Cited.

1 Executive Summary

The Ventura Steel Site Alternative's operation-related noise and vibration impacts to the surrounding community were evaluated and would be in compliance with the City standards, County standards and FTA guidance. The Ventura Steel Site Alternative's post-construction operational noise is predicted to comply with the City standards described as an A-weighted energy-averaged hourly ($L_{eq(h)}$) exterior noise level of 50 dBA from 7:00 a.m. to 10:00 p.m. and 45 dBA from 10:00 p.m. to 7:00 a.m. at the nearest noise-sensitive receptors (City of Ventura 2014). At the apparent existing noise sensitive receiver (NSR) nearest to proposed pipeline corridor development associated with the Ventura Steel Site Alternative, construction noise is predicted to exceed the FTA guidance-based threshold of 80 dBA 8-hour L_{eq} during the City's defined period when construction noise is exempt. Outside of the exemption period, Ventura Steel Site Alternative construction noise could be non-compliant with the aforesaid City's exterior noise thresholds. For the nearest SR within the County, construction noise exposures are predicted to be non-compliant with County standards.

Groundborne vibration exposure levels are anticipated to be below FTA guidance-based vibration standards.

2 Assessment Framework

2.1 Acoustical Fundamentals

The following subsections provide a summary of acoustical terminology and concepts that the subsequent analyses will use to evaluate potential noise and vibration impacts associated with the Ventura Steel Site Alternative.

2.1.1 Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receptor, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receptor determine the sound level and characteristics of the noise perceived by the receptor. The field of acoustics deals primarily with the propagation and control of sound.

Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (μPa). One μPa is approximately one hundred billionth (0.0000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 μPa . Because of this huge range of values, sound is rarely expressed in terms of μPa . Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of hearing for young people is about 0 dB, which corresponds to 20 μPa .

Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB—rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dB louder than one source.

A-Weighted Decibels

The decibel 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. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an “A-weighted” sound level (expressed in units of dBA) can be computed based on this information.

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

Table 1. Typical A-Weighted Noise Levels for Common Indoor and Outdoor Sources

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Diesel truck at 50 feet at 50 mph	85	Food blender at 3 feet
	80	Garbage disposal at 3 feet
Noisy urban area, daytime	75	—
Gas lawn mower, 100 feet	70	Vacuum cleaner at 10 feet
Commercial area	65	Normal speech at 3 feet
Heavy traffic at 300 feet	60	—
	55	Large business office
Quiet urban daytime	50	Dishwasher next room
	45	—
Quiet urban nighttime	40	Theater, large conference room (background)
Quiet suburban nighttime	35	—
	30	Library
Quiet rural nighttime	25	Bedroom at night, concert hall (background)

Source: Caltrans 2013.

Human Response to Changes in Noise Levels

As discussed above, doubling sound energy results in a 3 dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different than what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1 dB changes in sound levels, when exposed to steady, single-frequency (“pure-tone”) signals in the mid-frequency (1,000 Hz–8,000 Hz) range (Caltrans 2013). In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5 dB increase is generally perceived as a distinctly noticeable increase, and a 10 dB increase is generally perceived as a doubling of loudness (Caltrans 2013). Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3 dB increase in sound, would generally be perceived as barely detectable by average healthy human hearing.

Noise Descriptors

Noise in our daily environment fluctuates over time at varying rates. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors utilized in this analysis.

- **Equivalent Sound Level (L_{eq}):** L_{eq} represents an energy average of the sound level occurring over a specified period. The 1-hour A-weighted equivalent sound level ($L_{eq[h]}$) is the energy average of A-weighted sound levels occurring during a one-hour period and is the basis for noise abatement criteria (NAC) used by Caltrans and the Federal Highway Administration (FHWA). Note that L_{eq} is not an arithmetic average of varying dB levels over a period of time, L_{eq} uses a logarithmic equation for averaging of the energy levels and therefore accounts for greater sound energy represented by higher decibel contributions.
- **Percentile-Exceeded Sound Level (L_{xx}):** L_{xx} represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10% of the time, and L_{90} is the sound level exceeded 90% of the time).
- **Maximum Sound Level (L_{max}):** L_{max} is the highest instantaneous sound level measured during a specified period.
- **Day-Night Level (L_{dn}):** L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to each of the A-weighted hourly sound levels ($L_{eq[h]}$) occurring during nighttime hours between 10 p.m. and 7 a.m.
- **Community Noise Equivalent Level (CNEL):** Similar to L_{dn} , CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to each of the A-weighted hourly sound levels ($L_{eq[h]}$) occurring during the nighttime hours between 10 p.m. and 7 a.m., and a 5 dB penalty applied to each of the A-weighted hourly sound levels ($L_{eq[h]}$) occurring during evening hours between 7 p.m. and 10 p.m.

Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors.

- **Geometric Spreading** – Sound from a localized source (i.e., an ideal point source) propagates uniformly outward in a spherical pattern (or hemispherical when near a surface). The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Roadways consist of several localized noise sources on a defined path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern,

often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.

- **Ground Absorption** – The propagation path of noise from a sound emission source to a receptor is usually horizontal and proximate to the ground. Under these conditions, noise attenuation from ground absorption and reflective wave canceling can add to the attenuation associated with geometric spreading. For acoustically “hard” paths over which sound may traverse (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or “soft” sites (i.e., those sites with an absorptive ground surface between the source and the receptor, such as fresh-fallen snow, soft dirt, or dense vegetative ground cover), an additional ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to cylindrical spreading for line source sound propagation, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance.
- **Atmospheric Effects** – Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound pressure levels can also be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects when distances between a source and receptor are large.
- **Shielding by Natural or Human-Made Features** – A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receptor specifically to reduce noise. A barrier that breaks the line of sight between a source and a receptor will typically result in at least 5 dB of noise reduction. Taller barriers provide increased noise reduction. While a line of trees may visually occlude the direct line between a source and a receptor, its actual noise-reducing effect is usually negligible because it does not create a solid barrier. Deep expanses of dense wooded areas, on the other hand, can offer noise reduction under the right conditions.

2.1.2 Vibration Characteristics

Vibration is oscillatory movement of mass (typically a solid) over time. It is described in terms of frequency and amplitude and, unlike sound, can be expressed as displacement, velocity, or acceleration. For environmental studies, vibration is often studied as a velocity that, akin to the discussion of sound pressure levels, can also be expressed in dB as a way to cast a large range of quantities into a more convenient scale. Vibration impacts to buildings are generally discussed in terms of inches per second (ips) peak particle velocity (PPV), and the potential for annoyance to occupants within those buildings is evaluated with root-mean-square (rms) vibration velocity decibels (VdB), which are calculated from PPV and application of a crest factor (CF, equal to four per FTA guidance) with the following expression (FTA 2018):

$$L_v = 20 * \text{LOG}(\text{PPV} / [\text{CF} * V_{\text{ref}}]) = 20 * \text{LOG}(\text{PPV} / [4 * 0.000001])$$

Common sources of vibration within communities include construction activities and railroad operations. Groundborne vibration generated by construction projects is usually highest during pile driving, rock blasting, soil compacting, jack hammering, and demolition-related activities where sudden releases of subterranean energy or powerful impacts of tools on hard materials occur. Depending on their distances to a sensitive receptor, operation

of large bulldozers, graders, loaded dump trucks, or other heavy construction equipment and vehicles on a construction site also have the potential to cause high vibration amplitudes.

2.2 Environmental Setting

2.2.1 Studied Sensitive Receptors

Noise- and vibration-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas typically are considered noise- and vibration-sensitive receptors and may warrant unique measures for protection from intruding noise.

The Ventura Steel Site and adjoining commercial or industrial uses to the north, west, and south are all on Industrial zoned land per the County's zoning map (County of Ventura 2025) and would not be considered noise-sensitive land uses. Figure 1 presents the noise-sensitive receptors within the vicinity of the Ventura Steel Site (i.e., within a designated 1-mile buffer zone), which include R-1 (Single Family), Neighborhood Low, and Neighborhood Medium per the City zoning map (City of Ventura 2020) and Residential Planned Development per the County land use map.

2.2.2 Measured Outdoor Ambient Sound

Field measurements of sound pressure level (SPL) were conducted near the Ventura Steel Site on June 16, 2025, to quantify and characterize the existing outdoor ambient sound levels. Table 2 provides the location, date, and time period at which these baseline noise level measurements were performed by an attending Dudek field investigator using a Rion-branded Model NL-62 sound level meter (SLM) equipped with a 0.5-inch, pre-polarized condenser microphone with pre-amplifier. The SLM meets the current American National Standards Institute standard for a Type 1 (Precision Grade) sound level meter. The accuracy of the SLM was verified using a field calibrator before and after the measurements, and the measurements were conducted with the microphone positioned approximately 5 feet above the ground.

As shown in Table 2, six short-term (ST) noise level measurement locations that represent nearby existing noise-sensitive receptors were selected within the vicinity of the Ventura Steel Site to quantify and characterize the representative existing outdoor ambient noise environment of the area. Three of these locations, closest to the proposed Ventura Steel Site, are depicted as receivers ST3, ST5, and ST6 in Figure 2, Baseline Outdoor Ambient Noise Measurement Locations. The measured L_{eq} and L_{90} noise levels recorded at the ST locations are provided in Table 2. The primary noise sources at the sites identified in Table 2 consisted of traffic along adjacent roadways, aircraft noise, the sounds of leaves rustling, and birdsong. As shown in Table 2, the measured SPL ranged from approximately 41.0 dBA L_{eq} at ST5 to 60.9 dBA L_{eq} at ST3. Beyond the summarized information presented in Table 2, detailed noise measurement data is included in Attachment A, Baseline Noise Measurement Field Data.

Table 2. Measured Baseline Outdoor Ambient Noise Levels

Site Position Tag	Site Latitude, Longitude	Date (yyyy-mm-dd), Time (hh:mm)	Leq (dBA)	L90 (dBA)
ST1	34.290932°, -119.304808°	2025-06-16, 10:05 AM to 10:20 AM	50.0	48.2
ST2	34.296859°, -119.291538°	2025-06-16, 10:30 AM to 10:45 AM	53.6	44.9
ST3	34.299794°, -119.298451°	2025-06-16, 10:53 AM to 11:08 AM	60.9	48.9
ST4	34.301868°, -119.285166°	2025-06-16, 12:05 PM to 12:20 PM	47.5	42.5
ST5	4.306154°, -119.285335°	2025-06-16, 12:30 PM to 12:45 PM	41.0	38.7
ST6	34.311256°, -119.290126°	2025-06-16, 12:54 PM to 1:09 PM	43.2	40.3

Source: Attachment A, Dudek 2025.

Notes: Leq= equivalent continuous sound level (time-averaged sound level); L90= sound level exceeded 90% of the time; dBA = A-weighted decibels; ST = short-term noise measurement locations.

Additionally, outdoor ambient sound levels in the vicinity of the Ventura Steel Site were monitored over a 24-hour period from June 16, 2025, to June 17, 2025, using six American National Standards Institute (ANSI) Type 2 sound level meters (SLM). Figure 2 shows four of these unattended SLM positions nearest to the Ventura Steel Site: LT3, LT4, LT5 and LT6. All six deployed SLM were SoftdB “Piccolo II” model instruments similarly placed at locations that represent nearby existing noise-sensitive receptors. Table 3 shows the range of hourly Leq, Lmax, Lmin, L10, L50, and L90 values derived from the collected data at all six SLM positions (depicted as LT1–LT6 in Table 3) during the 24-hour measurement period. The highest hourly levels in Table 3 reflect the influence of outdoor acoustical contributors (e.g., vehicle traffic on nearby roadways, nearby commercial and industrial activities) that varied with time of day. The lower values of the ranges reflect evening and nighttime periods when background acoustical contributors are minimized.

Table 3. Summary of Baseline Outdoor Ambient Sample Sound Levels

Site Position Tag	Site Latitude, Longitude	Measured Hourly Levels and Statistical Values (dBA) June 16, 2025, to June 17, 2025											
		Leq		Lmax		Lmin		L10		L50		L90	
		High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
LT1	34.291873°, -119.301367°	62	40	81	58	44	34	66	42	52	38	49	36
LT2	34.297672°, -119.298832°	66	51	89	74	50	44	68	49	65	47	60	46
LT3	34.303261°, -119.292252°	61	36	80	47	43	32	65	38	53	35	49	33
LT4	34.305616°, -119.298780°	65	48	88	70	50	37	66	51	64	44	62	39

Table 3. Summary of Baseline Outdoor Ambient Sample Sound Levels

Site Position Tag	Site Latitude, Longitude	Measured Hourly Levels and Statistical Values (dBA) June 16, 2025, to June 17, 2025											
		Leq		Lmax		Lmin		L10		L50		L90	
		High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
LT5	34.311478°, -119.286327°	64	36	84	41	42	31	69	37	47	35	44	33
LT6	34.323565°, -119.289821°	66	52	92	76	50	41	68	56	66	44	62	43

Notes: dBA = A-weighted decibel; L_{eq} = energy-equivalent sound level; L_{max} = maximum measured sound level; L_{min} = minimum measured sound level; L_{10} , L_{50} , and L_{90} are statistical values indicating what dBA was exceeded for a cumulative period of time representing 10%, 50%, and 90% of the measuring period, respectively.

2.3 Regulatory Setting

2.3.1 Federal Regulations and Guidance

Federal Transit Administration

In its Transit Noise and Vibration Impact Assessment guidance manual, the FTA recommends a daytime construction noise level threshold of 80 dBA L_{eq} over an 8-hour period (FTA 2018) when detailed construction noise assessments are performed to evaluate potential impacts to community residences surrounding a project. Although this FTA guidance is not a regulation, it can serve as a quantified standard in the absence of such noise limits at the state and local jurisdictional levels.

With respect to vibration, Table 4 presents FTA guidance thresholds for assessing building damage risk and human annoyance. The values in Table 4 represent recommended assessment guidance when local regulations lack such standards.

Table 4. Federal Transit Administration Vibration Threshold Guidance

Vibration Receptor	Vibration Assessment Metric	
	Peak Particle Velocity (PPV, in/sec)	Approximate Root Mean Square VdB ^a
Potential Damage to Structures by Building/Structural Category		
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
Residential Building Occupant Human Response		
Frequent events (more than 70 events per day)		72
Occasional events (30–70 events per day)		75
Infrequent events (fewer than 30 events per day)		80

Source: FTA 2018.

Notes: PPV = peak particle velocity; in/sec = inches per second; VdB = vibration decibel.

^a Root mean square (RMS) vibration level in decibels (VdB) is calculated from the PPV using a crest factor of 4 and is with respect to 1 micro-inch per second.

2.3.2 State Guidance

There are no noise regulations at the state level that would apply to the Ventura Steel Site Alternative with regard to its environmental noise assessment.

2.3.3 Local Regulations and Guidance

CPUC decisions, as well as California courts, have confirmed CPUC's preemptory powers over matters of statewide concern, including utility project siting. General Order 177 was adopted in December 2022, reaffirming preemption of local authority. As such, no local discretionary permits would be required because CPUC has preemptive jurisdiction over the siting, construction, maintenance, and operation of natural gas facilities in California. As discussed in Section 3.2, Environmental Setting, the Ventura Steel Site is entirely within unincorporated Ventura County, but it has a pipeline corridor within the City limits. This "Local" section of the Regulatory Setting identifies County and City regulations specific to noise for informational purposes and to assist with environmental review, although the Ventura Steel Site Alternative is not subject to local discretionary permitting.

City of Ventura Municipal Code

Section 10.650.130, Designated Noise Zones

Unnecessary, excessive, or annoying noise in Ventura is prohibited by Section 10.650 of the City of Ventura Noise Ordinance (Noise Ordinance; City of Ventura 2014). Exterior noise limits quantified by the Noise Ordinance include the following from Section 10.650.130.B for each of four "noise zones":

- Noise Zone I (noise-sensitive properties) – 50 dBA (7 a.m.–10 p.m.); 45 dBA (10 p.m.–7 a.m.)
- Noise Zone II (residential properties) – 50 dBA (7 a.m.–10 p.m.); 45 dBA (10 p.m.–7 a.m.)
- Noise Zone III (commercial properties) – 60 dBA (7 a.m.–10 p.m.); 55 dBA (10 p.m.–7 a.m.)
- Noise Zone IV (industrial and agricultural properties) – 70 dBA (anytime)

These noise standards above apply to any noise-generating activity that exceeds the applicable level for a cumulative period of more than 30 minutes in any hour. For noise levels of less duration, Section 10.650.130.B.2 allows dB increments of the threshold, but no more than a 20 dB increase for sound less than a minute within the given hour.

Section 10.650.150, Special Noise Sources

The City does not have a quantified prescriptive limit on noise emission from construction activities when they are permitted to occur; however, outside of these allowable hours (7:00 a.m. to 8:00 p.m.), Section 10.650.150.D states that noise from such activities would be held to the preceding exterior noise standards (by Noise Zone) per Section 10.650.130.B.

City of Ventura General Plan

Chapter 7 of the City's 2005 Ventura General Plan describes policies and expected actions with respect to new residential developments and includes consistency with the California Building Code (CBC) requirement of 45 dBA community noise equivalent level (CNEL) for inhabited rooms. However, the Ventura Steel Site Alternative consists of an upgrade of an existing industrial facility on M-2 zoned land; therefore, there are no General Plan expectations directly applicable to the Ventura Steel Site Alternative.

County of Ventura General Plan

Chapter 7.9 of the County's 2040 General Plan Hazards and Safety Element (County of Ventura 2020) includes the following noise compatibility standard HAZ-9.2.4 as it pertains to non-transportation noise received by a noise-sensitive land use:

"New noise generators, proposed to be located near any noise sensitive use, shall incorporate noise control measures so that ongoing outdoor noise levels received by the noise sensitive receptor, measured at the exterior wall of the building, does not exceed any of the following standards:

- a. Leq1H of 55dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 6:00 a.m. to 7:00 p.m.;
- b. Leq1H of 50dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 7:00 p.m. to 10:00 p.m.; and
- c. Leq1H of 45dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 10:00 p.m. to 6:00 a.m."

Noise compatibility standard HAZ-9.2.5 states: "Construction noise and vibration shall be evaluated and, if necessary, mitigated in accordance with the Construction Noise Threshold Criteria and Control Plan." Conservatively assuming Avocado Alternative construction periods have durations longer than eight (8) weeks, the referenced plan includes the following noise threshold criteria (County of Ventura 2010):

- Daytime (7:00 a.m. to 7:00 p.m. Monday through Friday, and from 9:00 a.m. to 7:00 p.m. Saturday, Sunday and local holidays) – greater of 55 dBA hourly Leq or the ambient hourly Leq plus 3 dB;
- Evening (7:00 p.m. to 10:00 p.m.) – greater of 50 dBA hourly Leq or the ambient hourly Leq plus 3 dB; and
- Nighttime (10:00 p.m. to 7:00 a.m. Monday through Friday, and from 10:00 p.m. to 9:00 a.m. Saturday, Sunday and local holidays) – greater of 45 dBA hourly Leq or the ambient hourly Leq plus 3 dB.

3 Methodology

3.1 Analyzed Limits

The analysis in this memo is based on the local policies and regulations described in Section 2.3 and listed below:

- **Construction Noise** – As noted in Section 2.3.3, language in Section 10.650.150 of the City's Noise Ordinance exempts a defined time period associated with construction, but does not have quantified noise

limits during such time; thus, the FTA guidance-based threshold of 80 dBA 8-hour L_{eq} would be applied during this exemption period. Outside of the exemption period, normal City exterior noise thresholds (per Section 10.650.130) would apply to assess construction noise compliance and thus potential noise impacts to the studied noise-sensitive receivers. For the nearest County NSR located north of the Ventura Steel Site, the County's daytime, evening, and nighttime thresholds (55 dBA, 50 dBA, and 45 dBA hourly L_{eq} , respectively or ambient plus 3 dB [if greater]) would apply.

- **Construction Vibration** – For building damage risk to existing offsite residential buildings, the threshold would be 0.2 inches per second PPV per FTA guidance with respect to single-family homes or other structures that would be consistent with the “non-engineered timber and masonry buildings” category appearing in Table 4. The building occupant annoyance threshold within such a structure would be 0.016 inches per second PPV or 72 VdB assuming construction activity would be considered compatible with “frequent events” per FTA guidance reproduced in Table 4.
- **VCM Project-attributed Stationary Source Noise Emission to the Community** – As received by the nearest offsite noise-sensitive receptors, which are either residences (Noise Zone II) or schools and hospitals (Noise Zone I), the City's exterior noise level limits of 50 dBA from 7:00 a.m. to 10:00 p.m. and 45 dBA from 10:00 p.m. to 7:00 a.m. would apply per Section 10.650.130.B of the its noise ordinance. For the nearest County NSR located north of the Ventura Steel Site, the County's daytime, evening, and nighttime thresholds (55 dBA, 50 dBA, and 45 dBA hourly L_{eq} , respectively or ambient plus 3 dB [if greater]) would apply.
- **Offsite Traffic Noise Exposure** – For purposes of this analysis, a direct roadway noise impact would be considered significant if increases in roadway traffic noise levels attributed to Proposed Ventura Steel Site Alternative construction traffic were greater than 3 dBA CNEL at an existing noise-sensitive land use.
- **Exposure of VCM Project Workers or Visitors to Excessive Aviation Noise** – Typically, Ventura Steel Site Alternative areas where outdoor workers or visitors may be present that intersects the 65 dBA CNEL aviation noise contour of a public or private airport would be considered a potentially significant noise impact.

3.2 Construction

On site Construction Noise

The predictive analysis herein estimates the Ventura Steel Site Alternative-attributed construction noise exposure at each of the four nearest representative offsite noise-sensitive receivers for each of approximately 73 months by locating multiple sound-emitting sources (i.e., operating stationary and mobile equipment) from up to four general source locations, as follows:

1. In a manner comparable with the “general assessment” construction noise estimation technique per FTA guidance, an idealized “acoustic centroid” (i.e., the geographic center) of the proposed Ventura Steel Site Alternative's *compressor station site* represents the time-averaged position of active construction equipment on site over the course of an hour. The quantity and types of equipment are expected to be those appearing in Attachment B, Construction Noise Prediction Worksheets, varying by month. While exact positions of operating construction equipment are uncertain and could vary day by day within the studied month, the location of all equipment is assumed to be at the acoustic centroid with respect to defining source-to-receptor input distances.
2. In a manner comparable to #1 above, but with construction activity taking place along the new *pipeline corridor(s)* associated with the Proposed Ventura Steel Site Alternative.

3. In a manner similar to #1 above, construction noise emission associated with preparation of the Ventura Steel Site Alternative Temporary Staging Area (a.k.a., *off site laydown yard*) would take place immediately north of the Ventura Steel Site on an industrial property parcel. After preparation of this area, and akin to what was considered for the PEA, up to four operating vehicles and material handling equipment (crane, man-lift, dump truck, and generator) would represent the average of activity sourced at the geographic center of this zone for the remainder of Ventura Steel Site Alternative construction progress. For purposes of a conservative analysis, each of the four noise sources could be active for up to a full hour; but in reality, actual operation time on site would be less and/or involve largely idling engines with only brief, intermittent full-load activity or demand.

As detailed in the worksheets provided in Attachment B, combined construction noise emissions for each month of the anticipated Proposed Ventura Steel Site Alternative schedule were predicted with a model that emulates the Federal Highway Administration Roadway Construction Noise Model and utilizes its reference sound level data and “acoustical usage factors” by equipment type (FHWA 2006). Predicting construction noise on a month-to-month basis allows consideration of potential on site phase/activity concurrencies as informed by the Ventura Steel Site Alternative construction equipment roster and schedule and should thus capture equipment noise contributions—regardless of phase or activity—to the predicted aggregate sound exposure level at a studied noise-sensitive receiver over time as Ventura Steel Site Alternative construction progresses. These evaluations of combined noise level exposures due to potential concurrent construction activities within the same month are presented in Attachment B for each of four nearby noise-sensitive receptors studied herein.

Table 5 presents the predicted loudest noise exposure levels at each of the listed sensitive receptors for each studied Ventura Steel Site Alternative construction feature or substantial activity: the compressor station site, offsite laydown yard, and the closest pipeline corridor segment location. Approximate horizontal distances between the geographic center-points of these features and the listed sensitive receptor position are also shown in Table 5. Where this distance is greater than one mile, the boundary of the study area for purposes of this noise assessment, the resulting noise exposure would be considered sufficiently attenuated (i.e., as a result of geometric divergence, acoustical air absorption, ground surface acoustical absorption, and potentially path-intervening terrain) and is not quantified herein.

Table 5. Predicted Loudest Construction Noise Exposure Level at Nearest Sensitive Receptors

Sensitive Receptor (SR)	Ventura Steel Site Alternative Construction Location or Feature					
	Compressor Station Site		Offsite Laydown Yard		Pipeline Corridor*	
	Distance to SR	Loudest Month (dBA, Leq)	Distance to SR	Loudest Month (dBA, Leq)	Distance to SR	Loudest Month (dBA, Leq)
Ventura Steel Site Ventura Steel Site Alternative						
179 Ottawa Street	2,025 feet	52	2,450 feet	46	2,075 feet	57
Vista Del Mar Hospital	3,525 feet	46	4,050 feet	40	250 feet	78
Las Encinas Mobile Home Park	2,600 feet	50	2,150 feet	47	2,700 feet	54

Table 5. Predicted Loudest Construction Noise Exposure Level at Nearest Sensitive Receptors

Sensitive Receptor (SR)	Ventura Steel Site Alternative Construction Location or Feature					
	Compressor Station Site		Offsite Laydown Yard		Pipeline Corridor*	
	Distance to SR	Loudest Month (dBA, Leq)	Distance to SR	Loudest Month (dBA, Leq)	Distance to SR	Loudest Month (dBA, Leq)
375 E. McFarlane Drive	< 1 mile	N/A	< 1 mile	N/A	70 feet	93

Notes: dBA = A-weighted decibel; Leq = energy-equivalent sound level; N/A = not applicable.

Horizontal distances are between the receptor location and the geographic center (a.k.a., acoustic centroid) of the Ventura Steel Site Alternative feature.

* Includes all anticipated construction equipment mobilized to work at the same position (not spread over multiple pipeline segments).

Using one or more of the loudest month noise levels appearing in Table 5, depending upon actual concurrency of the distinct construction activities, the decibel magnitudes of the loudest months (during which concurrent activities take place) can then be quantified with logarithmic summation and then contrasted with both the daytime and nighttime fixed thresholds (as defined by Section 2). These log-sums are also used, when combined with existing or baseline outdoor ambient sound levels, to evaluate estimated decibel increase over measured baseline quietest-hour daytime and nighttime levels.

Off site Construction Traffic Noise

During different phases of activity, construction of the Ventura Steel Site Alternative is expected to introduce as many as 135 one-way construction worker vehicle trips per day, up to 8 one-way haul truck trips per day, and up to 20 one-way vendor truck trips per day to and from the Ventura Steel Site. Converted to a passenger car equivalent (PCE) number, the total average daily two-way construction trips would equate to approximately 382. At these expected daily volumes, the added traffic attributed to Ventura Steel Site Alternative construction passenger vehicles (e.g., cars, pick-up trucks) and truck trips, which would observe posted speed limits, is much smaller than the average daily traffic (ADT) on the local roadways that represent potential travel routes to the Ventura Steel Site: 5,900 vehicles for Ventura Avenue and 39,000 vehicles for Ojai Freeway (Route 33) (Caltrans 2023; County of Ventura Public Works 2023). On the basis of unchanging vehicle speeds and that vehicles on these three roadways already experience a mix of passenger cars and trucks that frequent the surrounding industrial and commercial areas, the estimated increase in traffic noise can be estimated with the following equation:

$$\text{Traffic noise increase (dB)} = 10 \cdot \text{LOG}(V_2/V_1)$$

where V_1 is the volume of existing ADT, and V_2 is the future ADT volume (i.e., existing plus Ventura Steel Site Alternative). Using this expression, and conservatively assuming all Ventura Steel Site Alternative construction traffic might use Ventura Avenue to access the Ventura Steel Site, the estimated increase in traffic is approximately 27%. Based upon the fundamentals of acoustics, a 100% increase would be needed to result in a 3 dB increase in noise levels, which would be just audible to the average human listener. A 27% increase due to the Ventura Steel Site Alternative would result in an increase in noise level over existing of less than 1 dB and would not be audible to the average human listener, and thus would be considered a less-than-significant impact that will not be studied further herein.

Construction Vibration

Groundborne vibration attenuates rapidly, even over short distances. The attenuation of groundborne vibration as it propagates from source to receptor through intervening soils and rock strata can be estimated with expressions found in FTA and California Department of Transportation (Caltrans) guidance. To examine potential building damage risk and thus use peak particle velocity (PPV) as the evaluation metric, vibration velocity level can be estimated with the following expression (FTA 2018):

$$PPV_{rcvr} = PPV_{ref} * (25/D)^n$$

where PPV_{rcvr} is the predicted vibration velocity at the receiver position, PPV_{ref} is the reference value at 25 feet from the vibration source, D is the actual horizontal distance to the receiver, and “ n ” is the Wiss exponent that FTA defines as 1.5 to generally characterize the propagation of vibration through soil/strata between the source and the receptor position. For evaluating potential annoyance of a building occupant, FTA guidance provides an additional expression using the vibration decibel (VdB) metric (FTA 2018):

$$VdB_{rcvr} = VdB_{ref} - 30 * \text{LOG}(D/25) - CL$$

where VdB_{rcvr} is the predicted root mean square (RMS) vibration velocity at the receiver position, VdB_{ref} is the reference value at 25 feet from the vibration source, and D is the actual horizontal distance to the receiver.

Furthermore, groundborne vibration would be additionally attenuated by what FTA guidance calls a “coupling loss” (CL) or the loss of vibrational energy at the subsurface interface between the ground soils/strata and the foundation mass of the receiving structure. For wood-framed houses, this coupling loss can be 5 VdB (FTA 2018) and would populate the CL value in the above expression.

3.3 Operations

On site Operational Noise

Prediction of aggregate noise exposure levels at the nearest representative noise-sensitive receiver attributed to normal operation of Ventura Steel Site Alternative major noise-producing stationary sources involves usage of the Datakustik CadnaA (Computer Aided Noise Abatement) sound propagation model. CadnaA is a commercially available software program for the calculation, presentation, assessment, and prediction of environmental noise based on algorithms and reference data per International Organization of Standardization Standard 9613-2, “Attenuation of Sound During Propagation Outdoors, Part 2: General Method of Calculation” (ISO 1996). Expected sources of noise emission from within the boundary of the Ventura Steel Site include a variety of on-site electromechanical equipment. These sources are detailed in Attachment C but can be summarized as follows:

- **New Compressor Station Building.** Within this new structure are two natural-gas-engine-driven (natural gas) compressors and two electric-motor-driven (electric) compressors. Using building site plans and specifications, this building was modeled in CadnaA as a solid “Building” element, on which sound-emitting horizontal area and vertical area planar-type sources were applied as depicted in Figure 3. The magnitude of sound emission from each of these modeled planes or building surfaces was developed using the following mathematical expression from the Edison Electric Institute Electric Power Plant Environmental Noise Guidance document (EEI 1984):

$$L_{wo} = L_w - A - B + (10 \cdot \log[F] - 10) - 6$$

In the above expression, L_{wo} is the outdoor sound power calculated from the aggregate sound power level (L_w) of sources within the enclosed building volume; A is a volume adjustment term that conservatively assumes acoustically “hard” (i.e., highly reflective, such as smooth gypsum or painted concrete) interior surfaces as a default, which in this case accounts for application of acoustically absorptive treatment as required by the Ventura Steel Site Alternative specifications (i.e., overall 60% of interior surfaces covered by noise reduction coefficient [NRC] 0.7 material); B is the sound transmission loss of the building shell; and F is the area of the radiating wall (in square feet). Using this expression, Attachment C includes worksheets that calculate the L_{wo} for each of the modeled noise-emitting building surfaces. Assumptions include the following:

- The sound transmission loss (TL) of the roof and wall shell elements are assumed to be acoustically comparable to values appearing for “R-19 Faced 202-96 (Rev. 2000) insulation over the purlins” in the North American Insulation Manufacturers Association (NAIMA) Bulletin MB305 (NAIMA 2001) and thus consistent with the Ventura Steel Site Alternative specification of sound transmission class (STC) rating 32 minimum.
- Building shell and roof penetrations for visibility, ventilation, and access are considered separately, using the same expression as the above to determine their contributing L_{wo} values as distinct sources in the three-dimensional (3D) CadnaA model space.
- **Outdoor Noise Sources** are located outside the new compressor station building and include the following:
 - Two cooling blowers (88 dBA) for the electric motors
 - Three electrical transformers (95 dBA each)
 - Two variable frequency drives (VFD) at 85 dBA each
 - Eight discharge gas air coolers (85 dBA each)
 - Two gas engine water jacket coolers (91 dBA each)
 - Two 5-ton refrigeration capacity HVAC units (87 dBA each) for the new office structure
 - Two vapor recovery units (VRU) at 90 dBA each
 - Filter separation area (80 dBA)
 - Two gas engine exhaust stacks (91 dBA each)

Figure 3 illustrates (with an isometric view of the rendered 3D model space) the geographic on site locations of these above-listed outdoor sources. Other equipment located external to the new compressor station building include the backup generator, starting/instrument compressors, and lubrication oil cooling, but are not considered acoustically substantial (or would be so designed or properly enclosed) with respect to the above-listed sources. And while gas blowdown may occur, it is not considered a steady-state sound source for purposes of this assessment.

In addition to the above-described sound sources, the following assumptions, features, and parameters are included in this CadnaA-supported stationary noise source assessment:

- All noise sources are assumed to operate in a steady-state or otherwise continuous manner for a full hour, so that the predicted energy-equivalent level (L_{eq}) may be compared directly with an L_{eq} standard value for daytime or nighttime periods. Note that if actual Ventura Steel Site Alternative equipment operation was

less than an hour during actual operation, its sound energy would be “diluted” across a full hour of time and result in a lower L_{eq} value. By way of example, and consistent with acoustical principles, if for some reason the Ventura Steel Site Alternative only operated for half of a full hour, the resulting hourly L_{eq} value would be 3 dB less than that of the L_{eq} representing a full hour of steady-state operation.

- A ground effect acoustical absorption coefficient equal to 0.5 is assumed, which represents a balanced mix of ground types over which Ventura Steel Site Alternative sound would travel across and beyond the Ventura Steel Site. Ground types may range from some acoustically absorptive “soft” vegetated ground cover and loose granular aggregate to acoustically “hard” or reflective surfaces such as pavement, hard-packed dirt, or smooth concrete.
- A reflection order of 1 is assumed, which allows for a single reflection of sound paths on encountered structural surfaces such as the new office and warehouse buildings.
- The model includes topographic contours at 50-foot intervals of the surrounding area (e.g., the Ventura Steel Site is approximately 50 feet lower than the residential community to the south along Delaware Drive).
- The model includes a representation of proposed new solid walls along the Ventura Steel Site Alternative boundary, which are expected to have top edges of 8 feet above local grade.
- Calm meteorological conditions (i.e., no wind) were observed, at 68°F and 50% relative humidity.

4 Results

4.1 Construction

On- and Offsite Construction Noise

Using one or more of the loudest month noise levels appearing in Table 5, depending upon actual concurrency of the distinct construction activities, Table 6 contrasts the decibel magnitudes of the loudest concurrent months with both the daytime and nighttime fixed thresholds (as defined by Section 2) and evaluates estimated decibel increase over measured baseline quietest-hour daytime and nighttime levels.

Table 6. Contrast of Predicted Construction Noise with Fixed Standards and Current Outdoor Ambient Sound Environment

Sensitive Receptor (SR)	Daytime/ Nighttime Construction Noise Level Thresholds (dBA)	Measured Outdoor Ambient at or near SR:		Concurrent Construction Noise Level During Loudest Month of Activities (dBA, Leq)	Compliance with Thresholds?		Increase over Ambient (dB)	
		Quietest Daytime Hour (dBA, Leq)	Quietest Nighttime Hour (dBA, Leq)		Day	Night	Day	Night
Ventura Steel Site Alternative								
179 Ottawa Street	80/45	43	36	59	Yes	No	16	23
Vista Del Mar Hospital	80/45	43	36	79	Yes	No	36	43

Table 6. Contrast of Predicted Construction Noise with Fixed Standards and Current Outdoor Ambient Sound Environment

Sensitive Receptor (SR)	Daytime/ Nighttime Construction Noise Level Thresholds (dBA)	Measured Outdoor Ambient at or near SR:		Concurrent Construction Noise Level During Loudest Month of Activities (dBA, L_{eq})	Compliance with Thresholds?		Increase over Ambient (dB)	
		Quietest Daytime Hour (dBA, L_{eq})	Quietest Nighttime Hour (dBA, L_{eq})		Day	Night	Day	Night
Las Encinas Mobile Home Park	55/45	63	52	56	No	No	3	4
375 E. McFarlane Drive	80/45	61	51	93	No	No	32	42

Notes: dBA = A-weighted decibel; L_{eq} = energy-equivalent sound level.

For construction noise emanating from activities on the Ventura Steel Site, predicted levels at three of four receivers are below the FTA's guidance magnitude of 80 dBA 8-hour L_{eq} during daytime hours when the City exempts construction activity noise from its exterior noise limits. However, predicted levels at 375 E. McFarlane Drive (i.e., closest to Pipeline Corridor construction activities) would exceed the FTA's guidance magnitude up to 13 dBA. Construction noise exposure level at the nearest County sensitive receiver (Las Encinas Mobile Home Park) is also expected to be non-compliant with the County's daytime threshold.

Although likely louder than the outdoor background sound level typically experienced at these studied noise-sensitive receivers by a perceptible degree (i.e., on the basis of a 3 dB change being barely perceptible by average healthy human hearing), as long as these on site Ventura Steel Site Alternative construction activity noise levels were limited to occur between 7:00 a.m. and 8:00 p.m., there would be no inconsistency with the City's Noise Ordinance. However, if such activities at comparable equipment quantities and work intensities on site were to occur outside of these hours, then the predicted levels appearing in the rows of Table 6 with respect to on site Ventura Steel Site Alternative construction would exceed the applicable daytime (7:00 a.m. to 10:00 p.m.) or nighttime (10:00 p.m. to 7:00 a.m.) exterior noise limits per Section 10.650.130.B of the Noise Ordinance, as summarized in Section 2.3.3. The noise limits at the property lines of all four receivers would be 50 dBA during the day and 45 dBA at night, which would mean that noise from both daytime and nighttime on site Ventura Steel Site Alternative activities could be non-compliant.

It is expected on site Ventura Steel Site Alternative construction activity would only occur within the 7:00 a.m. to 8:00 p.m. exemption period, as allowed by City Noise Ordinance Section 10.650.150.D. Therefore, its noise emission would not occur during hours where the City's exterior noise level limits would apply.

To reduce construction noise to levels below the FTA-based guidance limit at 375 E. McFarlane Drive, noise abatement strategies may be considered, such as the following: 1) temporary barriers between construction activities and the nearest receptor, in the form of suspended sound blankets, field-erected plywood sheeting, or comparable temporary solid or flexible but sufficiently massive barriers of minimum sound transmission class rating of 25; 2) administrative controls, such as reducing operating time of equipment and/or prohibiting usage of equipment types within certain distances to the nearest receptor; and 3) engineering controls, such as changing

equipment operating parameters (e.g., speed, capacity), or installing features that reduce equipment noise emission (e.g., upgrading engine exhaust mufflers).

Offsite activities, such as equipment and material deliveries, could occur outside this exemption period allowed for construction but have been predicted to generate noise exposures at the nearest noise-sensitive receptors that are compliant with the City's exterior noise level limits.

Predicted construction noise exposure level at the County receiver (Taylor Ranch Road) is expected to be compliant with the County's evening threshold (50 dBA hourly L_{eq} , or the ambient plus 3 dB if louder), but not the nighttime limit as shown in Table 6.

Construction Groundborne Vibration

Predicted groundborne vibration velocity levels attributed to construction equipment for the Ventura Steel Site Alternative assessed for the nearest existing residence (375 E. McFarlane Drive) appear in Table 7. All predicted vibration levels would exceed the most stringent occupant annoyance threshold of 72 VdB per Table 4 but would not exceed the building damage risk threshold of 0.2 inches per second PPV.

Table 7. Predicted On site Construction Vibration at Nearest Sensitive Receptor

Studied Receptor	Anticipated Closest Distance (Feet)	Predicted PPV (in/sec) and VdB (RMS) by Equipment Type					
		Bulldozer		Loader		Roller	
		PPV	VdB	PPV	VdB	PPV	VdB
375 E. McFarlane Drive	70	0.019	74 ^a	0.019	74 ^a	0.045	81 ^a

Notes: PPV = peak particle velocity; in/sec = inches per second; VdB = vibration velocity decibels; RMS = root mean square.

^a Includes coupling loss of 5 VdB.

4.2 Operations

Operation Noise

Table 8 tabulates the predicted noise exposure levels attributed to anticipated steady-state operation of all four new Ventura Steel Site Alternative compressors (i.e., two engine-driven and two motor-driven) at normal load. While the existing on-site gas compressor infrastructure would remain on standby status to operate if the new compressors could not operate reliably for approximately 1 year, the new Ventura Steel Site Alternative compressors would not operate concurrently with the existing on-site compressor systems; therefore, no scenario of concurrent existing and Ventura Steel Site Alternative operation has been studied herein.

The predicted noise levels appearing in Table 8 are of modeled receivers R10 and R26, which represent the nearest noise-sensitive receptors to the Ventura Steel Site and thus the worst-case noise levels attributed to the operation of the Ventura Steel site. As shown in Table 8, Ventura Steel Site Alternative operational noise is predicted to be well below 45 dBA and therefore expected to comply with Noise Zone I through IV standards set forth in the City Noise Ordinance 10.650.130.B. A color-coded plot of predicted Ventura Steel Site Alternative operational sound emission appears in Figure 4.

Table 8. Predicted Ventura Steel Site Alternative Operational Noise Levels (All Four Compressors)

Modeled Receptor Address / ID	Hourly L_{eq} (dBA)
Las Encinas Mobile Home Park / R10	34.9
179 Ottawa Street / R26	36.0

Notes: L_{eq} = energy-equivalent sound level; dBA = A-weighted decibel.
All listed receptor points are assumed to be 5 feet above local grade.

Operational Groundborne Vibration

The Ventura Steel Site would not propagate substantial groundborne vibration magnitudes beyond the property line. This is due to the expectation that the compressor operating systems are designed, engineered, and manufactured to be balanced and operate smoothly and reliably for many years under performance criteria and under conditions of regular inspection, testing, and maintenance. Such machines are also mounted on masses or foundations, and may feature, per manufacturer's guidance or requirements, proper means of vibration isolation.

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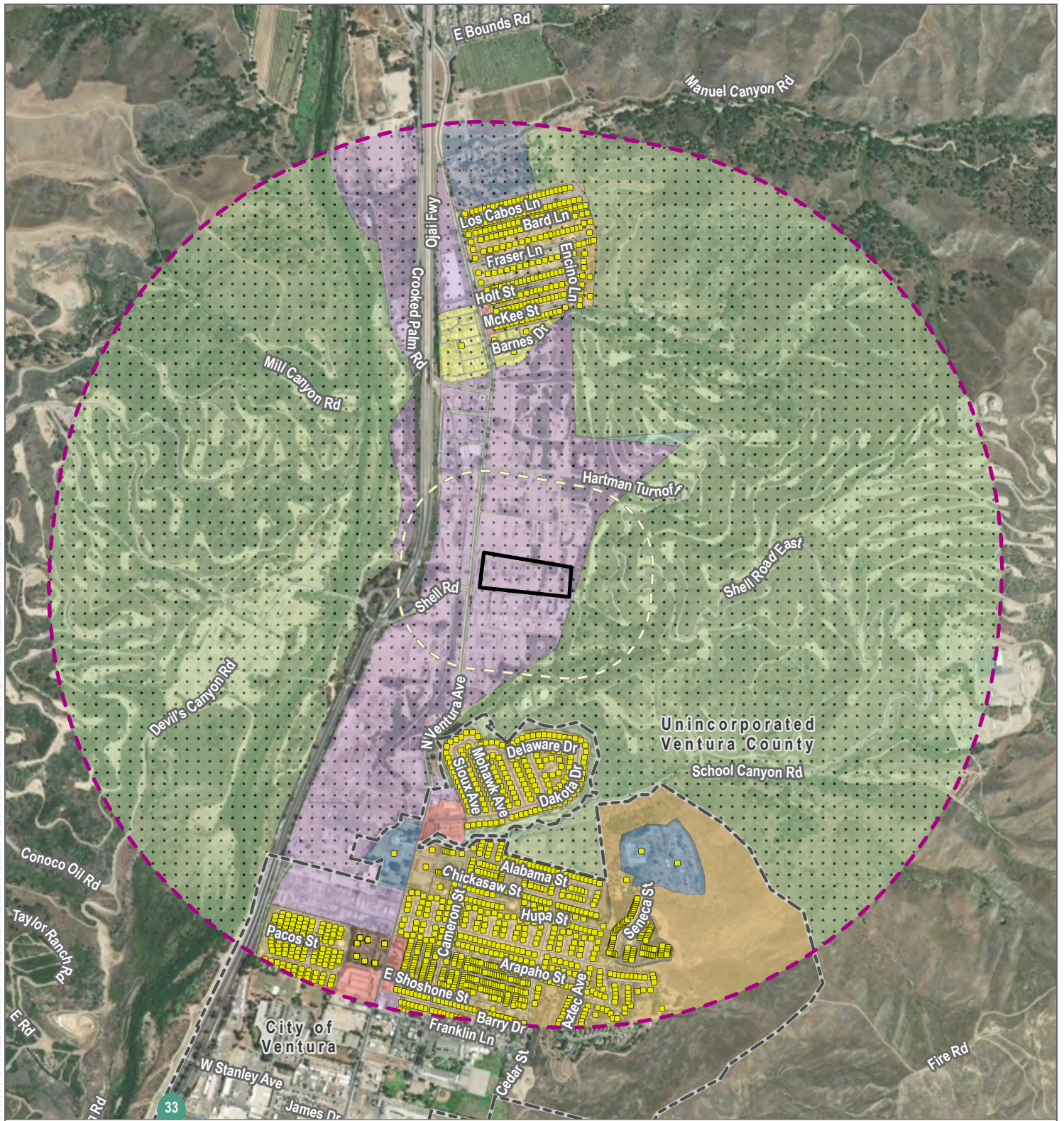
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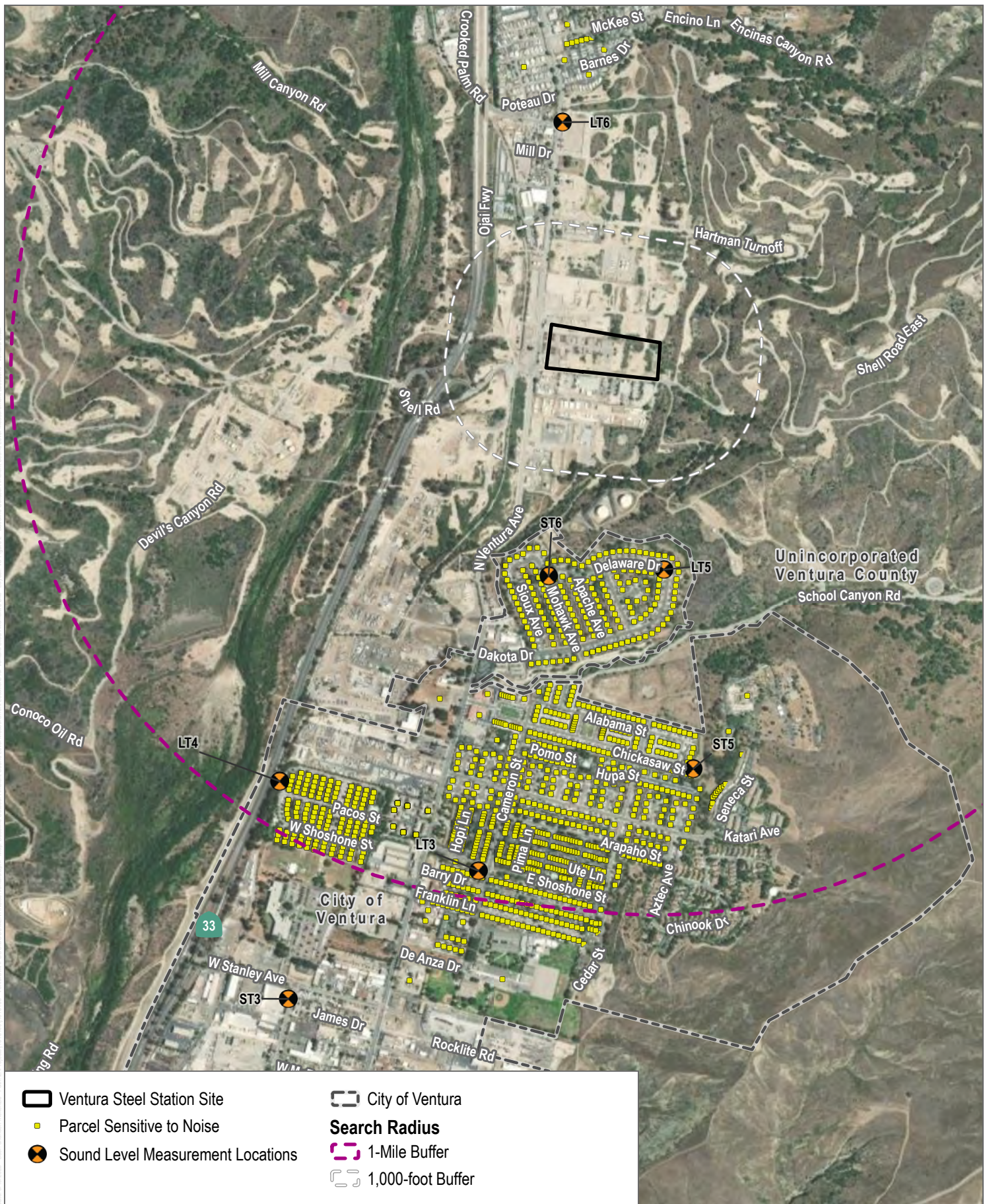
- | | | | |
|---|--|--|---|
| <ul style="list-style-type: none"> Ventura Steel Station Site 1-Mile Buffer 1,000-foot Buffer Parcel Sensitive to Noise City of Ventura | Planning Designation (City of Ventura) <ul style="list-style-type: none"> Neighborhood Low Neighborhood Medium Neighborhood High Commerce Industry | <ul style="list-style-type: none"> Public / Institutional Parks & Open Space Right of Way | <ul style="list-style-type: none"> Residential Planned Development Commercial Industrial ECU-Agricultural ECU-Open Space Open Space |
|---|--|--|---|
- General Plan Land Use (County of Ventura)**
- Very Low Density Residential
 - Low-Density Residential

SOURCE: City of Ventura 2023; County of Ventura 2023; ESRI Aerial Imagery (accessed 2025)

FIGURE 1

Sensitive Receptors in Vicinity of Ventura Steel Alternative Site

Ventura Compressor Station Modernization Project

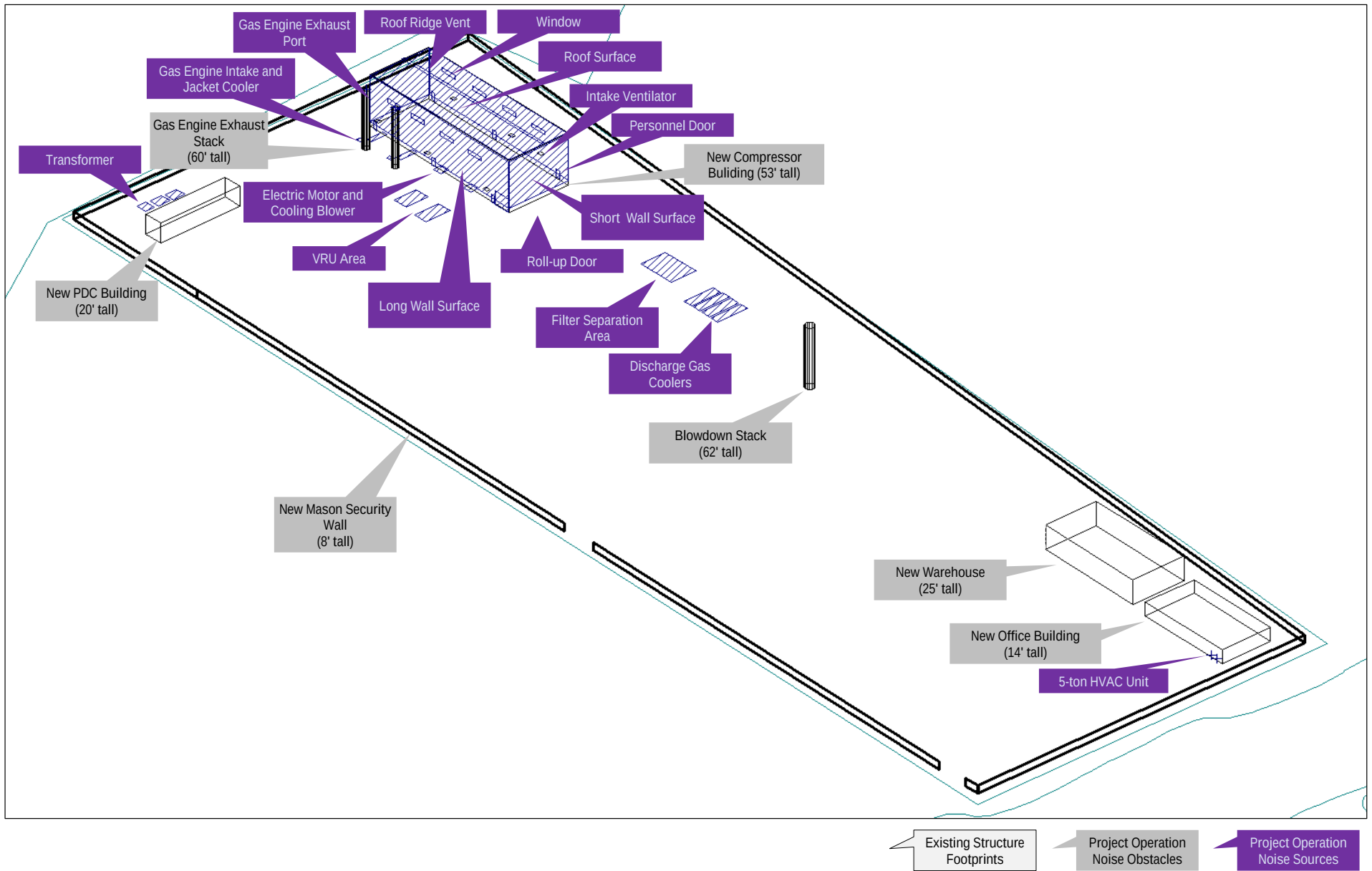


SOURCE: City of Ventura 2023; County of Ventura 2023; ESRI Aerial Imagery (accessed 2025)

FIGURE 2

Baseline Outdoor Ambient Sound Level Measurement Locations for Ventura Steel Alternative Site





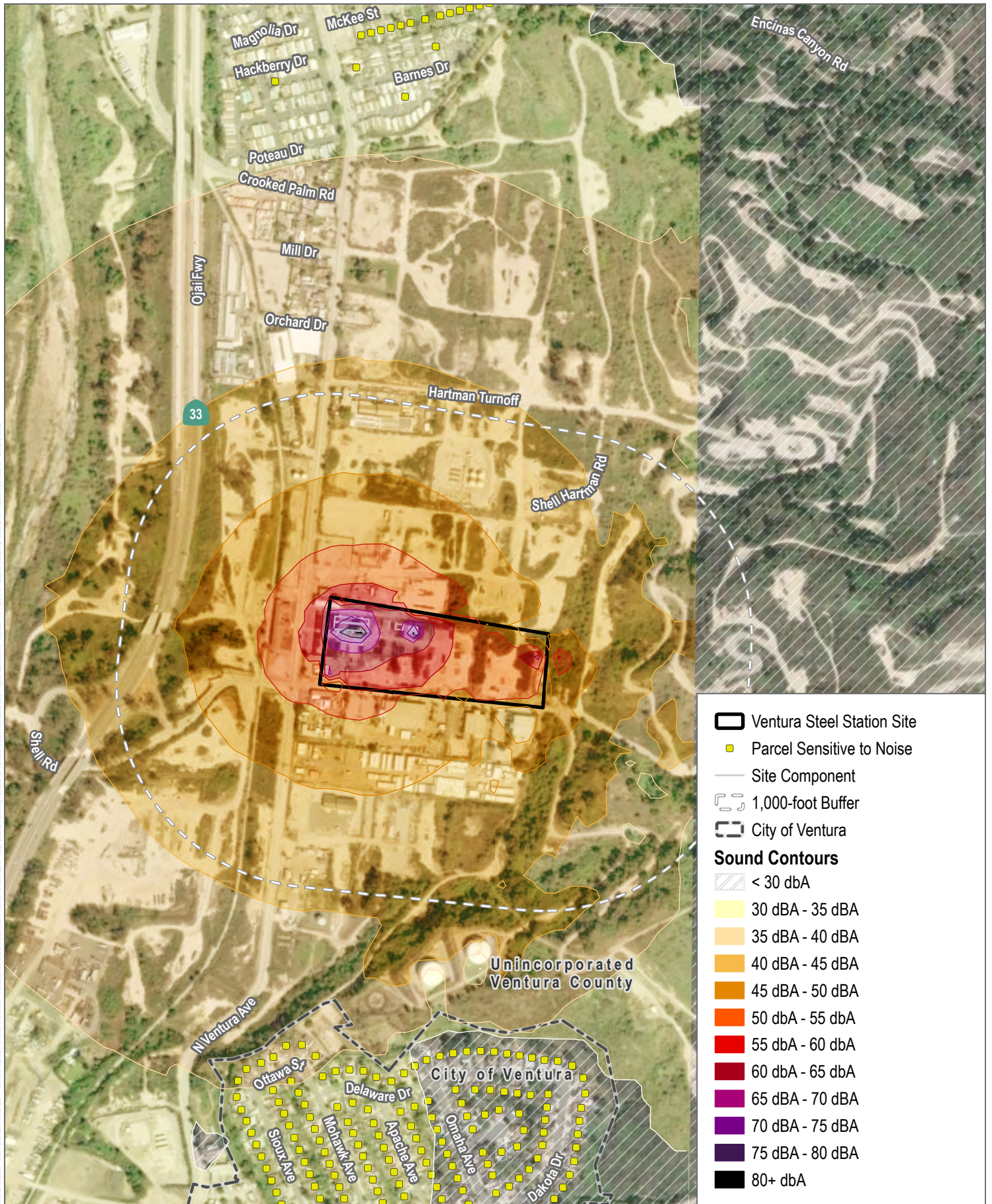
SOURCE: Dudek 2025

DUDEK

FIGURE 3

Isometric View of Ventura Steel Operations Sound Propagation Model Space

SoCal Gas - Ventura Compressor Station Modernization Project



SOURCE: City of Ventura 2023; County of Ventura 2023; ESRI Aerial Imagery (accessed 2025)

FIGURE 3

Sound Modeling Results for Ventura Steel Alternative Site Project Operations

Ventura Compressor Station Modernization Project

Attachment A

Baseline Measurement Field Notes

		Leq	Lmax	Lmin	L(10)	L(50)	L(90)		
CNEL	DNL							CNEL	DNL
8:00:00 AM D2	D2	55	80	39	56	50	45	0 N1	N1
9:00:00 AM D3	D3	62	81	39	66	52	48	1 N2	N2
10:00:00 A D4	D4	51	74	39	53	49	45	2 N3	N3
11:00:00 A D5	D5	53	79	40	56	50	47	3 N4	N4
12:00:00 P D6	D6	53	74	42	57	51	47	4 N5	N5
1:00:00 PM D7	D7	53	80	40	53	48	45	5 N6	N6
2:00:00 PM D8	D8	51	70	40	54	50	46	6 N7	N7
3:00:00 PM D9	D9	53	77	44	55	51	48	7 D1	D1
4:00:00 PM D10	D10	53	69	43	55	52	48	8 D2	D2
5:00:00 PM D11	D11	53	73	43	56	51	49	9 D3	D3
6:00:00 PM D12	D12	55	78	44	55	52	49	10 D4	D4
7:00:00 PM E1	D13	54	69	43	58	51	47	11 D5	D5
8:00:00 PM E2	D14	52	76	40	56	49	44	12 D6	D6
9:00:00 PM E3	D15	49	74	38	52	46	42	13 D7	D7
10:00:00 P N8	N8	56	75	35	50	44	40	14 D8	D8
11:00:00 P N9	N9	44	60	35	48	41	38	15 D9	D9
12:00:00 A N1	N1	42	64	34	45	39	36	16 D10	D10
1:00:00 AM N2	N2	40	59	35	42	38	37	17 D11	D11
2:00:00 AM N3	N3	41	58	36	43	39	38	18 D12	D12
3:00:00 AM N4	N4	43	66	36	46	40	39	19 E1	D13
4:00:00 AM N5	N5	45	64	37	49	43	39	20 E2	D14
5:00:00 AM N6	N6	51	71	42	56	48	45	21 E3	D15
6:00:00 AM N7	N7	54	80	42	54	50	48	22 N8	N8
7:00:00 AM D1	D1	53	81	40	57	50	46	23 N9	N9
24-hour		53	81	34	53	47	44		
Leq day	D	55							
Leq eve	E	52							
Leq night	N	50							
CNEL		58							
Leq day	D	55							
Leq night	N	50							
LDN		57							

		Leq	Lmax	Lmin	L(10)	L(50)	L(90)			
CNEL		DNL						CNEL	DNL	
8:00:00 AM	D2	D2	64	79	47	66	64	58	0 N1	N1
9:00:00 AM	D3	D3	62	81	46	65	61	55	1 N2	N2
10:00:00 A	D4	D4	62	78	47	65	61	54	2 N3	N3
11:00:00 A	D5	D5	61	76	46	63	61	57	3 N4	N4
12:00:00 P	D6	D6	64	87	47	66	63	58	4 N5	N5
1:00:00 PM	D7	D7	62	78	47	65	62	57	5 N6	N6
2:00:00 PM	D8	D8	63	79	47	65	62	58	6 N7	N7
3:00:00 PM	D9	D9	65	89	49	67	64	59	7 D1	D1
4:00:00 PM	D10	D10	65	79	48	67	64	60	8 D2	D2
5:00:00 PM	D11	D11	65	86	48	67	64	59	9 D3	D3
6:00:00 PM	D12	D12	63	81	48	66	63	59	10 D4	D4
7:00:00 PM	E1	D13	63	81	46	66	62	49	11 D5	D5
8:00:00 PM	E2	D14	63	83	44	65	62	55	12 D6	D6
9:00:00 PM	E3	D15	61	80	45	64	59	48	13 D7	D7
10:00:00 P	N8	N8	59	77	46	62	57	47	14 D8	D8
11:00:00 P	N9	N9	58	79	46	63	49	47	15 D9	D9
12:00:00 A	N1	N1	55	75	45	61	48	46	16 D10	D10
1:00:00 AM	N2	N2	53	74	45	58	48	46	17 D11	D11
2:00:00 AM	N3	N3	51	74	46	49	47	46	18 D12	D12
3:00:00 AM	N4	N4	56	82	46	61	48	47	19 E1	D13
4:00:00 AM	N5	N5	60	79	47	64	58	49	20 E2	D14
5:00:00 AM	N6	N6	62	79	47	66	60	50	21 E3	D15
6:00:00 AM	N7	N7	66	87	50	68	65	60	22 N8	N8
7:00:00 AM	D1	D1	66	84	48	68	65	60	23 N9	N9
24-hour			62	89	44	64	59	54		
Leq day	D		64							
Leq eve	E		62							
Leq night	N		60							
CNEL			68							
Leq day			D	63						
Leq night			N	60						
LDN			67							

		Leq	Lmax	Lmin	L(10)	L(50)	L(90)		
CNEL	DNL							CNEL	DNL
8:15:00 AM D2	D2	50	68	39	53	49	44	0 N1	N1
9:15:00 AM D3	D3	50	66	40	52	49	45	1 N2	N2
10:15:00 A D4	D4	52	71	39	54	50	47	2 N3	N3
11:15:00 A D5	D5	52	74	40	54	50	47	3 N4	N4
12:15:00 P D6	D6	51	75	41	53	49	46	4 N5	N5
1:15:00 PM D7	D7	50	70	41	51	48	45	5 N6	N6
2:15:00 PM D8	D8	50	65	41	52	49	47	6 N7	N7
3:15:00 PM D9	D9	52	75	42	54	50	48	7 D1	D1
4:15:00 PM D10	D10	51	70	43	53	51	49	8 D2	D2
5:15:00 PM D11	D11	51	73	41	53	50	46	9 D3	D3
6:15:00 PM D12	D12	50	63	40	52	49	45	10 D4	D4
7:15:00 PM E1	D13	52	80	37	52	48	42	11 D5	D5
8:15:00 PM E2	D14	46	62	34	49	45	40	12 D6	D6
9:15:00 PM E3	D15	48	72	34	51	44	38	13 D7	D7
10:15:00 P N8	N8	42	60	33	45	39	36	14 D8	D8
11:15:00 P N9	N9	41	62	32	45	37	35	15 D9	D9
12:15:00 A N1	N1	40	62	32	44	36	34	16 D10	D10
1:15:00 AM N2	N2	36	47	32	38	35	33	17 D11	D11
2:15:00 AM N3	N3	57	69	34	47	37	35	18 D12	D12
3:15:00 AM N4	N4	41	66	34	41	38	36	19 E1	D13
4:15:00 AM N5	N5	44	60	36	47	42	40	20 E2	D14
5:15:00 AM N6	N6	49	66	41	51	48	45	21 E3	D15
6:15:00 AM N7	N7	51	69	41	54	50	45	22 N8	N8
7:15:00 AM D1	D1	61	74	38	65	53	45	23 N9	N9
24-hour		52	80	32	50	46	42		
Leq day	D	53							
Leq eve	E	50							
Leq night	N	49							
CNEL		57							
Leq day	D	53							
Leq night	N	49							
LDN		56							

		Leq	Lmax	Lmin	L(10)	L(50)	L(90)		
CNEL	DNL							CNEL	DNL
8:30:00 AM D2	D2	63	81	43	65	63	61	0 N1	N1
9:30:00 AM D3	D3	62	79	46	64	62	60	1 N2	N2
10:30:00 A D4	D4	63	85	45	65	63	61	2 N3	N3
11:30:00 A D5	D5	63	82	48	65	63	61	3 N4	N4
12:30:00 P D6	D6	64	82	46	66	63	61	4 N5	N5
1:30:00 PM D7	D7	63	81	49	65	62	61	5 N6	N6
2:30:00 PM D8	D8	63	77	50	65	63	61	6 N7	N7
3:30:00 PM D9	D9	64	82	50	66	64	62	7 D1	D1
4:30:00 PM D10	D10	65	85	48	66	64	62	8 D2	D2
5:30:00 PM D11	D11	64	88	46	66	63	61	9 D3	D3
6:30:00 PM D12	D12	62	78	41	64	62	59	10 D4	D4
7:30:00 PM E1	D13	61	84	41	63	60	58	11 D5	D5
8:30:00 PM E2	D14	61	82	37	63	60	57	12 D6	D6
9:30:00 PM E3	D15	59	79	38	61	58	55	13 D7	D7
10:30:00 P N8	N8	62	88	39	60	56	51	14 D8	D8
11:30:00 P N9	N9	55	73	38	58	54	49	15 D9	D9
12:30:00 A N1	N1	51	71	37	54	50	39	16 D10	D10
1:30:00 AM N2	N2	50	74	37	52	44	39	17 D11	D11
2:30:00 AM N3	N3	48	70	37	51	46	39	18 D12	D12
3:30:00 AM N4	N4	53	74	38	56	51	41	19 E1	D13
4:30:00 AM N5	N5	59	81	41	61	58	53	20 E2	D14
5:30:00 AM N6	N6	63	79	47	65	63	60	21 E3	D15
6:30:00 AM N7	N7	64	77	47	66	64	62	22 N8	N8
7:30:00 AM D1	D1	65	85	46	66	64	62	23 N9	N9
24-hour		62	88	37	62	59	56		
Leq day	D	64							
Leq eve	E	61							
Leq night	N	59							
CNEL		67							
Leq day		D	63						
Leq night		N	59						
LDN		67							

		Leq	Lmax	Lmin	L(10)	L(50)	L(90)			
CNEL DNL								CNEL	DNL	
8:45:00 AM	D2	D2	54	82	36	55	45	41	0 N1	N1
9:45:00 AM	D3	D3	50	75	36	52	44	40	1 N2	N2
10:45:00 A	D4	D4	54	80	37	55	45	40	2 N3	N3
11:45:00 A	D5	D5	51	77	37	50	45	41	3 N4	N4
12:45:00 P	D6	D6	64	84	42	69	45	44	4 N5	N5
1:45:00 PM	D7	D7	45	65	37	48	44	41	5 N6	N6
2:45:00 PM	D8	D8	53	81	36	56	46	42	6 N7	N7
3:45:00 PM	D9	D9	49	68	39	52	47	44	7 D1	D1
4:45:00 PM	D10	D10	51	73	37	55	45	40	8 D2	D2
5:45:00 PM	D11	D11	51	78	36	54	44	40	9 D3	D3
6:45:00 PM	D12	D12	50	68	34	54	44	40	10 D4	D4
7:45:00 PM	E1	D13	43	65	34	48	38	36	11 D5	D5
8:45:00 PM	E2	D14	46	72	33	47	37	36	12 D6	D6
9:45:00 PM	E3	D15	39	60	34	40	36	35	13 D7	D7
10:45:00 P	N8	N8	36	51	33	37	35	35	14 D8	D8
11:45:00 P	N9	N9	36	45	33	37	35	34	15 D9	D9
12:45:00 A	N1	N1	36	46	31	37	35	33	16 D10	D10
1:45:00 AM	N2	N2	37	41	33	38	36	35	17 D11	D11
2:45:00 AM	N3	N3	38	44	35	39	38	36	18 D12	D12
3:45:00 AM	N4	N4	38	44	35	39	38	37	19 E1	D13
4:45:00 AM	N5	N5	46	65	36	48	46	40	20 E2	D14
5:45:00 AM	N6	N6	56	72	41	62	46	44	21 E3	D15
6:45:00 AM	N7	N7	51	68	36	55	44	40	22 N8	N8
7:45:00 AM	D1	D1	52	75	36	57	47	40	23 N9	N9
24-hour			53	84	31	49	42	39		
Leq day	D		55							
Leq eve	E		44							
Leq night	N		48							
CNEL			56							
Leq day		D	54							
Leq night		N	48							
LDN			56							

		Leq	Lmax	Lmin	L(10)	L(50)	L(90)		
CNEL	DNL							CNEL	DNL
9:00:00 AM D3	D3	64	88	47	66	63	59	0 N1	N1
10:00:00 A D4	D4	63	79	47	66	63	58	1 N2	N2
11:00:00 A D5	D5	65	82	48	67	64	61	2 N3	N3
12:00:00 P D6	D6	65	81	48	67	64	61	3 N4	N4
1:00:00 PM D7	D7	65	84	47	67	64	61	4 N5	N5
2:00:00 PM D8	D8	65	81	48	67	65	60	5 N6	N6
3:00:00 PM D9	D9	66	92	48	68	65	61	6 N7	N7
4:00:00 PM D10	D10	66	85	47	68	66	62	7 D1	D1
5:00:00 PM D11	D11	66	86	47	68	66	62	8 D2	D2
6:00:00 PM D12	D12	66	85	47	68	65	60	9 D3	D3
7:00:00 PM E1	D13	65	86	46	67	64	59	10 D4	D4
8:00:00 PM E2	D14	65	85	45	66	64	58	11 D5	D5
9:00:00 PM E3	D15	64	81	44	67	64	58	12 D6	D6
10:00:00 P N8	N8	62	78	43	66	61	47	13 D7	D7
11:00:00 P N9	N9	58	77	43	62	49	45	14 D8	D8
12:00:00 A N1	N1	56	77	42	62	46	44	15 D9	D9
1:00:00 AM N2	N2	53	76	42	60	45	44	16 D10	D10
2:00:00 AM N3	N3	52	76	41	56	44	43	17 D11	D11
3:00:00 AM N4	N4	56	80	41	62	46	44	18 D12	D12
4:00:00 AM N5	N5	59	79	42	63	54	44	19 E1	D13
5:00:00 AM N6	N6	63	82	44	66	63	58	20 E2	D14
6:00:00 AM N7	N7	66	84	50	68	65	57	21 E3	D15
7:00:00 AM D1	D1	65	84	45	68	64	61	22 N8	N8
8:00:00 AM D2	D2	65	82	44	68	64	58	23 N9	N9
24-hour		64	92	41	65	60	55		
Leq day	D	65							
Leq eve	E	65							
Leq night	N	60							
CNEL		68							
Leq day	D	65							
Leq night	N	60							
LDN		68							

Attachment B

Construction Noise Prediction Worksheets

VS_A4OLY_month_VDMHosp

Ventura Steel Alternative Site Noise and Vibration Technical Memorandum

RCNM-emulator_VCM-Alts_VS_PEAmtgd1_mcs090325.xlsx

VS_CSte_month_179OttawaSt

[illegible]

Ventura Steel Alternative Site Noise and Vibration Technical Memorandum

[illegible][illegible]

Ventura Steel Alternative Site Noise and Vibration Technical Memorandum

RCNM-emulator_VCM-Alts_VS_PEAmtgd1_mcs090325.xlsx

VS_CSte_month_VDMHosp

[illegible]

RCNM-emulator_VCM-Alts_VS_PEAmtgd1_mcs090325.xlsx

Attachment C

Operation Noise Prediction Model Inputs

Area Sources

Name	Sel.	M.	ID	Result. PWL			Result. PWL''			Lw / Li Type	Value	norm. dB(A)	Correction			Sound Reduction		Attenuatio			K0	Freq. (Hz)	Direct.
				Day (dBA)	Evening (dBA)	Night (dBA)	Day (dBA)	Evening (dBA)	Night (dBA)				Day dB(A)	Evening dB(A)	Night dB(A)	R	Area (ft²)	Day (min)	Special (min)	Night (min)			
transformer			XFMR	85.4	85.4	85.4	75.2	75.2	75.2	Lw	SUBT		0	0	0	0					0	(none)	
transformer			XFMR	85.4	85.4	85.4	75.2	75.2	75.2	Lw	SUBT		0	0	0	0					0	(none)	
transformer			XFMR	85.4	85.4	85.4	76.2	76.2	76.2	Lw	SUBT		0	0	0	0					0	(none)	
VFD building			VFDB	85	85	85	70.3	70.3	70.3	Lw		75.5	0	0	0	0					0	(none)	
VRU area			VRUA	90	90	90	75.2	75.2	75.2	Lw		80.5	0	0	0	0					0	(none)	
gas compressor engine cooler			GCEC	90.7	90.7	90.7	82	82	82	Lw	GEJWC		0	0	0	0					0	(none)	
gas compressor engine cooler			GCEC	90.7	90.7	90.7	82	82	82	Lw	GEJWC		0	0	0	0					0	(none)	
new comp gas engine air intake (silenced)			NCGEAI	91	91	91	89.1	89.1	89.1	Lw		81.5	0	0	0	0					0	(none)	
new comp gas engine air intake (silenced)			NCGEAI	91	91	91	89.1	89.1	89.1	Lw		81.5	0	0	0	0					0	(none)	
electric motor and blower inlet and outlet			EMBIO	95.6	95.6	95.6	87.3	87.3	87.3	Lw	CEMBI++CEMBO		0	0	0	0					0	(none)	
electric motor and blower inlet and outlet			EMBIO	95.6	95.6	95.6	87.3	87.3	87.3	Lw	CEMBI++CEMBO		0	0	0	0					0	(none)	
gas discharge cooler			GDC	92.6	92.6	92.6	78.7	78.7	78.7	Lw	DGAC		0	0	0	0					0	(none)	
gas discharge cooler			GDC	92.6	92.6	92.6	78.7	78.7	78.7	Lw	DGAC		0	0	0	0					0	(none)	
gas discharge cooler			GDC	92.6	92.6	92.6	78.7	78.7	78.7	Lw	DGAC		0	0	0	0					0	(none)	
gas discharge cooler			GDC	92.6	92.6	92.6	78.7	78.7	78.7	Lw	DGAC		0	0	0	0					0	(none)	
filter separation area			FSA	80	80	80	60.7	60.7	60.7	Lw		70.5	0	0	0	0					0	(none)	
new comp bldg ridge vent			NCBRV	91.3	91.3	91.3	74.7	74.7	74.7	Lw	NCBARV		0	0	0	0					0	(none)	
new comp bldg roof			NCBR	98.6	98.6	98.6	69.1	69.1	69.1	Lw	NCBRP		0	0	0	0					0	(none)	
new comp bldg fan port			NCBFP	76.6	76.6	76.6	76.1	76.1	76.1	Lw	NCBVFP		0	0	0	0					0	(none)	
new comp bldg fan port			NCBFP	76.6	76.6	76.6	76.1	76.1	76.1	Lw	NCBVFP		0	0	0	0					0	(none)	
new comp bldg fan port			NCBFP	76.6	76.6	76.6	76.1	76.1	76.1	Lw	NCBVFP		0	0	0	0					0	(none)	
new comp bldg fan port			NCBFP	76.6	76.6	76.6	76.1	76.1	76.1	Lw	NCBVFP		0	0	0	0					0	(none)	
new comp bldg fan port			NCBFP	76.6	76.6	76.6	76.1	76.1	76.1	Lw	NCBVFP		0	0	0	0					0	(none)	
new comp bldg fan port			NCBFP	76.6	76.6	76.6	76.1	76.1	76.1	Lw	NCBVFP		0	0	0	0					0	(none)	

Vertical Area Sources

Name	Sel.	M.	ID	Result. PWL			Result. PWL"			Lw / Li Type	Value	norm. dB(A)	Correction			Sound Reduction		Attenuatio Operating Time			K0 (dB)	Freq. (Hz)	Direct.
				Day (dBA)	Evening (dBA)	Night (dBA)	Day (dBA)	Evening (dBA)	Night (dBA)				Day dB(A)	Evening dB(A)	Night dB(A)	R	Area (ft²)	Day (min)	Special (min)	Night (min)			
new comp bldg roll-up door			NCBRD	78.4	78.4	78.4	65.1	65.1	65.1	Lw	NCBRUD		0	0	0						3		(none)
new comp bldg long wall			NCBLW	97.5	97.5	97.5	68.9	68.9	68.9	Lw	NCBLWP		0	0	0						3		(none)
new comp bldg long wall			NCBLW	97.5	97.5	97.5	68.9	68.9	68.9	Lw	NCBLWP		0	0	0						3		(none)
new comp bldg short wall			NCBSW	92.6	92.6	92.6	68.4	68.4	68.4	Lw	NCBSWP		0	0	0						3		(none)
new comp bldg short wall			NCBSW	92.6	92.6	92.6	68.4	68.4	68.4	Lw	NCBSWP		0	0	0						3		(none)
new comp bldg pers door on stairs			NCBPDOS	67.1	67.1	67.1	62.2	62.2	62.2	Lw	NCBPAD		0	0	0						3		(none)
new comp bldg pers door			NCBPD	67.1	67.1	67.1	62.2	62.2	62.2	Lw	NCBPAD		0	0	0						3		(none)
new comp bldg pers door			NCBPD	67.1	67.1	67.1	62.1	62.1	62.1	Lw	NCBPAD		0	0	0						3		(none)
new comp bldg pers door on stairs			NCBPDOS	67.1	67.1	67.1	62.2	62.2	62.2	Lw	NCBPAD		0	0	0						3		(none)
new comp bldg pers door on stairs			NCBPDOS	67.1	67.1	67.1	62.2	62.2	62.2	Lw	NCBPAD		0	0	0						3		(none)
new comp bldg pers door			NCBPD	67.1	67.1	67.1	62.2	62.2	62.2	Lw	NCBPAD		0	0	0						3		(none)
new comp bldg window			NCBW	66.6	66.6	66.6	59.2	59.2	59.2	Lw	NCBWIN		0	0	0						3		(none)
new comp bldg window			NCBW	66.6	66.6	66.6	59.1	59.1	59.1	Lw	NCBWIN		0	0	0						3		(none)
new comp bldg window			NCBW	66.6	66.6	66.6	59.1	59.1	59.1	Lw	NCBWIN		0	0	0						3		(none)
new comp bldg window			NCBW	66.6	66.6	66.6	59.1	59.1	59.1	Lw	NCBWIN		0	0	0						3		(none)
new comp bldg window			NCBW	66.6	66.6	66.6	59.1	59.1	59.1	Lw	NCBWIN		0	0	0						3		(none)
new comp bldg window			NCBW	66.6	66.6	66.6	59.1	59.1	59.1	Lw	NCBWIN		0	0	0						3		(none)
new comp bldg window			NCBW	66.6	66.6	66.6	59.1	59.1	59.1	Lw	NCBWIN		0	0	0						3		(none)
new comp bldg window			NCBW	66.6	66.6	66.6	59.1	59.1	59.1	Lw	NCBWIN		0	0	0						3		(none)
new comp bldg window			NCBW	66.6	66.6	66.6	59.1	59.1	59.1	Lw	NCBWIN		0	0	0						3		(none)

Point Sources

Name	Sel.	M.	ID	Result: PWL			Lw / Li Type	Value	norm. dB(A)	Correction			Sound Reduction R	Area (ft²)	Attenuation: Operating Time			K0 (dB)	Freq. (Hz)	Direct.	Height (ft)	Coordinates			
				Day (dBA)	Evening (dBA)	Night (dBA)				Day dB(A)	Evening dB(A)	Night dB(A)			Day (min)	Special (min)	Night (min)					X (ft)	Y (ft)	Z (ft)	
Trane 5-ton HVAC unit			ACC1	87	87	87	Lw	ACCS		0	0	0				-17.1			0		Chimney (v	5 r	6173173.9	1940385.11	155
Trane 5-ton HVAC unit			ACC1	87	87	87	Lw	ACCS		0	0	0				-17.1			0		Chimney (v	5 r	6173179.76	1940385.11	155
gas engine exhaust stack terminus			GEXT	99	99	99	Lw	GEXH		0	0	0							0		Chimney (v	0.25 g	6172187.34	1940442.14	210.25
gas engine exhaust stack terminus			GEXT	99	99	99	Lw	GEXH		0	0	0							0		Chimney (v	0.25 g	6172222.31	1940439.56	210.25

Buildings

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	
							Begin	
							(ft)	
new compressor building	+		NCBLDG		0	0.1	53	r
new warehouse building	+		NWBLDG		0	0.1	25	r
new office building	+		NOBLDG		0	0.1	14	r
PDC building	+		PDCBLDG		0	0.1	20	r

Cylinders

Name	Sel.	M.	ID	Absorption	Center	Radius	Height	
					x			
					(ft)	y		
						(ft)		
							(ft)	
blowdown stack			BDS	0.1	6172674	1940443	4.5	62 r
gas engine exhaust stack			GEES	0.1	6172188	1940442	3.12	60 r
gas engine exhaust stack			GEES	0.1	6172222	1940439	3.12	60 r
Offsite Water			OFW	0.1	6172845	1938923	57.5	40 r
Offsite Water			OFW	0.1	6172650	1938870	57.5	40 r

3D Reflectors

Name	Sel.	M.	ID	Absorption	Height	
				left	right	Begin
						(ft)
fan port hood			FPH	0.1		12.25 r
fan port hood			FPH	0.1		12.25 r
fan port hood			FPH	0.1		12.25 r
fan port hood			FPH	0.1		12.25 r
fan port hood			FPH	0.1		12.25 r
fan port hood			FPH	0.1		12.25 r

Barriers

Name	Sel.	M.	ID	Absorption left	right	Z-Ext. (ft)	Cantilever horz. (ft)	vert. (ft)	Height Begin (ft)
8ft masonry security wall			MSW	0.1	0.1				8 r
8ft masonry security wall			MSW	0.1	0.1				8 r
8ft masonry security wall			MSW	0.1	0.1				8 r
8ft masonry security wall			MSW	0.1	0.1				8 r
8ft masonry security wall			MSW	0.1	0.1				8 r

Sound Levels (local)

Name	ID	Type	1/3 Oktave Spectrum (dB)											lin	Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000 A			
air-cooled condenser (chiller) 5-ton	ACCS	Lw		61.7	61.7	61.7	65.6	68.1	65.8	59.8	58.4	56.1	69.9	73.1	Bryant 8H16-060 no sound blanket
gas engine jacket water cooler	GEJWC	Lw		83	96	94	91	88	85	82	78	73	90.7	99.6	client data
gas engine exhaust (silenced)	GEXH	Lw	A	37	68	79	88	90	93	94	92	80	99	102.5	client data
comp electric motor blower outlet	CEMBO	Lw	A	57	70	75	87	87	88	86	84	73	93.7	101.9	client data
comp electric motor blower inlet	CEMBI	Lw	A	50	63	71	84	83	84	85	83	73	91	97.1	client data
discharge gas air cooler	DGAC	Lw	A	46	72	80	84	87	87	85	81	74	92.6	101.7	client data
substation transformer	SUBT	Lw	A	43	62	74	76	82	79	75	70	61	85.4	94.1	EEI EPPENG 4.2.5
new compressor bldg acoustic ridge vent	NCBARV	Lw	A	59	66	73	83	81	85	85	83	82	91.3	100.8	calcd
new compressor bldg vent fan port	NCBVFP	Lw	A	58	58	67	73	67	64	65	66	67	76.6	97.9	calcd
new compressor bldg window	NCBWIN	Lw	A	53	53	57	62	58	59	58	44	40	66.6	92.7	calcd
new compressor bldg roll-up door	NCBRUD	Lw	A	63	63	67	75	73	69	56	48	43	78.4	102.7	calcd
new compressor bldg pers access door	NCBPAD	Lw	A	51	51	53	63	60	59	59	49	44	67.1	90.7	calcd
new compressor bldg roof panel	NCBRP	Lw	A	89	90	93	95	85	77	68	64	60	98.6	128.7	calcd
new compressor bldg short wall panel	NCBSWP	Lw	A	83	84	87	89	78	71	62	58	54	92.6	122.7	calcd
new compressor bldg long wall panel	NCBLWP	Lw	A	88	88	92	94	83	75	67	63	59	97.5	127.7	calcd