1845 Oak Road Residential Development

Noise Impact Study

City of Simi Valley, CA

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Sound Solutions for Planning and Design

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF EXHIBITS

LIST OF TABLES

1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

This noise assessment was prepared to evaluate the potential noise impacts for the project study area and to recommend noise mitigation measures, if necessary, to minimize the potential noise impacts. The assessment was conducted and compared to the noise standards set-forth by the Federal, State and Local agencies. Consistent with the City's Noise Guidelines, the project must demonstrate compliance to the applicable noise criterion as outlined within the City's Noise Element and Municipal Code.

The following is provided in this report:

- A description of the study area and the proposed project
- Information regarding the fundamentals of noise
- A description of the local noise guidelines and standards
- An analysis of traffic noise impacts to and from the project site
- An analysis of construction noise impacts

1.2 Site Location and Study Area

The project site is located at 1845 Oak Road, east of the Yosemite Avenue and Los Angeles Avenue intersection in the City of Simi Valley, California, as shown in Exhibit A. The project site lot is designated as general commercial and medium-density residential. Land uses surrounding the site include commercial and high-density residential to the west, medium-density and mobile home to the south, commercial and very high-density residential to the east, and commercial and high-density residential to the north.

1.3 Proposed Project Description

The project proposes to develop 65 homes on 3.61 acres site. Plan 1 will have 5 units with 2 bedrooms and 2.5 bathrooms (1,110 SF). Plan 2 will have 2 units with 3 bedrooms and 3 bathrooms (1,385 SF). Plan 3 will have 28 units with 3 bedrooms and 2.5 bathrooms (1,525 SF). Plan 4 will have 30 units with 4 bedrooms and 3.5 bathrooms (1,710 SF). There will be 164 parking spaces (2.5 spaces per home). The site plan used for this project, provided by City Ventures, is shown in Exhibit B.

This study assesses the traffic noise to and from the project site and compares the results to the applicable City noise standards. In addition, the study reviews noise generated by construction activities.

Construction activities within the Project area will consist of on-site demolition, site prep, grading, building, paving, and architectural coating.

Exhibit A

Location Map

Exhibit B
Site Plan

Project Summary

Total Site Area: ± 3.61 Acres

Total Units: 65 Homes

Density: 18.0 Homes per Acre

Parking:
Provided: 164 Spaces (2.52 spaces per home)
- Garage: 130 Spaces
- Driveway: 14 Spaces (1 space/drive)
- Head In: 6 Spaces (9' x 18')
- Parallel: 14 Spaces (9' x 22')

Notes:
1. Site plan is for conceptual purposes only.
2. Site plan must be reviewed by planning, building, and fire departments for code compliance.
3. Base information per civil engineer.
4. Civil engineer to verify all setbacks and grading information.
5. Building Footprints might change due to the final design elevation style.
6. Open space area is subject to change due to the balcony design of the elevation.
7. Building setbacks are measured from property lines to building foundation lines.

City Ventures

CONCEPTUAL SITE PLAN
OAK ROAD AND EAST LOS ANGELES AVE
SIMI VALLEY, CA

0 20 40 80

CONCEPT STUDY

 | 2021373 | 08-29-22

ARCHITECTS . PLANNERS . DESIGNERS
WHA.
ORANGE COUNTY . LOS ANGELES . BAY AREA

2.0 Fundamentals of Noise

This section of the report provides basic information about noise and presents some of the terms used within the report.

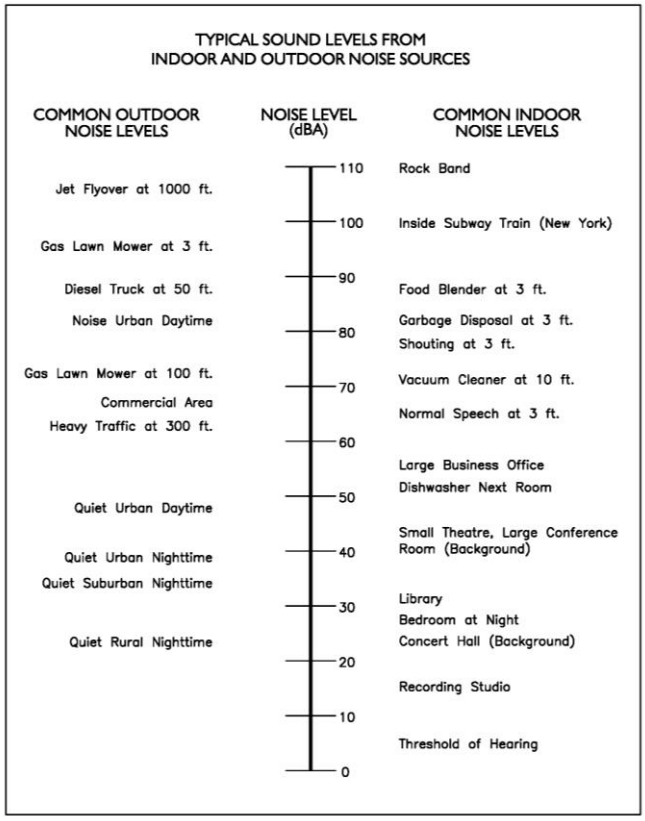
2.1 Sound, Noise and Acoustics

Sound is a disturbance created by a moving or vibrating source and is capable of being detected by the hearing organs. Sound may be thought of as mechanical energy of a moving object transmitted by pressure waves through a medium to a human ear. For traffic, or stationary noise, the medium of concern is air. *Noise* is defined as sound that is loud, unpleasant, unexpected, or unwanted.

2.2 Frequency and Hertz

A continuous sound is described by its *frequency* (pitch) and its *amplitude* (loudness). Frequency relates to the number of pressure oscillations per second. Low-frequency sounds are low in pitch (bass sounding) and high-frequency sounds are high in pitch (squeak). These oscillations per second (cycles) are commonly referred to as Hertz (Hz). The human ear can hear from the bass pitch starting out at 20 Hz all the way to the high pitch of 20,000 Hz.

Exhibit C: Typical A-Weighted Noise Levels



2.3 Sound Pressure Levels and Decibels

The *amplitude* of a sound determines it loudness. The loudness of sound increases or decreases as the amplitude increases or decreases. Sound pressure amplitude is measure in units of micro-Newton per square inch meter (N/m2), also called micro-Pascal (µPa). One µPa is approximately one hundred billionths (0.00000000001) of normal atmospheric pressure. Sound pressure level (SPL or L_p) is used to describe in logarithmic units the ratio of actual sound pressures to a reference pressure squared. These units are called decibels abbreviated dB. Exhibit C illustrates references sound levels for different noise sources.

2.4 Addition of Decibels

Because decibels are on a logarithmic scale, sound pressure levels cannot be added or subtracted by simple plus or minus addition. When two sounds or equal SPL are combined, they will produce an SPL 3 dB greater than the original single SPL. In other words, sound energy must be doubled to produce a 3 dB increase. If two sounds differ by approximately 10 dB, the higher sound level is the predominant sound.

2.5 Human Response to Changes in Noise Levels

In general, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, (A-weighted scale) and it perceives a sound within that range as being more intense than a sound with a higher or lower frequency with the same magnitude. For purposes of this report as well as with most environmental documents, the A-scale weighting is typically reported in terms of A-weighted decibel (dBA). Typically, the human ear can barely perceive the change in noise level of 3 dB. A change in 5 dB is readily perceptible, and a change in 10 dB is perceived as being twice or half as loud. As previously discussed, a doubling of sound energy results in a 3 dB increase in sound, which means that a doubling of sound energy (e.g. doubling the volume of traffic on a highway) would result in a barely perceptible change in sound level.

Changes in Intensity Level, dBA	Changes in Apparent Loudness
1	Not perceptible
3	Just perceptible
5	Clearly noticeable
10	Twice (or half) as loud

https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm

2.6 Noise Descriptors

Noise in our daily environment fluctuates over time. Some noise levels occur in regular patterns, others are random. Some noise levels are constant while others are sporadic. Noise descriptors were created to describe the different time-varying noise levels.

A-Weighted Sound Level: The sound pressure level in decibels as measured on a sound level meter using the A-weighted 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 response of the human ear. A numerical method of rating human judgment of loudness.

Ambient Noise Level: The composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Community Noise Equivalent Level (CNEL): The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five (5) decibels to sound levels in the evening from 7:00 to 10:00 PM and after addition of ten (10) decibels to sound levels in the night before 7:00 AM and after 10:00 PM.

Decibel (dB): A unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micro-pascals.

dB(A): A-weighted sound level (see definition above).

Equivalent Sound Level (LEQ): The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time varying noise level. The energy average noise level during the sample period.

Habitable Room: Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms and similar spaces.

L(n): The A-weighted sound level exceeded during a certain percentage of the sample time. For example, L10 in the sound level exceeded 10 percent of the sample time. Similarly L50, L90 and L99, etc.

Noise: *A*ny unwanted sound or sound which is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. The State Noise Control Act defines noise as "...excessive undesirable sound...".

Outdoor Living Area: Outdoor spaces that are associated with residential land uses typically used for passive recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and, outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

Percent Noise Levels: See L(n).

Sound Level (Noise Level): The weighted sound pressure level obtained by use of a sound level meter having a standard frequency-filter for attenuating part of the sound spectrum.

Sound Level Meter: An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement and determination of noise and sound levels.

Single Event Noise Exposure Level (SENEL): The dB(A) level which, if it lasted for one second, would produce the same A-weighted sound energy as the actual event.

2.7 Traffic Noise Prediction

Noise levels associated with traffic depends on a variety of factors: (1) volume of traffic, (2) speed of traffic, (3) auto, medium truck (2–3 axle) and heavy truck percentage (4 axle and greater), and sound propagation. The greater the volume of traffic, higher speeds and truck percentages equate to a louder volume in noise. A doubling of the Average Daily Traffic (ADT) along a roadway will increase noise levels by approximately 3 dB; reasons for this are discussed in the sections above.

2.8 Sound Propagation

As sound propagates from a source it spreads geometrically. Sound from a small, localized source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates at a rate of 6 dB per doubling of distance. The movement of vehicles down a roadway makes the source of the sound appear to propagate from a line (i.e., line source) rather than a point source. This line source results in the noise propagating from a roadway in a cylindrical spreading versus a spherical spreading that results from a point source. The sound level attenuates for a line source at a rate of 3 dB per doubling of distance.

As noise propagates from the source, it is affected by the ground and atmosphere. Noise models use hard site (reflective surfaces) and soft site (absorptive surfaces) to help calculate predicted noise levels. Hard site conditions assume no excessive ground absorption between the noise source and the receiver. Soft site conditions such as grass, soft dirt or landscaping attenuate noise at a rate of 1.5 dB per doubling of distance. When added to the geometric spreading, the excess ground attenuation results in an overall noise attenuation of 4.5 dB per doubling of distance for a line source and 7.5 dB per doubling of distance for a point source.

Research has demonstrated that atmospheric conditions can have a significant effect on noise levels when noise receivers are located 200 feet from a noise source. Wind, temperature, air humidity and turbulence can further impact have far sound can travel.

3.0 Ground-Borne Vibration Fundamentals

3.1 Vibration Descriptors

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

Several different methods are used to quantify vibration amplitude.

PPV – Known as the peak particle velocity (PPV) which is the maximum instantaneous peak in vibration velocity, typically given in inches per second.

RMS – Known as root mean squared (RMS) can be used to denote vibration amplitude

VdB – A commonly used abbreviation to describe the vibration level (VdB) for a vibration source.

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Outdoor sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration. To counter the effects of ground-borne vibration, the Federal Transit Administration (FTA) has published guidance relative to vibration impacts. According to the FTA, fragile buildings can be exposed to ground-borne vibration levels of 0.3 inches per second without experiencing structural damage.

There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation.

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be

effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 Regulatory Setting

The proposed project is located in the City of Simi Valley and noise regulations are addressed through the efforts of various federal, state and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Publicize noise emission standards for interstate commerce
- Assist state and local abatement efforts
- Promote noise education and research

The Federal Office of Noise Abatement and Control (ONAC) originally was tasked with implementing the Noise Control Act. However, it was eventually eliminated leaving other federal agencies and committees to develop noise policies and programs. Some examples of these agencies are as follows: The Department of Transportation (DOT) assumed a significant role in noise control through its various agencies. The Federal Aviation Agency (FAA) is responsible to regulate noise from aircraft and airports. The Federal Highway Administration (FHWA) is responsible to regulate noise from the interstate highway system. The Occupational Safety and Health Administration (OSHA) is responsible for the prohibition of excessive noise exposure to workers.

The federal government advocates that local jurisdiction use their land use regulatory authority to arrange new development in such a way that “noise sensitive” uses are either prohibited from being constructed adjacent to a highway or, or alternatively that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation source, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

4.2 State Regulations

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the “Land Use Compatibility for Community Noise Environments Matrix.” The matrix allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

The State of California has established noise insulation standards as outlined in Title 24 and the Uniform Building Code (UBC) which in some cases requires acoustical analyses to outline exterior noise levels and to ensure interior noise levels do not exceed the interior threshold. The State mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan.

4.3 City of Simi Valley Noise Regulations

The City of Simi Valley outlines its noise regulations and standards within the Noise Element from the General Plan and the Noise Ordinance from the Municipal Code.

City of Simi Valley General Plan

The Simi Valley General Plan describes the major noise sources and defines the goals and policies to include noise control in the planning process to maintain compatible land uses with acceptable environmental noise levels. The noise element outlines the land use compatibility guidelines published 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 as illustrated in Exhibit D (Table N-1 from General Plan).

Exhibit D: Land Use Compatibility Guidelines

Table N-1 Land Use Compatibility for Community Noise Sources

Land Use Category	Noise Exposure (dBA, CNEL) 55	60 75	65 80	70
Residential—Low-Density Single Family, Duplex, Mobile Homes				
Residential—Multiple-Family				
Transient Lodging—Motels, Hotels				
Institutional—Schools, Libraries, Churches, Hospitals, Nursing Homes				
Performance Venues—Auditoriums, Concert Halls, Amphitheatres				
Outdoor Sports Activities—Sports Arena, Outdoor Spectator Sports				
Outdoor Recreation—Playgrounds, Neighborhood Parks				
Outdoor Recreation/Activities—Golf Courses, Riding Stables, Water Recreation, Cemeteries				
Office Buildings—Business Commercial and Professional				
Industrial—Manufacturing, Utilities, Agriculture				

SOURCE: 2002 General Plan Guidelines, State Office of Planning and Research

- **Normally Acceptable:** Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.
- **Conditionally Acceptable:** New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but closed windows and fresh air supply or air conditioning will normally suffice.
- **Normally Unacceptable:** New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
- **Clearly Unacceptable:** New construction or development should generally not be undertaken.

In addition to the Land Use Compatibility Matrix, the City's interior and exterior noise standards are identified in Table N-2 (Interior and Exterior Noise Standards), which represents specific noise standards for interior and exterior noise areas that are considered acceptable based on noise levels generated by adjacent mobile sources, such as automobiles, trucks, and trains. The Simi Valley Noise Ordinance governs noise from non-transportation sources and does not specify maximum noise levels, but identifies various noise generators, such as construction equipment amplification and mechanical devices, and provides certain restrictions on these generators.

Exhibit E: Interior and Exterior Noise Standards

Table N-2 Interior and Exterior Noise Standards

Land Use Categories		CNEL (LDN)	
Categories	**Uses**	**Interior[a]**	**Exterior[b]**
Residential	Single Family, Duplex, Multiple Family	45[c]	63
	Mobile Home	45[d]	63[d]
Commercial/Institutional	Hotel, Motel, Transient Lodging	45	—
	Hospitals, School Classroom	45	
	Church, Library	45	

SOURCE: Simi Valley General Plan, 1988

a. Includes bathrooms, toilets, closets, corridors
b. Limited to the following:
   - Private yard of single-family residence
   - Multi-family private patio or balcony that is served by a means of exit from inside the dwelling
   - Mobile home park
c. Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided as of Chapter 12, Section 1205 of UBC.
d. Exterior noise level should be such that interior noise level will not exceed 45 CNEL.

Goals, Policies, and Implementation Measures

Policies, goals and implementation program measures from the Noise Element that would mitigate potential impacts on noise include the following.

Goal N-1: Land Use Compatibility. Land use conflicts between various noise sources and other human activities are minimized.

Policies

N-1.1 **Noise Standards**. Require noise attenuation for all development where the projected exterior and interior noise level exceed those shown in Table N-1 (Interior and Exterior Noise Standards), to the extent feasible. (*Imp A-1, A-2, LU-18, N-1*)

N-1.2 **Noise between Adjacent Uses**. Require that mixed-use and multi-family residential developments demonstrate that the design of the structure will adequately isolate noise between adjacent uses (orientation, window insulation, common wall separation, common floor/ceilings separation, etc.). (*Imp A-1, A-2, LU-18, N-1, N-2*)

N-1.3 **Mixed-Use Development Standards**. Require, whenever physically possible, new mixed-use developments to locate loading areas, parking lots, driveways, trash enclosures, mechanical equipment, and other noise sources away from the residential portion of the development, and apply physical construction standards (equipment, construction standards) to reduce noise between uses. *(Imp A-1, A-2, LU-18, N-1)*

N-1.4 **Noise Attenuation Measures**. Ensure that all new development provides adequate sound insulation or other protection from existing and anticipated noise sources. *(Imp A-1, A-2, LU-18, N-2)*

N-1.5 **Sensitive Receptors**. Incorporate ambient noise level considerations into land use decisions involving schools, hospitals, and similar noise-sensitive uses. *(Imp A-1, A-2, LU-18, N-2)*

Goal N-2:. **Sensitive Receptors.** Motor vehicle traffic and railroad noise impacts on sensitive noise receptors are minimized.

Policies

N-2.1 **State Motor Vehicle Noise Standards**. Encourage the enforcement of state motor vehicle noise standards for cars, trucks, and motorcycles through coordination with the California Highway Patrol and Simi Valley Police Department. (*Imp A-1, A-2, LU-18, N-3*)

N-2.2 **Roadway Noise Sensitivity Measures**. Ensure the employment of noise attenuation measures in the design of roadway improvement projects consistent with funding capability. Support efforts by the California Department of Transportation and others to provide for acoustical protection of existing noise-sensitive land uses affected by these projects. (*Imp A-1, A-2, LU-18, N-3*)

N-2.3 **Noise Attenuation along Major Arterials and Railroad Tracks**. Require the use of walls and berms in the design of residential and other noise-sensitive land uses that are adjacent to the 118 Freeway, major arterials, and railroad tracks. (*Imp A-1, A-2, LU-18, N-1*).

N-2.4 **Noise Studies for New Development**. Require the preparation of noise studies, as deemed necessary by the Department of Environmental Services, for new development (especially residential projects) along the freeway corridor, major thoroughfares, and railroad tracks to ensure that adequate sound attenuation from these noise sources is provided. (*Imp A-1, A-2, LU-18, N-2*)

Goal N-3: Stationary Noise. Non-transportation-related noise impacts on sensitive noise receptors are minimized.

Policies

N-3.1 **Protection from Stationary Noise Sources**. Continue to enforce interior and exterior noise standards to ensure that sensitive noise receptors are not exposed to excessive noise levels from stationary noise sources, such as machinery, equipment, fans, and air conditioning equipment. (*Imp A-1, A-2, LU-12, LU-18*)

N-3.2 **Regulation of Sound-Amplifying Equipment**. Continue to regulate the use of sound-amplifying equipment. (*Imp A-1, A-2, LU-18, N-1*)

N-3.3 **Enforcement of Hours of Construction Activity**. Continue to enforce restrictions on hours of construction activity so as to minimize the impacts of noise and vibration from the use of trucks, heavy drilling equipment, and other heavy machinery to adjacent uses, particularly in residential areas. (*Imp A-1, A-2, LU-18, N-1*)

City of Simi Valley Municipal Code – Chapter 16: Noise

Section 5-16.02 of the City's Municipal Code regulates unlawful public nuisances describing various noise generators, such as construction equipment, amplification and mechanical devices, and provides certain restrictions on these generators

Section 5-16.02 (i) establish that the erection, excavation, demolition, alteration, construction, or repair of any structure or building, other than between the hours of 7:00 a.m. and 7:00 p.m., except when the urgent necessity, in the interests of the public health and safety, requires and the City Engineer consents thereto. When substantial loss or inconvenience would result to any party denied permission to do so, the City Engineer may grant permission for such work on any day or at such times within such hours and on such conditions as he or she shall fix in accordance with his or her findings.

5.0 Study Method and Procedure

The following section describes the noise modeling procedures and assumptions used for this assessment.

5.1 Noise Measurement Procedure and Criteria

Noise measurements are taken to determine the existing noise levels. A noise receiver or receptor is any location in the noise analysis in which noise might produce an impact. The following criteria are used to select measurement locations and receptors:

- Locations expected to receive the highest noise impacts, such as the first row of houses
- Locations that are acoustically representative and equivalent of the area of concern
- Human land usage
- Sites clear of major obstruction and contamination

MD conducted the sound level measurements in accordance to the County's and Caltrans (TeNS) technical noise specifications. All measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA). The following gives a brief description of the Caltrans Technical Noise Supplement procedures for sound level measurements:

- Microphones for sound level meters were placed 5-feet above the ground for all measurements
- Sound level meters were calibrated (Larson Davis CAL 200) before and after each measurement
- Following the calibration of equipment, a windscreen was placed over the microphone
- Frequency weighting was set on "A" and slow response
- Results of the long-term noise measurements were recorded on field data sheets
- During any short-term noise measurements, any noise contaminations such as barking dogs, local traffic, lawn mowers, or aircraft fly-overs were noted
- Temperature and sky conditions were observed and documented

5.2 Noise Measurement Locations

Noise monitoring locations were selected based on the nearest sensitive receptors relative to the proposed noise sources impacting the area. Two (2) short-term 15-min noise measurement were conducted at or near the project site and are illustrated in Exhibit F. Appendix A includes photos, field sheet, and measured noise data.

5.3 FHWA Traffic Noise Prediction Model

Traffic noise from vehicular traffic was projected using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) standards. The FHWA model arrives at the predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Roadway volumes and percentages correspond to the project's scoping agreement for traffic impact analysis as prepared by TJW Engineering (TJW Engineering, 1845 Oak road –Traffic Impact Analysis, August 2, 2022) and the City's General Plan Environmental Impact Report, Volume II. The referenced traffic data was applied to the model and is in Appendix B. The following outlines the key adjustments made to the REMEL for the roadway inputs:

- Roadway classification – (e.g., freeway, major arterial, arterial, secondary, collector, etc.),
- Roadway Active Width – (distance between the center of the outer most travel lanes on each side of the roadway)
- Average Daily Traffic Volumes (ADT), Travel Speeds, Percentages of automobiles, medium trucks and heavy trucks
- Roadway grade and angle of view
- Site Conditions (e.g., soft vs. hard)
- Percentage of total ADT which flows each hour through-out a 24-hour period

Table 1 indicates the roadway parameters and vehicle distribution utilized for this study.

Table 1: Roadway Parameters and Vehicle Distribution

Roadway	Segment	Existing ADT[1]	Existing + Project ADT[1]	Speed (MPH)	Site Conditions
Los Angeles Ave	Yosemite Ave and Rory Ln	28,600	29,038	45	Hard
Whittier Blvd Vehicle Distribution and Mix[2]					
Motor-Vehicle Type		**Daytime % (7AM to 7 PM)**	**Evening % (7 PM to 10 PM)**	**Night % (10 PM to 7 AM)**	**Total % of Traffic Flow**
Automobiles		77.5	12.9	9.6	97.5
Medium Trucks		84.8	4.9	10.3	1.8
Heavy Trucks		86.5	2.7	10.8	0.7

Notes:
[1] Projected ADT to 2030
[2] Project ADT from TJW TIA

To determine the project's noise impact to the surrounding land uses, MD generated noise contours for projected 2030 conditions using the City's General Plan EIR Traffic Report. Noise contours are used to provide a characterization of sound levels experienced at a set distance from the centerline of a subject roadway. They are intended to represent a worst-case scenario and do not take into account structures, sound walls, topography, and/or other sound attenuating features which may further reduce the actual noise level. Noise contours are developed for comparative purposes and are used to demonstrate potential increases/decreases along subject roadways because of a project.

5.4 Interior Noise Modeling

The interior noise level is the difference between the projected exterior noise level at the structure's facade and the noise reduction provided by the structure itself. Typical building construction will provide a conservative 12 dBA noise level reduction with a "windows open" condition and a very conservative 20 dBA noise level reduction with "windows closed". MD estimated the interior noise level by subtracting the building shell design from the predicted exterior noise level.

For a "windows closed" condition, the project will require mechanical fresh air ventilation (e.g., air conditioning) to the habitable dwelling units.

5.5 FHWA Roadway Construction Noise Model

The construction noise analysis utilizes the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RNCM), together with several key construction parameters. Key inputs include distance to the sensitive receiver, equipment usage, % usage factor, and baseline parameters for the project site.

The project was analyzed based on the different construction phases. The construction noise calculation output worksheet is in Appendix C. The following assumptions relevant to short-term construction noise impacts were used:

- It is estimated that construction will occur over a 24-month time period.

5.5 Railroad Noise Modeling

The railroad source noise analysis uses a version of Wyle Labs WCR73_5, together with several key site parameters, to project the expected impacts of railroad operations on the proposed project site. Key inputs include train category identification, percent grade, length of the train, speed of the train, and distance to the receiver. Performance equations including relative source-barrier-receiver horizontal separations, relative source-barrier-receiver vertical separations, typical noise source spectra, and barrier transmission loss from the railroad noise model were utilized to complete the stationary source model. It is estimated that the nearest residential facades are approximately 1,650 feet from the railroad tracks.

The railroad tracks are assumed to be part of the Southern California Regional Rail Authority (SCAX) for Metrolink operations. Information about the railroad activity and frequency was obtained from both the Federal Railroad Administration (FRA) and Metrolink's website and timetable. According to the U.S. DOT crossing inventory information, the Katherine Road crossing (745916W) experiences 16 daytime events and 8 nighttime events for a total of 24 events per day. Railroad operation data is included in Appendix D. The data was used to calculate the noise levels from the rail line.

Exhibit F

Measurement Locations

= Short-Term Monitoring Location

6.0 Existing Noise Environment

Two (2) 15-min ambient noise measurements were conducted at or near the property site. The noise measurements were taken to determine the existing ambient noise levels. Noise data indicates that traffic along Los Angeles Avenue is the primary source of noise impacting the site and the adjacent uses.

6.1 Short-Term Noise Measurement Results

The results of the short-term noise data are presented in Table 2.

Table 2: Short-Term Noise Measurement Data[1]

Date	Time	1-Hour dB(A)							
		L_{EQ}	L_{MAX}	L_{MIN}	L_2	L_8	L_{25}	L_{50}	L_{90}
8/8/2022	12:05PM-12:20PM	58	75.9	46.0	65.3	60.4	57.4	54.2	48.8
8/8/2022	12:39PM-12:54PM	52.5	69.2	44.4	58.3	54.7	51.7	49.4	46.3

Notes:
[1.] Short-term noise monitoring locations are illustrated in Exhibit F.

Noise data indicates the ambient noise level ranged from 53 to 58 dBA Leq at the project site. Maximum levels reached up to 76 dBA at location 1 as a result of traffic along Los Angeles Avenue. The exterior ambient noise level falls within the normally acceptable level of the Noise Compatibility Matrix and therefore the project must ensure that the levels fall below 45 dBA CNEL inside the residences. Additional field notes and photographs are provided in Appendix A.

7.0 Future Noise Environment Impacts and Mitigation

This assessment analyzes future noise impacts to the project and compares the results to the City's Noise Standards. The analysis details the estimated exterior noise levels associated with traffic from adjacent roadway sources.

7.1 Future Off-site Exterior Noise Impact

The exterior noise level off-site of the project will be impacted by transportation-related sources and other stationary sources. The following outlines the impacts associated with exterior noise levels.

7.1.1 Future Off-site Traffic Noise Impact

The potential off-site noise impacts caused by the increase in vehicular traffic as a result of the project were calculated at a distance of 80 feet. The distance to the 55, 60, 65, and 70 dBA CNEL noise contours are also provided for reference. The noise level at 80 feet is representative of approximate distances to existing multi-family homes close to the subject roadway impacted by the project. The noise contours were calculated for the following scenarios and conditions:

- Existing Condition (2030 ADT): This scenario refers to the year 2030 traffic noise condition and is demonstrated in Table 3.
- Existing + Project Condition: This scenario refers to the year 2030 plus project traffic noise condition and is demonstrated in Table 3.

Table 3: Existing/Existing + Project Scenario – Noise Levels Along Roadways (dBA CNEL)

Existing Exterior Noise Levels

Roadway	Segment	CNEL at 80 Ft (dBA)	Distance to Contour (Ft)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Los Angeles Ave	Yosemite Ave to Rory Ln	70.7	94	297	938	2967

Existing + Project Exterior Noise Levels

Roadway	Segment	CNEL at 80 Ft (dBA)	Distance to Contour (Ft)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Los Angeles Ave	Yosemite Ave to Rory Ln	70.8	95	301	953	3013

Change in Noise Levels as a Result of Projects

Roadway[1]	Segment	CNEL at 50 Feet dBA[2]			
		Existing Without Project	Existing With Project	Change in Noise Level	Potential Significant Impact
Los Angeles Ave	Yosemite Ave to Rory Ln	70.7	70.8	0.1	No

Notes:
[1] Exterior noise levels calculated at 5 feet above ground level.
[2] Noise levels calculated from centerline of subject roadway.

Table 3 provides the Existing and Existing + Project noise conditions and shows the change in noise level because of the proposed project. As shown in Table 3, there will be a small increase in traffic noise of 0.1 dBA at 80 feet from the centerline of the subject roadway.

7.1.2 Future Stationary Noise Impact

The project site is located adjacent to the fire station 43 Susana Knolls of Ventura fire department. The fire station houses emergency vehicles and it became a potential exterior stationary noise source when emergency vehicles leave the station for deployment and emergency duties. Typical noise levels for warning sirens can range up to 130 dBA. Although this noise level scenario, the noise from any governmental agency for an emergency situation is exempt under Section 5-16.03 of the City's Municipal Code.

7.1.3 Future Railroad Noise Impact

The residential project is located approximately 1,650 feet from the Southern California Regional Rail Authority (SCAX) tracks, and the railroad noise might impact the project site. The railroad source noise analysis uses a version of Wyle Labs WCR73_5. The key site parameters and railroad activity were obtained from both the Federal Railroad Administration (FRA) and Metrolink's website and timetable.

According to the U.S. DOT crossing inventory information, the Katherine Road crossing (745916W) reports 16-day trains and 8-night trains. The type of train observed is passenger and commuter trains. The estimated noise level for the closest row of houses is 48 dBA, meaning the railroad noise would be barely perceptible and will be masked by ambient noise. Therefore, the impact of railroad noise is less than significant. The calculation sheet and data are available in Appendix D.

7.2 Future On-site Exterior Noise Levels

The on-site stationary noise sources, such as HVAC and mechanical equipment planned for the project's residences, were not modeled since the information available at this time shows that the HVAC equipment for each unit is going to be located at each unit patio and on the ground level. Therefore, any noise generated by HVAC equipment will be enclosed by the project buildings.

7.3 Interior Noise Levels

The future interior noise level was calculated for the sensitive receptor locations using a typical "windows open" and "windows closed" condition. A "windows open" condition assumes 12 dBA of noise attenuation from the exterior noise level. A "windows closed" condition" assumes 20 dBA of noise attenuation from the exterior noise level. Table 4 indicates the first and second-floor interior noise levels for the project site.

Table 4: Future Interior Noise Levels (dBA CNEL)

Location	Roadway Noise Source	Exterior Facade Study Location	Noise Level at Building Facade[1]	Interior Noise Reduction Required to Meet Interior Noise Standard of 45 dBA CNEL	Interior Noise Level w/ Typical Residential Windows (STC≥ 30)		STC Rating for Windows Facing Subject Roadway[4]
					Window Open[2]	Windows Closed[3]	
1st Row Units Along Northern Property Line	Los Angeles Ave	1st Floor	71	26	59	45	30
		2nd Floor	71	26	59	45	30

Notes:
1. Noise level from Section 7.1 and from worksheets Appendix B.
2. A minimum of 12 dBA noise reduction is assumed with a "windows open" condition.
3. A minimum of 20 dBA noise reduction is assumed with a "windows closed" condition.
4. Indicates the required STC rating to meet the interior noise standard.

As shown in Table 4, the interior noise level will be 58 dBA CNEL with the windows open and 50 dBA CNEL with the windows closed.

To meet the City's interior 45 dBA CNEL standard a "windows closed" condition is required. The windows and sliding glass doors directly facing Los Angeles Avenue will require a minimum STC rating of 30 for the 1st floor and 2nd floors. A "windows closed" condition simply means that in order to achieve a 45 dBA CNEL interior noise level, the windows must be closed and does not mean the windows must be fixed.

8.0 Construction Noise Impact

The degree of construction noise may vary for different areas of the project site and also vary depending on the construction activities. Noise levels associated with the construction will vary with the different phases of construction. The construction noise and vibration level projections are provided in the sections below.

8.1 Construction Noise

The Environmental Protection Agency (EPA) has compiled data regarding the noise generated characteristics of typical construction activities. The data is presented in Table 5.

Table 5: Typical Construction Noise Levels[1]

Equipment Powered by Internal Combustion Engines

Type	Noise Levels (dBA) at 50 Feet
Earth Moving	
Compactors (Rollers)	73 - 76
Front Loaders	73 - 84
Backhoes	73 - 92
Tractors	75 - 95
Scrapers, Graders	78 - 92
Pavers	85 - 87
Trucks	81 - 94
Materials Handling	
Concrete Mixers	72 - 87
Concrete Pumps	81 - 83
Cranes (Movable)	72 - 86
Cranes (Derrick)	85 - 87
Stationary	
Pumps	68 - 71
Generators	71 - 83
Compressors	75 - 86

Impact Equipment

Type	Noise Levels (dBA) at 50 Feet
Saws	71 - 82
Vibrators	68 - 82

Notes:
[1] Referenced Noise Levels from the Environmental Protection Agency (EPA)

Construction is anticipated to occur during the permissible hours from 7:00 a.m. to 7:00 p.m. according to the City's Municipal Code Section 5-16.02 (i). Construction noise is considered a short-term impact and would be considered significant if construction activities are taken outside the allowable times as described in the City's Municipal Code. Construction noise will have a temporary or periodic increase in the ambient noise level above the existing within the project vicinity. Furthermore, noise reduction measures are provided to further reduce construction noise. The construction noise impact is considered less than significant; however, construction noise level projections are provided.

Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Noise levels are in Table 6. A likely worst-case construction noise scenario assumes equipment operating at 80 feet from the nearest sensitive receptor (east portion of the site to the closest mobile homes to the south).

Table 6: Construction Noise Levels at the Southern Property Line

Phase	dBA Lmax	dBA Leq
Demo	87.4	82.4
Site Prep	84.6	80.6
Grading	84.6	81.1
Build	85.5	82.4
Paving	87.3	83.8
Arch Coating	75.9	71.9
Notes: Const Equip from CalEEMod		

To ensure that construction activities do not disrupt the adjacent land uses, the noise reduction measures in Section 8.3 should be taken.

8.2 Construction Vibration

Construction activities can produce vibration that may be felt by adjacent land uses. The construction of the proposed project would not require the use of equipment such as pile drivers, which are known to generate substantial construction vibration levels. The primary vibration source during construction may be from a bulldozer. A large bulldozer has a vibration impact of 0.089 inches per second peak particle velocity (PPV) at 25 feet which is perceptible but below any risk to architectural damage.

The fundamental equation used to calculate vibration propagation through average soil conditions and distance is as follows:

$$PPV_{equipment} = PPV_{ref} (100/D_{rec})^{n}$$

Where: PPV_{ref} = reference PPV at 100ft.
D_{rec} = distance from equipment to receiver in ft.
n = 1.1 (the value related to the attenuation rate through ground)

The thresholds from the Caltrans Transportation and Construction Induced Vibration Guidance Manual in Table 7 (below) provides general thresholds and guidelines as to the vibration damage potential from vibratory impacts.

Table 7: Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: Table 19, Transportation and Construction Vibration Guidance Manual, Caltrans, Sept. 2013.
Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Table 8 gives approximate vibration levels for particular construction activities. This data provides a reasonable estimate for a wide range of soil conditions.

Table 8: Vibration Source Levels for Construction Equipment[1]

Equipment	Peak Particle Velocity (inches/second) at 25 feet	Approximate Vibration Level LV (dVB) at 25 feet
Pile driver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Pile driver (sonic)	0.734 upper range	105
	0.170 typical	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill	0.008 in soil	66
(slurry wall)	0.017 in rock	75
Vibratory Roller	0.21	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

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

At a distance of 80 feet, a large bulldozer would yield a worst-case 0.025 PPV (in/sec) which may be perceptible but sustainably below any risk of damage (0.5 in/sec PPV is the threshold of residential structures). The impact is less than significant, and no mitigation is required.

8.3 Construction Noise Reduction Measures

Construction operations must follow the City's Noise Ordinance, which states that construction, repair or excavation work performed must occur within the permissible hours. To further ensure that construction activities do not disrupt the adjacent land uses, the following measures should be taken:

1. Construction shall occur during the hours of 7AM to 7PM.

2. During construction, the contactor shall ensure all construction equipment is equipped with appropriate noise attenuating devices.

3. The contractor should locate equipment staging areas as far as possible, away from the sensitive receptors.

4. Idling equipment should be turned off when not in use.

5. Equipment shall be maintained so that vehicles and their loads are secured from rattling and banging.

9.0 References

State of California General Plan Guidelines: 1998. Governor's Office of Planning and Research

City of Simi Valley: General Plan Noise Element.

City of Simi Valley: General Plan Environmental Impact Report, Appendix E Noise Data

City of Simi Valley: Municipal Code Section 5-16.02.

Caltrans Noise Technical Manual. 2013

Konan Vibration Criteria

TJW Engineering, Inc.: Scoping Agreement for Traffic Impact Analysis – 1845 Oak Road Traffic Impact Analysis, August 2022.

Federal Highway Administration. Noise Barrier Design Handbook. June 2017.

Federal Transit Administration. Transit Noise and Vibration Impact Assessment Manual. September 2018

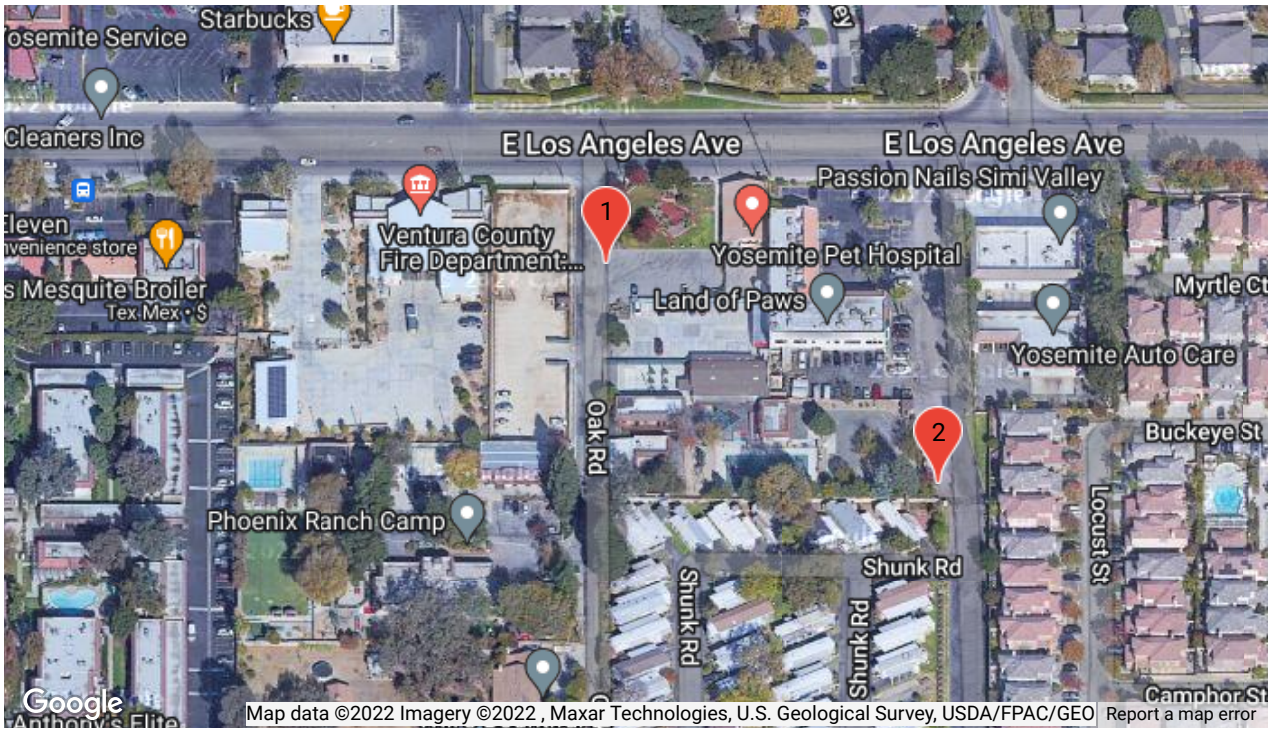
Wyle Labs Railroad Noise Model

Appendix A:

Photographs and Field Measurement Data

15-Minute Continuous Noise Measurement Datasheet

Project Name:	Simi Valley C Noise	**Site Observations:**	
Project: #/Name:	0163-2022-003	91°, wind 5 to 10 mph, sunny and clear, moderate but constant traffic on Los Angeles Ave	
Site Address/Location:	Oak Road & East LA Ave		
Date:	08/08/2022		
Field Tech/Engineer:	Dennis Jordan / Francisco Irarrazabal		
Sound Meter:	XL2, NTI	**SN:** A2A-05967-E0	
Settings:	A-weighted, slow, 1-sec, 15-minute interval		
Site Id:	ST-1, ST-2		



MD ACOUSTICS

15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name: Simi Valley C Noise

Site Address/Location: Oak Road & East LA Ave

Site Id: ST-1, ST-2

Figure 1: ST-1 128 ft from Roadway, 28 ft from site prop line

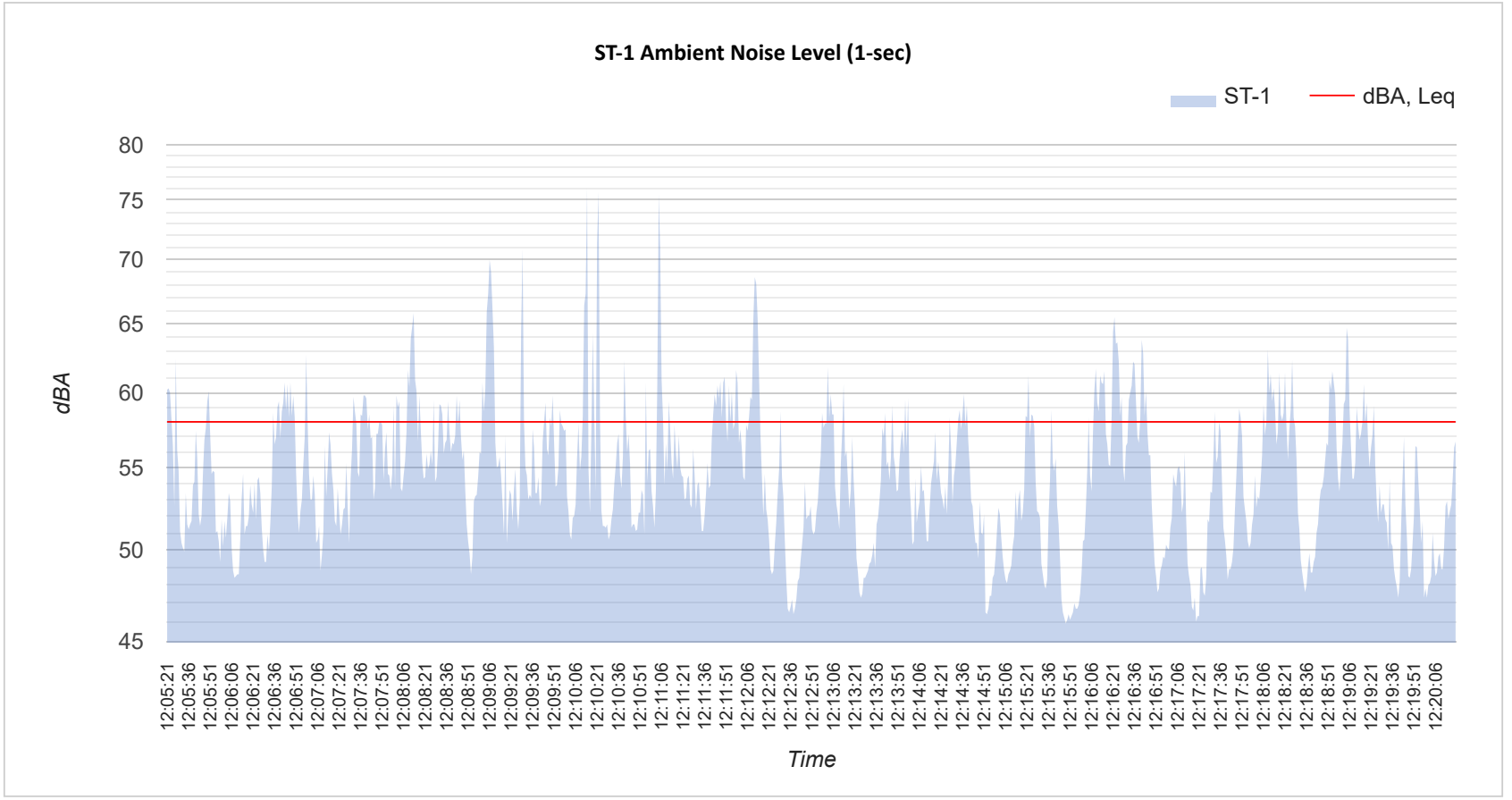
Figure 2: ST-2 450 ft from Roadway, 10 ft from site prop line

Table 1: Baseline Noise Measurement Summary

Location	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
ST-1	12:05 PM	12:20 PM	58	75.9	46.0	65.3	60.4	57.4	54.2	48.8
ST-2	12:39 PM	12:54 PM	52.5	69.2	44.4	58.3	54.7	51.7	49.4	46.3

15-Minute Continuous Noise Measurement Datasheet - Cont.

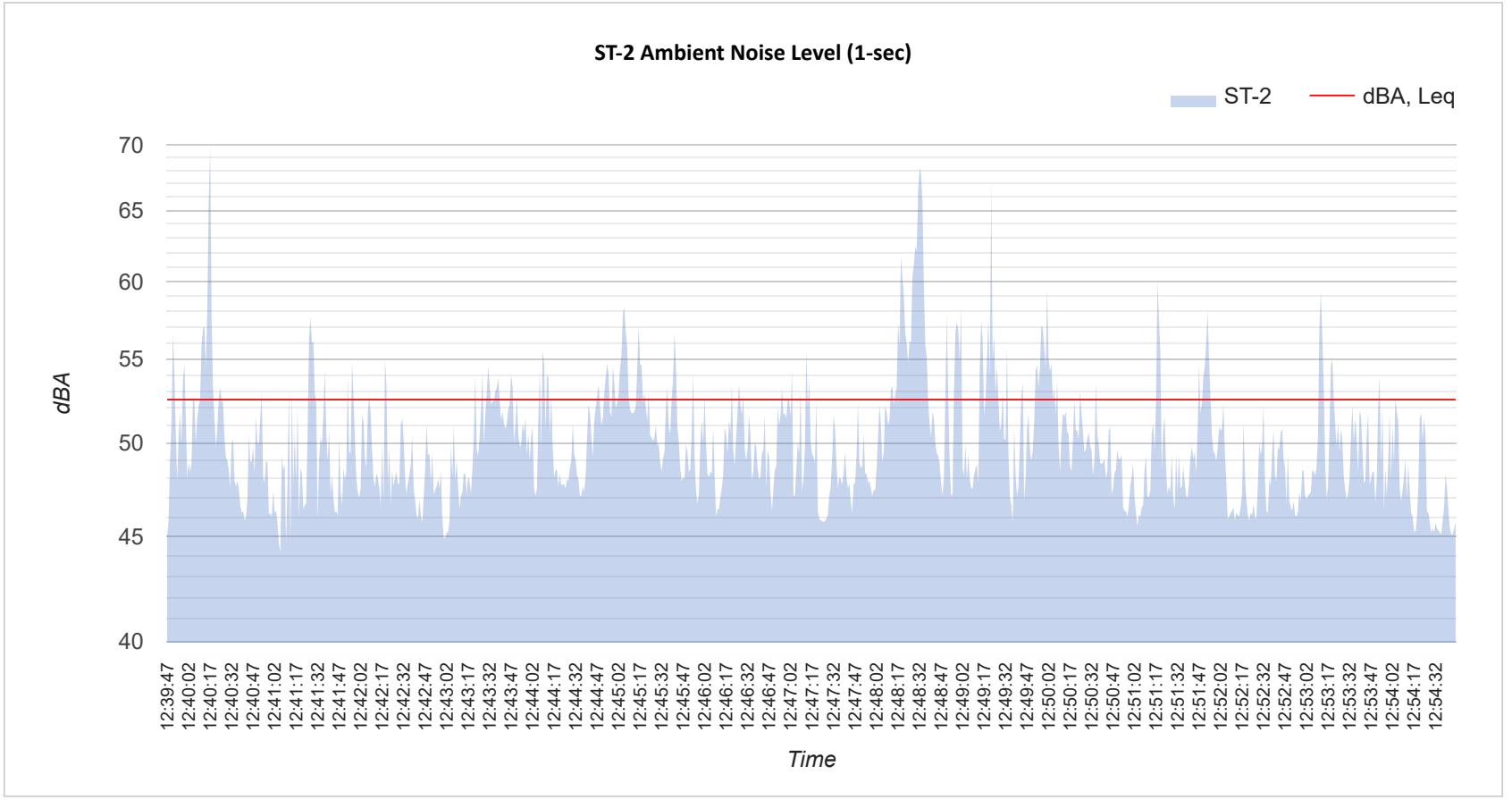
Project Name:	Simi Valley C Noise	**Site Topo:**	Buildings 1 to 2 stories tall	**Noise Source(s) w/ Distance:**	
Site Address/Location:	Oak Road & East LA Ave	**Meteorological Cond.:**	91°, winds 5-10 mph, clear and sunny	Road Noise / 128 ft from Roadway	
Site Id:	ST-1	**Ground Type:**	Buildings, Asphalt, Cement		



MD ACOUSTICS

15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name:	Simi Valley C Noise	**Site Topo:**	Buildings 1 to 2 stories tall	**Noise Source(s) w/ Distance:**	
Site Address/Location:	Oak Road & East LA Ave	**Meteorological Cond.:**	91°, winds 5-10 mph, clear and sunny	Road Noise / 450 ft from Roadway, light gate traffic	
Site Id:	ST-2	**Ground Type:**	Buildings, Asphalt, Cement		



MD ACOUSTICS

Appendix B:

Traffic Noise Modeling Output

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT:	1845 Oak Road Residential Development	JOB #:	0163-2022-03
ROADWAY:	E Los Angeles Ave	DATE:	9-Aug-22
LOCATION:	First Row Apartments Existing	ENGINEER:	F Irarrazabal

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	28,600	
SPEED =	45	
PK HR % =	10	
NEAR LANE/FAR LANE DIS	64	
ROAD ELEVATION =	0.0	
GRADE =	0.0	%
PK HR VOL =	2,860	

RECEIVER INPUT DATA

RECEIVER DISTANCE =		80
DIST C/L TO WALL =		52
RECEIVER HEIGHT =		5.0
WALL DISTANCE FROM RECEIVER		28
PAD ELEVATION =		0.5
ROADWAY VIEW:	LF ANGLE=	-90
	RT ANGLE=	90
	DF ANGLE=	180

SITE CONDITIONS

AUTOMOBILES =	10	
MEDIUM TRUCKS =	10	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	10	

WALL INFORMATION

HTH WALL:	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.9750
MEDIUM TRUCK	0.848	0.049	0.103	0.0180
HEAVY TRUCKS	0.865	0.027	0.108	0.0070

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	73.40	- -
MEDIUM TRUCKS	4.0	73.34	- -
HEAVY TRUCKS	8.0	73.36	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	70.2	68.3	66.6	60.5	69.1	69.7
MEDIUM TRUCKS	61.2	59.7	53.3	51.8	60.2	60.4
HEAVY TRUCKS	61.6	60.2	51.1	52.4	60.7	60.9
NOISE LEVELS (dBA)	71.2	69.4	66.9	61.6	70.2	70.7

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	70.2	68.3	66.6	60.5	69.1	69.7
MEDIUM TRUCKS	61.2	59.7	53.3	51.8	60.2	60.4
HEAVY TRUCKS	61.6	60.2	51.1	52.4	60.7	60.9
NOISE LEVELS (dBA)	71.2	69.4	66.9	61.6	70.2	70.7

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	94	297	938	2967
LDN	83	263	833	2634

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT:	1845 Oak Road Residential Development	JOB #:	0163-2022-03
ROADWAY:	E Los Angeles Ave	DATE:	9-Aug-22
LOCATION:	First Row Apartments Existing + Project	ENGINEER:	F Irarrazabal

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	29,038	
SPEED =	45	
PK HR % =	10	
NEAR LANE/FAR LANE DIS	64	
ROAD ELEVATION =	0.0	
GRADE =	0.0	%
PK HR VOL =	2,904	

RECEIVER INPUT DATA

RECEIVER DISTANCE =		80
DIST C/L TO WALL =		52
RECEIVER HEIGHT =		5.0
WALL DISTANCE FROM RECEIVER		28
PAD ELEVATION =		0.5
ROADWAY VIEW:	LF ANGLE=	-90
	RT ANGLE=	90
	DF ANGLE=	180

SITE CONDITIONS

AUTOMOBILES =	10	
MEDIUM TRUCKS =	10	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	10	

WALL INFORMATION

HTH WALL:	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.9750
MEDIUM TRUCK	0.848	0.049	0.103	0.0180
HEAVY TRUCKS	0.865	0.027	0.108	0.0070

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	73.40	- -
MEDIUM TRUCKS	4.0	73.34	- -
HEAVY TRUCKS	8.0	73.36	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	70.3	68.4	66.6	60.6	69.2	69.8
MEDIUM TRUCKS	61.2	59.7	53.4	51.8	60.3	60.5
HEAVY TRUCKS	61.7	60.2	51.2	52.4	60.8	60.9
NOISE LEVELS (dBA)	71.3	69.5	66.9	61.7	70.2	70.8

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	70.3	68.4	66.6	60.6	69.2	69.8
MEDIUM TRUCKS	61.2	59.7	53.4	51.8	60.3	60.5
HEAVY TRUCKS	61.7	60.2	51.2	52.4	60.8	60.9
NOISE LEVELS (dBA)	71.3	69.5	66.9	61.7	70.2	70.8

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	95	301	953	3013
LDN	85	267	846	2675

Appendix C:

Construction Noise Modeling Output

Receptor - Mobile Homes to the South

A	B	C	D	E	F	G	H	I	J
Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA	Dist. To Recptr.	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Recptr. Item Lmax, dBA	Recptr. Item Leq, dBA
DEMO									
1. Concrete Saw	1	90	80	20	0.20	-4.1	-7.0	85.9	78.9
2. Dozer	1	85	80	40	0.40	-4.1	-4.0	80.9	76.9
3. Tractor/Loader/Backhoe	3	80	80	40	1.20	-4.1	0.8	75.9	76.7
							Log Sum	87.4	82.4
SITE PREP									
1. Grader	1	85	80	40	0.40	-4.1	-4.0	80.9	76.9
2. Scraper	1	85	80	40	0.40	-4.1	-4.0	80.9	76.9
3. Tractor/Loader/Backhoe	1	80	80	40	0.40	-4.1	-4.0	75.9	71.9
							Log Sum	84.6	80.6
GRADE									
1. Dozer	1	85	80	40	0.40	-4.1	-4.0	80.9	76.9
2. Tractor/Loader/Backhoe	2	80	80	40	0.80	-4.1	-1.0	75.9	74.9
3. Grader	1	85	80	40	0.40	-4.1	-4.0	80.9	76.9
							Log Sum	84.6	81.1
BUILD									
1. Crane	1	85	80	16	0.16	-4.1	-8.0	80.9	73.0
2. Forklift	2	85	80	40	0.80	-4.1	-1.0	80.9	79.9
3. Tractor/Loader/Backhoe	1	80	80	40	0.40	-4.1	-4.0	75.9	71.9
4. Generator	1	82	80	50	0.50	-4.1	-3.0	77.9	74.9
5. Welder	3	73	80	40	1.20	-4.1	0.8	68.9	69.7
							Log Sum	85.5	82.4
PAVE									
1. Paver	1	85	80	50	0.50	-4.1	-3.0	80.9	77.9
2. Roller	2	85	80	20	0.40	-4.1	-4.0	80.9	76.9
3. Tractor/Loader/Backhoe	1	80	80	40	0.40	-4.1	-4.0	75.9	71.9
4. Paving Equipment	1	85	80	50	0.50	-4.1	-3.0	80.9	77.9
5. Concrete Mixer Truck	1	85	80	40	0.40	-4.1	-4.0	80.9	76.9
							Log Sum	87.3	83.8
ARCH COAT									
1. Compressor (air)	1	80	80	40	0.40	-4.1	-4.0	75.9	71.9
							Log Sum	75.9	71.9

VIBRATION LEVEL IMPACT

Project:	1845 Oak Road Residential Development	Date: 8/9/22
Source:	Large Bulldozer	
Scenario:	Unmitigated	
Location:	80 feet southeast corner of the site	
Address:	Oak Road, Simi Valley, CA	

PPV = PPVref(25/D)^n (in/sec)

DATA INPUT

Equipment = Type	2	Large Bulldozer	INPUT SECTION IN BLUE
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	80.00	Distance from Equipment to Receiver (ft)	
n =	1.10	Vibration attenuation rate through the ground	

Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.

DATA OUT RESULTS

PPV =	**0.025**	IN/SEC	OUTPUT IN RED

Appendix D:

Railroad Noise Modeling Input and Output

YEAR 2022 RAIL CONDITIONS - UNMITIGATED
CNEL WORKSHEET FOR LINE OPERATIONS

Train Category Identification	L, feet (train length)	V, mph (train speed)	% grade	Barrier (if existing)	Distance to tract, feet	(1) Pass-by Duration, sec t=L/V	(2) C_2 ('10log$_{10}$t)	(3) Car SPL at 100' dB C_1	(4) Car distance attenuation a	(5) a_{bc}: Car barrier correction	(6) Car Noise Adjustment: C_3	(7) SENEL (cars), dB $C_1+C_2+C_3-a-a_{bc}$	(8) Loco. SENEL at 100' C_4, dB	(9) Loco. distance attenuation: a	(10) a_{be} Loco. Barrier correction	(11) Helper engine adjustment C_5	(12) SENEL (loco.), dB C4+C5 -a-a_{be}	(13) SENEL (Train) dB	(14) N equiv. no. of daily operations	(15) CNEL contribution	COMPOSITE CNEL AT DISTANCE INDICATED (16) 100'	(17) 200'	(18) 400'	(19) 800'	(20)
1	3500	50	0.0%	0	100'	47.6	16.8	70	0	0	0	86.8	100	0.0	0	0	100.0	100.2	2	53.7	64.0				
FREIGHT					200'				4	0	0	82.8		3.5	0		96.5	96.7		50.2		60.4			
					400'				10	0	0	76.8		7.5	0		92.5	92.6		46.2			56.4		
					800'				16.5	0	0	70.3		12.0	0		88.0	88.1		41.6				51.9	
2	500	60	0.0%	0	100'	5.7	7.5	79	0	0	0	86.5	99	0.0	0	0	99.0	99.2	24	63.5					
METRO					200'				4	0	0	82.5		3.5	0		95.5	95.7		60.0					
					400'				10	0	0	76.5		7.5	0		91.5	91.6		56.0					
					800'				16.5	0	0	70.0		12.0	0		87.0	87.1		51.4					

5500 = User Inputs
47.6 = Calculated Values
84 = From Charts

WYLE LABS WCR73_5
Assessment of Noise Environments Around Railroad Operations

Scenario: YEAR 2022 RAIL CONDITIONS - UNMITIGATED

Input Data:		**Results:**		
Wall Distance From Track	100	64.0	CNEL at	100'
(25,50, 100, or 150 feet)		60.4	CNEL at	200'
		56.4	CNEL at	400'
Wall Height (in feet)	0	51.9	CNEL at	800'
Observer Distance From Track	**1650**	**48.1**	CNEL at	**1650**

WYLE LABS WCR73_5

Assessment of Noise Environments Around Railroad Operations

Scenario: **YEAR 2022 RAIL CONDITIONS - UNMITIGATED**

Input Data:			**Results:**	
Wall Distance From Track	**100**	64.0	CNEL at	100
(25,50, 100, or 150 feet)		60.4	CNEL at	200
		56.4	CNEL at	400
Wall Height (in feet)	**0**	51.9	CNEL at	800
Observer Distance From Track	**1650**	**48.1**	CNEL at	1650

U. S. DOT CROSSING INVENTORY FORM

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Instructions for the initial reporting of the following types of new or previously unreported crossings: For public highway-rail grade crossings, complete the entire inventory Form. For private highway-rail grade crossings, complete the Header, Parts I and II, and the Submission Information section. For public pathway grade crossings (including pedestrian station grade crossings), complete the Header, Parts I and II, and the Submission Information section. For Private pathway grade crossings, complete the Header, Parts I and II, and the Submission Information section. For grade-separated highway-rail or pathway crossings (including pedestrian station crossings), complete the Header, Part I, and the Submission Information section. For changes to existing data, complete the Header, Part I Items 1-3, and the Submission Information section, in addition to the updated data fields. Note: For private crossings only, Part I Item 20 and Part III Item 2.K. are required unless otherwise noted. An asterisk * denotes an optional field.

A. Revision Date (MM/DD/YYYY)	B. Reporting Agency	C. Reason for Update (Select only one)	D. DOT Crossing Inventory Number
02 / 28 / 2022	☐ Railroad ☐ Transit ☒ State ☐ Other	☒ Change in Data ☐ New Crossing ☐ Closed ☐ No Train Traffic ☐ Quiet Zone Update ☐ Re-Open ☐ Date Change Only ☐ Change in Primary Operating RR ☐ Admin. Correction	745916W

Part I: Location and Classification Information

1. Primary Operating Railroad	2. State	3. County
Southern California Regional Rail Authority [SCAX]	CALIFORNIA	VENTURA

4. City / Municipality	5. Street/Road Name & Block Number	6. Highway Type & No.
☐ In ☒ Near SIMI VALLEY	KATHERINE RD (Street/Road Name) | 0 (* Block Number)	L

7. Do Other Railroads Operate a Separate Track at Crossing?	8. Do Other Railroads Operate Over Your Track at Crossing?
☐ Yes ☒ No If Yes, Specify RR	☒ Yes ☐ No If Yes, Specify RR ATK

9. Railroad Division or Region	10. Railroad Subdivision or District	11. Branch or Line Name	12. RR Milepost
☒ None	☐ None VENTURA	☒ None	VE | 0439.65 | 0 (prefix) | (nnnn.nnn) | (suffix)

13. Line Segment *	14. Nearest RR Timetable Station *	15. Parent RR (if applicable)	16. Crossing Owner (if applicable)
101VE-43965	SIMI VALLEY	☐ N/A SCAX	☐ N/A SCAX

17. Crossing Type	18. Crossing Purpose	19. Crossing Position	20. Public Access (if Private Crossing)	21. Type of Train	22. Average Passenger Train Count Per Day
☒ Public ☐ Private	☒ Highway ☐ Pathway, Ped. ☐ Station, Ped.	☒ At Grade ☐ RR Under ☐ RR Over	☐ Yes ☐ No	☐ Freight ☐ Transit ☒ Intercity Passenger ☐ Shared Use Transit ☒ Commuter ☐ Tourist/Other	☐ Less Than One Per Day ☒ Number Per Day 24

23. Type of Land Use
☐ Open Space ☐ Farm ☒ Residential ☐ Commercial ☐ Industrial ☐ Institutional ☐ Recreational ☐ RR Yard

24. Is there an Adjacent Crossing with a Separate Number?	25. Quiet Zone (FRA provided)
☐ Yes ☒ No If Yes, Provide Crossing Number	☒ No ☐ 24 Hr ☐ Partial ☐ Chicago Excused Date Established

26. HSR Corridor ID	27. Latitude in decimal degrees	28. Longitude in decimal degrees	29. Lat/Long Source
☒ N/A	(WGS84 std: nn.nnnnnnn) 34.2638137	(WGS84 std: -nnn.nnnnnnn) -118.6705104	☒ Actual ☐ Estimated

30.A. Railroad Use *	31.A. State Use *
101VE-439.65	101VE-439.65
30.B. Railroad Use * 0	**31.B. State Use ***
30.C. Railroad Use * 0	**31.C. State Use ***
30.D. Railroad Use * 0	**31.D. State Use ***
32.A. Narrative (Railroad Use) * 0	**32.B. Narrative** (State Use) *

33. Emergency Notification Telephone No. (posted)	34. Railroad Contact (Telephone No.)	35. State Contact (Telephone No.)
888-446-9721	800-371-5465	415-703-3722

Part II: Railroad Information

1. Estimated Number of Daily Train Movements

1.A. Total Day Thru Trains (6 AM to 6 PM)	1.B. Total Night Thru Trains (6 PM to 6 AM)	1.C. Total Switching Trains	1.D. Total Transit Trains	1.E. Check if Less Than One Movement Per Day ☐ How many trains per week?
16	8	0	0	

2. Year of Train Count Data (YYYY)	3. Speed of Train at Crossing
2021	3.A. Maximum Timetable Speed (mph) 70 3.B. Typical Speed Range Over Crossing (mph) From 40 to 70

4. Type and Count of Tracks
Main 1 Siding 1 Yard 0 Transit 0 Industry 0

5. Train Detection (Main Track only)
☒ Constant Warning Time ☐ Motion Detection ☐AFO ☒ PTC ☐ DC ☐ Other ☐ None

6. Is Track Signaled?	7.A. Event Recorder	7.B. Remote Health Monitoring
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

U. S. DOT CROSSING INVENTORY FORM

A. Revision Date *(MM/DD/YYYY)*	PAGE 2	D. Crossing Inventory Number *(7 char.)*
02/28/2022		745916W

Part III: Highway or Pathway Traffic Control Device Information

1. Are there Signs or Signals? ☒ Yes ☐ No

2. Types of Passive Traffic Control Devices associated with the Crossing

2.A. Crossbuck Assemblies *(count)*	2.B. STOP Signs *(R1-1) (count)*	2.C. YIELD Signs *(R1-2) (count)*	2.D. Advance Warning Signs *(Check all that apply; include count)* ☐ None
0	0	0	☒ W10-1 2 ☐ W10-3 0 ☐ W10-11 0 ☐ W10-2 0 ☐ W10-4 0 ☐ W10-12 0

2.E. Low Ground Clearance Sign *(W10-5)*	2.F. Pavement Markings	2.G. Channelization Devices/Medians	2.H. EXEMPT Sign *(R15-3)*	2.I. ENS Sign *(I-13)* Displayed
☐ Yes *(count* 0 *)* ☒ No	☒ Stop Lines ☐ Dynamic Envelope ☒ RR Xing Symbols ☐ None	☒ All Approaches ☒ Median ☐ One Approach ☐ None	☐ Yes ☒ No	☒ Yes ☐ No

2.J. Other MUTCD Signs ☒ Yes ☐ No	2.K. Private Crossing Signs *(if private)*	2.L. LED Enhanced Signs *(List types)*
Specify Type R8-8 Count 2 Specify Type R15-2P Count 2 Specify Type _____ Count _____	☐ Yes ☐ No	

3. Types of Train Activated Warning Devices at the Grade Crossing *(specify count of each device for all that apply)*

3.A. Gate Arms *(count)*	3.B. Gate Configuration	3.C. Cantilevered *(or Bridged)* Flashing Light Structures *(count)*	3.D. Mast Mounted Flashing Lights *(count of masts)* 2	3.E. Total Count of Flashing Light Pairs
Roadway 2 Pedestrian 0	☒ 2 Quad ☐ Full *(Barrier)* Resistance ☐ 3 Quad ☐ 4 Quad ☐ Median Gates	Over Traffic Lane 0 ☐ Incandescent Not Over Traffic Lane 0 ☐ LED	☐ Incandescent ☒ LED ☒ Back Lights Included ☐ Side Lights Included	4

3.F. Installation Date of Current Active Warning Devices: *(MM/YYYY)*	3.G. Wayside Horn	3.H. Highway Traffic Signals Controlling Crossing	3.I. Bells *(count)*
_____/_____ ☒ Not Required	☐ Yes Installed on *(MM/YYYY)* _____/_____ ☒ No	☐ Yes ☒ No	2

3.J. Non-Train Active Warning	3.K. Other Flashing Lights or Warning Devices
☐ Flagging/Flagman ☐ Manually Operated Signals ☐ Watchman ☐ Floodlighting ☒ None	Count 0 Specify type _____

4.A. Does nearby Hwy Intersection have Traffic Signals?	4.B. Hwy Traffic Signal Interconnection	4.C. Hwy Traffic Signal Preemption	5. Highway Traffic Pre-Signals	6. Highway Monitoring Devices *(Check all that apply)*
☐ Yes ☒ No	☒ Not Interconnected ☐ For Traffic Signals ☐ For Warning Signs	☐ Simultaneous ☐ Advance	☐ Yes ☒ No Storage Distance * 0 Stop Line Distance * 0	☐ Yes - Photo/Video Recording ☐ Yes – Vehicle Presence Detection ☒ None

Part IV: Physical Characteristics

1. Traffic Lanes Crossing Railroad	2. Is Roadway/Pathway Paved?	3. Does Track Run Down a Street?	4. Is Crossing Illuminated? *(Street lights within approx. 50 feet from nearest rail)*
☐ One-way Traffic ☒ Two-way Traffic ☐ Divided Traffic Number of Lanes 2	☒ Yes ☐ No	☐ Yes ☒ No	☒ Yes ☐ No

5. Crossing Surface *(on Main Track, multiple types allowed)* Installation Date * *(MM/YYYY)* _____/_____ Width * 26 Length * 72

☐ 1 Timber ☐ 2 Asphalt ☐ 3 Asphalt and Timber ☒ 4 Concrete ☐ 5 Concrete and Rubber ☐ 6 Rubber ☐ 7 Metal
☐ 8 Unconsolidated ☐ 9 Composite ☐ 10 Other *(specify)* _____

6. Intersecting Roadway within 500 feet?	7. Smallest Crossing Angle	8. Is Commercial Power Available? *
☐ Yes ☒ No If Yes, Approximate Distance *(feet)* _____	☐ 0° – 29° ☐ 30° – 59° ☒ 60° - 90°	☒ Yes ☐ No

Part V: Public Highway Information

1. Highway System	2. Functional Classification of Road at Crossing	3. Is Crossing on State Highway System?	4. Highway Speed Limit
☐ (01) Interstate Highway System ☐ (02) Other Nat Hwy System (NHS) ☒ (03) Federal AID, Not NHS ☐ (08) Non-Federal Aid	☐ (0) Rural ☒ (1) Urban ☐ (1) Interstate ☐ (5) Major Collector ☐ (2) Other Freeways and Expressways ☐ (3) Other Principal Arterial ☐ (6) Minor Collector ☒ (4) Minor Arterial ☐ (7) Local	☐ Yes ☒ No	25 MPH ☐ Posted ☒ Statutory

5. Linear Referencing System *(LRS Route ID)* * 0

6. LRS Milepost * 0

7. Annual Average Daily Traffic *(AADT)*	8. Estimated Percent Trucks	9. Regularly Used by School Buses?	10. Emergency Services Route
Year 1974 AADT 3700	9 %	☐ Yes ☒ No Average Number per Day _____	☒ Yes ☐ No

Submission Information - *This information is used for administrative purposes and is not available on the public website.*

Submitted by _____ Organization _____ Phone _____ Date _____

MONDAY THROUGH FRIDAY

Metrolink Service No.	100	900	102	104	106	902	108	MA A768	110	112	116	904	906	150	118	910
Ventura - East			5:21	5:57	6:38											
Oxnard ★			5:35	6:12	6:52			7:43								
Camarillo ★			5:45	6:22	7:02			7:54								
Moorpark ★	5:02		5:57	6:34	7:14			8:08	8:28		**2:19**				**5:09**	
Simi Valley ★	5:14		6:10	6:46	7:27			8:23	8:41		**2:33**				**5:22**	
Chatsworth ★	5:26		6:22	6:58	7:38		8:28	8:40	8:54	11:00	**2:46**			**4:39**	**5:36**	
Northridge	5:32		6:27	7:04	7:44		8:35	8:46	8:59	11:06	**2:52**			**4:45**	**5:42**	
Van Nuys ★	5:40		6:35	7:12	7:52		8:43	8:56	9:09	11:14	**3:00**			**4:53**	**5:54**	
Burbank/Bob Hope Airport ★	5:47	6:14	6:43	7:24	7:59	8:39	8:50	9:04	9:17	11:22	**3:07**	**3:41**	**3:56**	**5:00**	**6:01**	**8:31**
Burbank - Downtown	5:55	6:19	6:48	7:32	8:04	8:45	8:55	9:09	9:22	11:27	**3:13**	**3:46**	**4:01**	**5:05**	**6:06**	**8:36**
Glendale ★	6:02	6:26	6:54	7:38	8:11	8:52	9:02	9:16	9:29	11:34	**3:19**	**3:52**	**4:08**	**5:12**	**6:13**	**8:43**
L.A. Union Station ★	6:15	6:38	7:13	7:51	8:33	9:04	9:17	9:35	9:41	11:49	**3:36**	**4:05**	**4:21**	**5:26**	**6:27**	**8:55**

AM times **PM times**

NOTES: See page 3

MONDAY THROUGH FRIDAY

Metrolink Service No.	901	101	103	MA A761	903	905	907	107	109	909	155	115	117	119	121	123	911
L.A. Union Station ★	5:38	6:51	7:16	7:35	8:00	8:23	8:55	9:52	**12:43**	**2:48**	**3:14**	**3:37**	**4:28**	**5:10**	**5:52**	**6:46**	**7:45**
Glendale ★	5:48	7:03	7:27	7:48	8:10	8:34	9:07	10:03	**12:54**	**3:00**	**3:26**	**3:48**	**4:39**	**5:21**	**6:03**	**6:59**	**7:56**
Burbank - Downtown	5:54	7:09	7:34	↓	8:18	8:41	9:14	10:10	**1:01**	**3:06**	**3:32**	**3:55**	**4:46**	**5:28**	**6:10**	**7:06**	**8:03**
Burbank/Bob Hope Airport ★	6:03	7:15	7:40	8:00	8:25	8:48	9:21	10:16	**1:07**	**3:13**	**3:38**	**4:00**	**4:52**	**5:34**	**6:15**	**7:12**	**8:10**
Van Nuys ★		7:25	7:48	8:10				10:24	**1:16**		**3:46**	**4:08**	**4:59**	**5:41**	**6:23**	**7:19**	
Northridge		7:33	8:03	8:19				10:32	**1:24**		**3:54**	**4:18**	**5:07**	**5:54**	**6:36**	**7:27**	
Chatsworth ★		7:39	8:11	8:32				10:41	**1:31**		**4:03**	**4:24**	**5:13**	**6:00**	**6:42**	**7:33**	
Simi Valley ★		7:52		8:45					**1:43**			**4:36**	**5:30**	**6:11**	**6:54**	**7:46**	
Moorpark ★		8:06		8:57					**2:00**			**4:56**	**5:41**	**6:23**	**7:14**	**7:58**	
Camarillo ★				9:10									**5:53**	**6:35**		**8:09**	
Oxnard ★				9:21									**6:03**	**6:45**		**8:19**	
Ventura - East													**6:20**	**7:07**		**8:39**	

AM times **PM** times

NOTES: See page 3

VENTURA COUNTY LINE • AMTRAK SERVICE Oxnard to L.A.

All Metrolink ticket holders (including One-Way, Round-Trip, 7-Day or Monthly Pass) may, within the origin and destination of their ticket or pass, ride ANY Amtrak Pacific Surfliner train between Los Angeles and Burbank/Bob Hope Airport at no additional cost as part of the Rail 2 Rail® program. Holiday blackout dates may apply, and schedules subject to change. For details, please visit metrolinktrains.com/rail2rail

* A768 stops at Northridge and Burbank - Downtown Monday-Friday only.

DAILY

Amtrak Service No.	A768*	A774	A784	A790	A1790	A796
Ventura - East						
Oxnard ★	7:43	10:18	**2:57**	**5:07**	**5:35**	**7:51**
Camarillo ★	7:54	10:35	**3:08**	↓	↓	**8:02**
Moorpark ★	8:08	↓	**3:20**	**5:36**	**6:04**	↓
Simi Valley ★	8:23	11:02	**3:35**	**5:54**	**6:20**	**8:38**
Chatsworth ★	8:40	11:14	**3:52**	**6:12**	**6:33**	**8:50**
Northridge	8:46	↓	↓	↓	↓	↓
Van Nuys ★	8:56	11:28	**4:14**	**6:31**	**6:45**	**9:06**
Burbank/Bob Hope Airport ★	9:04	11:35	**4:22**	**6:39**	**6:53**	**9:13**
Burbank - Downtown	9:09	↓	↓	↓	↓	↓
Glendale ★	9:16	11:45	**4:32**	**6:50**	**7:04**	**9:23**
L.A. Union Station ★	9:35	**12:15**	**4:50**	**7:10**	**7:20**	**9:45**
AMTRAK TRAINS FOR MONTHLY PASS HOLDERS ONLY				M-F	Sa-Su	

DAILY

Amtrak Service No.	A761	A1761	A763	A769	A777	A785
L.A. Union Station ★	7:35	7:50	9:14	**12:30**	**3:06**	**7:15**
Glendale ★	7:48	8:02	9:26	**12:42**	**3:18**	**7:27**
Burbank - Downtown	↓	↓	↓	↓	↓	↓
Burbank/Bob Hope Airport ★	8:00	8:12	9:36	**12:52**	**3:28**	**7:37**
Van Nuys ★	8:10	8:21	9:46	**1:02**	**3:38**	**7:47**
Northridge	8:19	↓	↓	↓	↓	↓
Chatsworth ★	8:32	8:33	9:58	**1:14**	**3:50**	**7:59**
Simi Valley ★	8:45	8:45	10:10	**1:26**	**4:02**	**8:11**
Moorpark ★	8:57	8:57	↓	**1:39**	↓	↓
Camarillo ★	9:10	9:10	10:34	**1:54**	**4:28**	**8:35**
Oxnard ★	9:21	9:21	10:47	**2:05**	**4:39**	**8:46**
Ventura - East						
AMTRAK TRAINS FOR MONTHLY PASS HOLDERS ONLY	M-F	Sa-Su				

AM times **PM** times

NOTES: See page 3

Carrier

Turn to the experts

COOL YOUR HOME WITH A CARRIER AIR CONDITIONER

Carrier offers real choices for efficient and reliable home comfort

Designed To Fit Your Home – And Your Budget

Turn to the experts at Carrier for real solutions for your home cooling needs. Our comprehensive selection of air conditioners have been designed to fit virtually any home and a variety of budgets. From our innovative and intelligent Infinity® System line with variable-speed, two-stage, and single-stage options...to Performance™ Series deluxe two-stage and single-stage choices...and the value-driven Comfort™ Series single-stage models, our air conditioners offer summertime comfort you can depend on.

Air Conditioner Options+	Infinity® System					
	24VNA6	24VNA9	24ANB1	24ANB7	24ANB7**C (Coastal)	24ANB6
Efficiency						
Cooling SEER (up to)	26.0	19.0		17.0		16.0
Compressor Type	Fully variable-speed with capacity range from 25-100%	Five-stage variable-speed with capacity range from 25-100%	Two-stage with high-stage at 100% capacity and low-stage at 75% capacity			Single-stage at 100% capacity at all times
ENERGY STAR®	•	•	•	•	•	•
Comfort Features						
Sound level (as low as)	51 dBA	60 dBA	71 dBA	72 dBA	72 dBA	66 dBA
Humidity Control	Ideal Humidity System™ Technology offers excellent humidity control and is capable of removing up to 400% more moisture than standard systems.**		Enhanced			Standard
Durability						
Cabinet Protection	WeatherArmor™ Ultra provides durability with a galvanized steel cabinet, louvered coil guard and baked-on powder paint to protect against dings, dents and weather-based threats.					
Recommended Thermostat						
Infinity® System Control	•	•	•	•	•	•
ecobee, Powered by Carrier	-	-	-	-	-	-
Peace of Mind						
Limited Parts Warranty*	10-Year					
Replacement Limited Warranty*	10-Year	-	-	-	-	-

* Upon timely registration, the warranty period is five years if not registered within 90 days of installation except in jurisdictions where warranty benefits cannot be conditioned upon registration.

\+ Air conditioner models may not be sold in every region.

** Based on Carrier testing, all data was run with the systems cycling once they met the assumed home load. The assumed load at AHAM conditions (80/70, 80) is the capacity of the variable-speed running continuously in dehumidification mode. The difficult conditions load was determined by a Wrightsoft® load calculation for a home in Florida at 69 OD 72/63 ID. This condition was provided by a customer in Florida as “worst case”.

Designed with Your Comfort in Mind

Carrier air conditioners represent years of design, development and testing with one goal in mind – maximizing your family’s comfort. Along the way, we have created new technologies that deliver the outstanding quality and energy efficiency you demand while staying ahead of industry trends and global initiatives. Check out the side-by-side comparison below to see which model is right for you.

Performance™ Series				Comfort™ Series				
24ACB7	24APB6	24ACC6	24ACB3	24ABC6	24AAA5	24ACC4	24ACA4**C (Coastal)	24ABB3
Efficiency								
17.0		16.5	13.0	16.5	17.0	14.0		13.0
Two-stage with high-stage at 100% capacity and low-stage at 75% capacity	Single-stage at 100% capacity at all times			Single-stage at 100% capacity at all times				
•	•	•	-	•	-	-	-	-
Comfort Features								
72 dBA	68 dBA	73 dBA	70 dBA	76 dBA	75 dBA	75 dBA	73 dBA	73 dBA
Enhanced	Standard			Standard				
Durability								
WeatherArmor Ultra				WeatherArmor provides durability with a galvanized steel cabinet, wire coil guard and baked-on powder paint to protect against dings, dents and weather-based threats.				
Recommended Thermostat								
-	-	-	-	-	-	-	-	-
•	•	•	•	•	•	•	•	•
Peace of Mind								
10-Year				10-Year				
-	-	-	-	-	-	-	-	-

MORE THAN A CENTURY OF COOL

In 1902, a determined engineer answered one of mankind's most nagging questions: How do we make hot, sticky, indoor air go away? In creating the world's first modern air conditioning system, Willis Carrier forever changed indoor life, and, more than a century later, the corporation that bears his name takes inspiration from his example.

Carrier strives to improve on our founder's breakthroughs, introducing new technologies that make life at home even cooler. Today, a nationwide network of experts continues to advance Willis Carrier's lifework. Your expert Carrier dealer is equipped to evaluate your home and create a customized system designed around your lifestyle.

Carrier

Turn to the experts

carrier.com 1-800-CARRIER

01-824-119-01
07/2021