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MEMORANDUM

DATE: November 15, 2024

TO: Jessica Williams, Assistant Planner, City of Menifee

FROM: Jason Lui, Associate / Senior Noise Specialist

SUBJECT: Noise and Vibration Impact Analysis for the Caliber Collision Paint and Auto Body Repair Shop Project

INTRODUCTION

This Noise and Vibration Impact Analysis has been prepared to evaluate the potential noise and vibration impacts associated with the construction and operation of the proposed Caliber Collision Paint and Auto Body Repair Shop Project (project) in Menifee, California. This report is intended to satisfy the City of Menifee (City) requirements and the California Environmental Quality Act for a project-specific analysis by examining the noise and vibration impacts to the adjacent land uses and identifying reduction measures that the project requires. All references cited in this memorandum are included in Attachment A.

Project Location

The 2.39-acre (gross) project site is located along the west side of Zeiders Road, south of Scott Road and east of Howard Way in Menifee, Riverside County, California. Figure 1 shows the regional and project location (all figures are provided in Attachment B of this document).

Project Description

The proposed project includes the construction of a one-story, 18,865-square-foot building to house the Caliber Collision Paint and Auto Body Repair shop with six bays, as shown in Figure 2, Site Plan. The project also includes construction of a parking lot with 103 parking spaces (including Americans with Disabilities Act-compliant parking) within the 2.39-acre site. The site's City of Menifee General Plan Land Use designation and Zoning Classification is Economic Development Corridor – Southern Gateway (EDC-SG). The EDC-SG zone allows development of an auto body repair and paint shop with a Conditional Use Permit. The project is consistent with the surrounding commercial and industrial land uses. The project also proposes a conceptual landscape plan that includes 0.3 acre of landscape area.

The project would import 9,200 cubic yards (cy) and export 4,700 cy of soil during grading. Project construction would include grading, paving, and construction of the facility building and parking areas. Project construction is expected to start in early 2025 and be completed in approximately 6 months.

The planned hours of operation would be from 7:30 a.m. to 5:30 p.m. Monday through Friday and 8:00 a.m. to 12:00 p.m. on Saturday. Figure 2 shows the site plan.

CHARACTERISTICS OF SOUND

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations, or cycles per second, of a wave, resulting in the tone's range from high to low. Loudness is the strength of a sound; it describes a noisy or quiet environment and is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. This characteristic of sound can be precisely measured with instruments. The analysis of a project defines the noise environment of the project area in terms of sound intensity and its effect on adjacent sensitive land uses.

Measurement of Sound

Sound intensity is measured through the A-weighted scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies. Decibels (dB), unlike the linear scale (e.g., inches or pounds), are measured on a logarithmic scale, which is a scale based on powers of 10.

For example, 10 dB is 10 times more intense than 0 dB, 20 dB is 100 times more intense than 0 dB, and 30 dB is 1,000 times more intense than 0 dB. Thirty decibels (30 dB) represents 1,000 times as much acoustic energy as 0 dB. The decibel scale increases as the square of the change, representing the sound pressure energy. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as only a doubling of the loudness of the sound. Ambient sounds generally range from 30 dB (very quiet) to 100 dB (very loud).

Sound levels generate from a source, and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. For a single point source, sound levels decrease approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source (e.g., highway traffic or railroad operations), the sound decreases 3 dB for each doubling of distance in a hard site environment; however, line source noise in a relatively flat environment with absorptive vegetation decreases 4.5 dB for each doubling of distance.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. The equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. However, the

predominant rating scales for human communities in the State of California are L_{eq} and the Community Noise Equivalent Level (CNEL) or the day-night average noise level (L_{dn}) based on A-weighted decibels (dBA). CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours), and a 10 dBA weighting factor applied to noises occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and L_{dn} are within 1 dBA of each other and are normally interchangeable.

Other noise rating scales of importance when assessing the annoyance factor include the maximum instantaneous noise level (L_{max}), which is the highest exponential time-averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis for short-term noise impacts are specified in terms of maximum levels denoted by L_{max}, which reflects peak operating conditions and addresses the annoying aspects of intermittent noise. It is often used together with another noise scale, or noise standards in terms of percentile noise levels, in noise ordinances for enforcement purposes. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time during a stated period. The L_{50} noise level represents the median noise level. Half the time the noise level exceeds this level, and half the time it is less than this level. The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period. For a relatively constant noise source, L_{eq} and L_{50} are approximately the same.

Noise impacts can be described in three categories. The first category, audible impacts, refers to increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3 dB or greater because these levels have been found to be barely perceptible in exterior environments. The second category, potentially audible impacts, refers to a change in the noise level between 1 dB and 3 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category includes changes in noise levels of less than 1 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant.

Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear, even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear (the threshold of pain). A sound level of 160 to 165 dBA will result in dizziness or loss of equilibrium. The ambient or background noise problem is widespread and generally more concentrated in urban areas than in outlying, less developed areas. Table A lists definitions of acoustical terms, and Table B shows common sound levels and their sources.

Table A: Definitions of Acoustical Terms

Term	Definitions
Decibel, dB	A unit of measurement that denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hz	Of a function periodic in time, the number of times that the quantity repeats itself in 1 second (i.e., number of cycles per second).
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter deemphasizes the very low- and very high-frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. (All sound levels in this report are A-weighted, unless reported otherwise.)
L_{01}, L_{10}, L_{50}, L_{90}	The fast A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 1%, 10%, 50%, and 90% of a stated time period.
Equivalent Continuous Noise Level, L_{eq}	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound.
Community Noise Equivalent Level, CNEL	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dBA to sound levels occurring in the evening from 7:00 PM to 10:00 PM and after the addition of 10 dBA to sound levels occurring in the night between 10:00 PM and 7:00 AM.
Day/Night Noise Level, L_{dn}	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 dBA to sound levels occurring in the night between 10:00 PM and 7:00 AM.
L_{max}, L_{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.
Ambient Noise Level	The all-encompassing noise associated with a given environment at a specified time; usually a composite of sound from many sources at many directions, near and far; no particular sound is dominant.
Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content, as well as the prevailing ambient noise level.

Source: *Handbook of Acoustical Measurements and Noise Control* (Harris 1991).

Table B: Common Sound Levels and Their Noise Sources

Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Evaluations
Near Jet Engine	140	Deafening	128 times as loud
Civil Defense Siren	130	Threshold of Pain	64 times as loud
Hard Rock Band	120	Threshold of Feeling	32 times as loud
Accelerating Motorcycle at a Few Feet Away	110	Very Loud	16 times as loud
Pile Driver; Noisy Urban Street/Heavy City Traffic	100	Very Loud	8 times as loud
Ambulance Siren; Food Blender	95	Very Loud	—
Garbage Disposal	90	Very Loud	4 times as loud
Freight Cars; Living Room Music	85	Loud	—
Pneumatic Drill; Vacuum Cleaner	80	Loud	2 times as loud
Busy Restaurant	75	Moderately Loud	—
Near Freeway Auto Traffic	70	Moderately Loud	—
Average Office	60	Quiet	One-half as loud
Suburban Street	55	Quiet	—
Light Traffic; Soft Radio Music in Apartment	50	Quiet	One-quarter as loud
Large Transformer	45	Quiet	—
Average Residence without Stereo Playing	40	Faint	One-eighth as loud
Soft Whisper	30	Faint	—
Rustling Leaves	20	Very Faint	—
Human Breathing	10	Very Faint	Threshold of Hearing
—	0	Very Faint	—

Source: Compiled by LSA (2015).

FUNDAMENTALS OF VIBRATION

Vibration refers to ground-borne noise and perceptible motion. Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors. Outdoors, the motion may be discernible, but without the effects associated with the shaking of a building, there is less adverse reaction. Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by occupants as the motion of building surfaces, the rattling of items sitting on shelves or hanging on walls, or a low-frequency rumbling noise. The rumbling noise is caused by the vibration of walls, floors, and ceilings that radiate sound waves. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by 10 vibration velocity decibels (VdB) or less. This is an order of magnitude below the damage threshold for normal buildings. Typical sources of ground-borne vibration are construction activities (e.g., blasting, pile driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Ground-borne vibration and noise from these sources are usually localized to areas within approximately 100 feet (ft) from the vibration source, although there are examples of ground-borne vibration causing interference out to distances greater than 200 ft (see the Federal Transit Administration [FTA] *Transit Noise and Vibration Impact Assessment Manual* [FTA 2018]). When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. It is assumed for most projects that the roadway surface will be smooth enough that ground-borne vibration from street traffic will not exceed the impact criteria; however, both construction of a project and freight train operations on railroad tracks could result in ground-borne vibration that may be perceptible and annoying.

Ground-borne noise is not likely to be a problem because noise arriving via the normal airborne path will usually be greater than ground-borne noise. Ground-borne vibration has the potential to disturb people and damage buildings. Although it is very rare for train-induced ground-borne vibration to cause cosmetic building damage, it is not uncommon for heavy-duty construction processes (e.g., blasting and pile driving) to cause vibration of sufficient amplitudes to damage nearby buildings (FTA 2018). Ground-borne vibration is usually measured in terms of vibration velocity, either the root-mean-square (RMS) velocity or peak particle velocity (PPV). The RMS velocity is best for characterizing human response to building vibration, and PPV is used to characterize potential for damage. Decibel notation acts to compress the range of numbers required to describe vibration. Vibration velocity level in decibels is defined as the following:

$$L_v = 20 \log_{10} [V/V_{ref}]$$

where L_v is the VdB, V is the RMS velocity amplitude, and V_{ref} is the reference velocity amplitude, or 1 x 10^{-6} inches per second (in/sec) used in the United States.

REGULATORY SETTING

Federal Guidelines

Federal Transit Administration

Vibration standards included in the FTA *Transit Noise and Vibration Impact Assessment Manual* (2018) were used to evaluate vibration impacts even though the City exempts vibration caused by motor vehicles and temporary construction. Table C provides the criteria for assessing the potential for interference or annoyance from vibration levels in a building, and Table D lists the potential vibration building damage criteria associated with construction activities.

Table C: Interpretation of Vibration Criteria for Detailed Analysis

Land Use	Maximum L_v (VdB)[1]	Description of Use
Workshop	90	Vibration that is distinctly felt. Appropriate for workshops and similar areas not as sensitive to vibration.
Office	84	Vibration that can be felt. Appropriate for offices and similar areas not as sensitive to vibration.
Residential Day	78	Vibration that is barely felt. Adequate for computer equipment and low-power optical microscopes (up to 20X).
Residential Night and Operating Rooms	72	Vibration is not felt, but ground-borne noise may be audible inside quiet rooms. Suitable for medium-power microscopes (100X) and other equipment of low sensitivity.

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
[1] As measured in 1/3-octave bands of frequency over the frequency range 8 to 80 Hz.
FTA = Federal Transit Administration
Hz = hertz
L_V = velocity in decibels
VdB = vibration velocity decibels

Table D: Construction Vibration Damage Criteria

Building Category	PPV (in/sec)	Approximate LV (VdB)1
Reinforced concrete, steel, or timber (no plaster)	0.50	102
Engineered concrete and masonry (no plaster)	0.30	98
Non-engineered timber and masonry buildings	0.20	94
Buildings extremely susceptible to vibration damage	0.12	90

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
[1] RMS vibration velocity in decibels (VdB) is 1 µin/sec.
µin/sec = microinches per second
FTA = Federal Transit Administration
in/sec = inches per second
L_V = velocity in decibels
PPV = peak particle velocity
RMS = root-mean-square
VdB = vibration velocity decibels

Local Regulations

City of Menifee

Noise Element of the General Plan. The Noise Element of the City's General Plan (City of Menifee 2013) lists the goals and policies required to meet the City's noise-related goals. The following lists the applicable goals and policies for the project.

Goal N-1: Noise-sensitive land uses are protected from excessive noise and vibration exposure.

- **Policy N-1.1:** Assess the compatibility of proposed land uses with the noise environment when preparing, revising, or reviewing development project applications.
- **Policy N-1.2:** Require new projects to comply with the noise standards of local, regional, and state building code regulations, including but not limited to the city's Municipal Code, Title 24 of the California Code of Regulations, the California Green Building Code, and subdivision and development codes.
- **Policy N-1.3:** Require noise abatement measures to enforce compliance with any applicable regulatory mechanisms, including building codes and subdivision and zoning regulations, and ensure that the recommended mitigation measures are implemented.
- **Policy N-1.7:** Mitigate exterior and interior noises to the levels listed in Table E to the extent feasible, for stationary sources adjacent to sensitive receptors:

Table E: Stationary Source Noise Standards

Land Use	Period	Interior	Exterior
Residential	10:00 PM to 7:00 AM	40 dBA L_{eq} (10-minute)	45 dBA L_{eq} (10-minute)
	7:00 AM to 10:00 PM	55 dBA L_{eq} (10-minute)	65 dBA L_{eq} (10-minute)

Sources: General Plan Noise Element (City of Menifee 2013) and Development Code (City of Menifee 2019).
dBA = A-weighted decibel
L_{eq} = equivalent continuous sound level

- **Policy N-1.8:** Locate new development in areas where noise levels are appropriate for the proposed uses. Consider federal, state, and city noise standards and guidelines as a part of new development review.
- **Policy N-1.12:** Minimize potential noise impacts associated with the development of mixed-use projects (vertical or horizontal mixed-use) where residential units are located above or adjacent to noise-generating uses.
- **Policy N-1.13:** Require new development to minimize vibration impacts to adjacent uses during demolition and construction.
- **Policy N-1.17:** Prevent the construction of new noise-sensitive land uses within airport noise impact zones. New residential land uses within the 65 dBA CNEL contours of any public-use or military airports, as defined by the Riverside County Airport Land Use Commission, shall be prohibited.

Municipal Code. Section 8.01.010 of the City's Municipal Code (City of Menifee 2024) permits any construction within the City within 0.25 mile from an occupied residence Monday through Saturday between the hours of 6:30 a.m. and 7:00 p.m., except on nationally recognized holidays. No construction shall be permitted on Sunday or nationally recognized holidays unless approval is obtained from the City Building Official or City Engineer.

Development Code. Section 9.210.060(B)(10) of the City's Development Code (City of Menifee 2019) exempts sound emanating from heating and air conditioning equipment in proper repair.

Section 9.210.060(C) of the City's Development Code (City of Menifee 2019) allows exceptions to be requested from the standards set forth in Section 9.210.060 of the City's Development Code and may be characterized as construction-related, single-event, or continuous-events exceptions:

- Private construction projects, with or without a building permit, located 0.25 mile or more from an inhabited dwelling.

- Private construction projects, with or without a building permit, located within 0.25 mile from an inhabited dwelling, shall be permitted Monday through Saturday, except on nationally recognized holidays, 6:30 a.m. to 7:00 p.m., or as specified in Section 8.01.010 of the Municipal Code (City of Menifee 2024). There shall be no construction permitted on Sunday or nationally recognized holidays unless approval is obtained from the City Building Official or City Engineer.

- Construction-related exceptions. If construction occurs during off hours or exceeds noise thresholds, an application for a construction-related exception shall be made using the temporary use application provided by the Community Development Director in Chapter 9.110 of the City's Development Code (City of Menifee 2019). For construction activities on Sunday or nationally recognized holidays, Section 8.01.010 of the Municipal Code shall prevail.

Section 9.215.060(D) of the City's Development Code (City of Menifee 2019) prohibits the creation of any sound on any property that causes the exterior and interior sound level on any other occupied property to exceed the noise standards shown in Table E (Stationary Source Noise Standards) above.

Section 9.215.070 of the City's Development Code (City of Menifee 2019) requires that all uses shall be operated so as not to generate vibration discernible without instruments by the average person while on or beyond the lot upon which the source is located or within an adjoining enclosed space if more than one establishment occupies a structure. Vibration caused by motor vehicles, trains, and temporary construction is exempted from this standard.

EXISTING SETTING

Sensitive Land Uses in the Project Vicinity

Existing land uses within the project area include residences, a construction and landscaping material yard land, commercial, and industrial uses. Single-family residences are located to the north and south of the project site. The construction and landscaping material yard is immediately north of the project site. Commercial and industrial uses are northeast and southwest, respectively, of the project site, across Zeiders Road.

Overview of the Existing Noise Environment

The primary existing noise sources in the project area are transportation facilities and activities from the construction and landscaping material yard as well as nearby commercial and industrial uses. Traffic on Zeiders Road and other local roadways contributes to the ambient noise levels in the project

vicinity. Noise from motor vehicles is generated by engines, the interaction between the tires and the road, and the vehicles' exhaust systems.

Ambient Noise Measurements

Short-Term Noise Measurements

Short-term (20-minute) noise level measurements were conducted on May 25, 2022, using a Larson Davis Model 824 Type 1 sound level meter. Table F shows the results of the short-term noise level measurements along with a description of the measurement location and noise sources that occurred during the measurement. As shown in Table F, the measured average noise levels in the project vicinity ranged from 54.2 to 55.9 dBA L_{eq}, and the measured maximum noise levels ranged from 62.6 to 71.2 dBA L_{max}. Figure 3 shows the short-term monitoring locations. The short-term noise level measurement sheets are provided in Attachment C.

Table F: Short-Term Ambient Noise Level Measurements

Monitor No.	Location	Date	Start Time	Noise Level (dBA)			Noise Sources
				L_{eq}	L_{max}	L_{min}	
ST-1	Located in the front yard of 33255 Zeiders Road, Menifee, CA 92584. At the southeast corner of the property, approximately 30 ft from the front yard's fountain and 20 ft from the southern fence.	5/25/22	10:52 a.m.	54.2	62.6	47.6	Traffic on Zeiders Road. Faint truck loading/unloading noise from the southeast of the residential property.
ST-2	Western edge of project site near group of trees. Approximately 100 ft south from the construction and landscaping material yard.	5/25/22	11:25 a.m.	55.9	71.2	50.4	Active cutting noise on site at the northwest corner of the project site. Truck loading/ unloading noise coming from the northwest corner of the project site.

Source: Compiled by LSA (2022).
dBA = A-weighted decibels
ft = foot/feet
L_{eq} = equivalent continuous sound level
L_{max} = maximum instantaneous noise level
L_{min} = minimum instantaneous noise level

Long-Term Noise Measurements

The long-term (24-hour) noise level measurements were conducted from May 25 to May 26, 2022, using Larson Davis Spark dosimeters. Tables G and H show the hourly L_{eq} results from the long-term noise level measurements, and Table I shows the daytime noise level range (L_{eq} and L_{max}) along with the calculated CNEL from the long-term noise level measurements at LT-1 and LT-2.

As shown in Table I, the daytime noise levels ranged from 57.9 to 72.5 dBA L_{eq} at monitoring location LT-1 and from 50.5 to 66.8 dBA L_{eq} at monitoring location LT-2. The daytime maximum instantaneous noise level ranged from 70.8 to 87.3 dBA at LT-1 and from 63.5 to 82.7 dBA at LT-2. The calculated daily noise levels were 63.1 dBA CNEL at LT-1 and 67.8 dBA CNEL at LT-2. Figure 3 shows the long-term monitoring locations. The long-term noise level measurement sheets are provided in Attachment C.

Table G: Long-Term (24-Hour) Noise Level Measurement Results at LT-1

Start Time		Date	Noise Level (dBA)		
			L_{eq}	L_{max}	L_{min}
1	11:00 AM	5/25/22	65.9	81.9	52.2
2	12:00 PM	5/25/22	66.6	83.1	51.4
3	1:00 PM	5/25/22	70.2	84.4	52.7
4	2:00 PM	5/25/22	71.9	84.8	54.7
5	3:00 PM	5/25/22	71.1	87.3	55.7
6	4:00 PM	5/25/22	72.2	87.2	55.5
7	5:00 PM	5/25/22	67.9	84.5	52.6
8	6:00 PM	5/25/22	65.0	77.4	51.0
9	7:00 PM	5/25/22	63.3	78.9	50.4
10	8:00 PM	5/25/22	59.3	70.8	49.1
11	9:00 PM	5/25/22	57.9	72.5	49.1
12	10:00 PM	5/25/22	55.4	73.2	47.5
13	11:00 PM	5/25/22	55.1	72.1	46.2
14	12:00 AM	5/26/22	52.6	64.3	44.3
15	1:00 AM	5/26/22	51.8	67.5	41.9
16	2:00 AM	5/26/22	52.5	65.9	42.4
17	3:00 AM	5/26/22	55.3	69.2	45.0
18	4:00 AM	5/26/22	59.4	73.8	50.5
19	5:00 AM	5/26/22	62.4	74.4	55.7
20	6:00 AM	5/26/22	61.2	71.6	49.6
21	7:00 AM	5/26/22	61.1	71.1	49.4
22	8:00 AM	5/26/22	60.6	75.3	48.9
23	9:00 AM	5/26/22	62.0	87.2	48.6
24	10:00 AM	5/26/22	61.2	78.2	48.1

Source: Compiled by LSA (2022).
dBA = A-weighted decibels
L_{eq} = equivalent continuous sound level
L_{max} = maximum instantaneous noise level
L_{min} = minimum instantaneous noise level

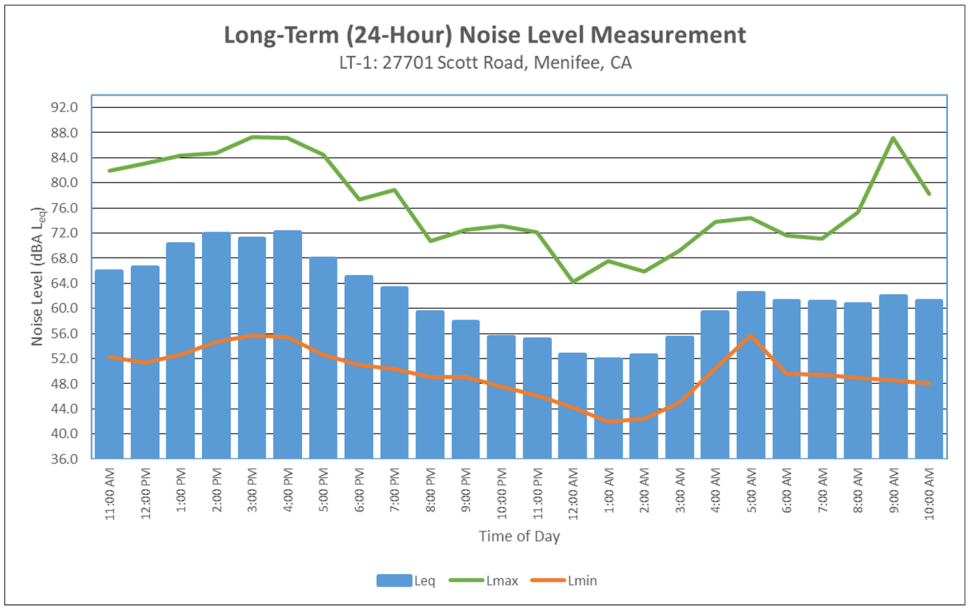

Table H: Long-Term (24-Hour) Noise Level Measurement Results at LT-2

Start Time		Date	Noise Level (dBA)		
			L_{eq}	L_{max}	L_{min}
1	11:00 AM	5/25/22	61.9	73.2	49.7
2	12:00 PM	5/25/22	63.7	75.8	50.0
3	1:00 PM	5/25/22	64.5	78.9	50.5
4	2:00 PM	5/25/22	66.2	82.7	53.5
5	3:00 PM	5/25/22	66.8	78.6	53.5
6	4:00 PM	5/25/22	66.5	75.5	54.2
7	5:00 PM	5/25/22	64.6	75.5	49.9
8	6:00 PM	5/25/22	60.8	71.2	50.2
9	7:00 PM	5/25/22	57.9	74.4	48.9
10	8:00 PM	5/25/22	53.8	64.4	47.8
11	9:00 PM	5/25/22	53.1	72.0	47.0
12	10:00 PM	5/25/22	51.1	67.0	45.1
13	11:00 PM	5/25/22	50.9	66.9	43.8
14	12:00 AM	5/26/22	49.2	57.1	41.1
15	1:00 AM	5/26/22	48.4	62.5	38.9
16	2:00 AM	5/26/22	50.3	59.3	39.6
17	3:00 AM	5/26/22	52.8	63.7	43.3
18	4:00 AM	5/26/22	55.4	68.2	49.9
19	5:00 AM	5/26/22	58.4	76.2	51.2
20	6:00 AM	5/26/22	55.9	75.3	46.5
21	7:00 AM	5/26/22	52.3	66.4	47.1
22	8:00 AM	5/26/22	52.1	76.7	46.0
23	9:00 AM	5/26/22	51.1	72.6	44.4
24	10:00 AM	5/26/22	50.5	63.5	44.8

Source: Compiled by LSA (2022).
dBA = A-weighted decibels
L_{eq} = equivalent continuous sound level
L_{max} = maximum instantaneous noise level
L_{min} = minimum instantaneous noise level

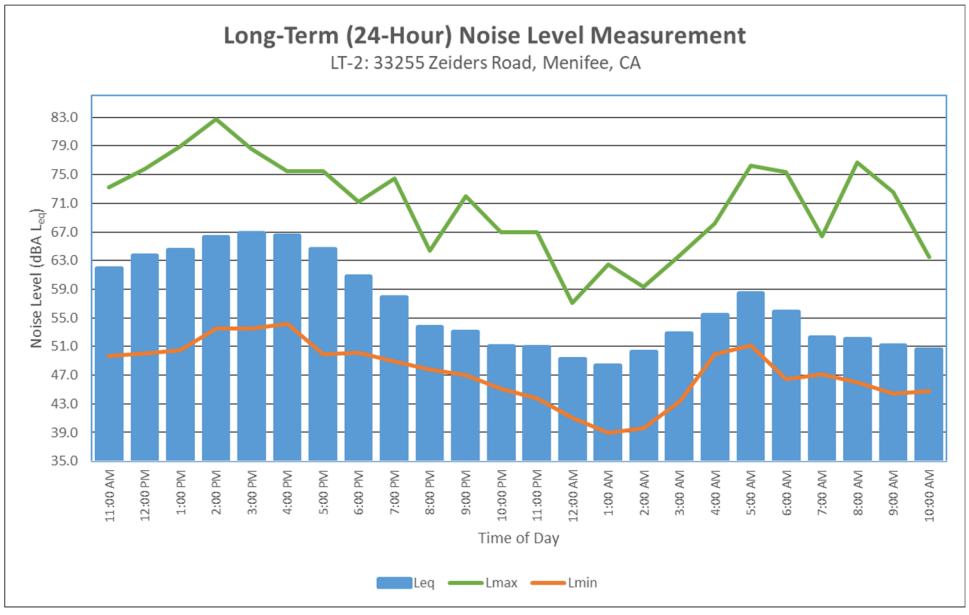

Table I: Long-Term Ambient Noise Monitoring Results

Monitoring No.	Location	Noise Level (dBA)			Noise Sources
		L_{eq}	L_{max}	CNEL	
LT-1	Located in the parking lot in front of 27701 Scott Road next to a light pole closest to Zeiders Road, southwest corner of the plaza.	57.9-72.2	70.8-87.3	67.8	Traffic on Zeiders Road and faint traffic on Interstate 215. Some parking lot activity.
LT-2	Located on the property at 33255 Zeiders Road along the southern fenced gate, where the trailer storage and residential property meet.	50.5-66.8	63.5-82.7	63.1	Activity from the construction and landscaping material yard, including noise from workers talking.

Source: Compiled by LSA (2022).
Note: The long-term (24-hour) noise level measurements were conducted from May 25 to May 26, 2022.
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibel
L_{eq} = equivalent continuous sound level
L_{max} = maximum instantaneous sound level

Existing Aircraft Noise

French Valley Airport is a public airport that is 4.7 miles southeast of the project site. Also, Perris Valley Airport is a private airport that is 8.5 miles northwest of the project site. The airport noise contours for both the French Valley Airport and the Perris Valley Airport in the *Riverside County Airport Land Use Compatibility Plan* (RCALUC 2004) show that the project site is outside the 55 dBA CNEL noise contour. Although there are no private airstrips within 2 miles of the project site, Loma Linda University Center – Murrieta has a heliport 1.6 miles southeast of the project site. The usage of this heliport would be infrequent due to emergencies and would not influence the noise environment at the project site. Therefore, the project would not expose people working in the project area to excessive noise levels and this topic is not further discussed.

Existing Traffic Noise

The guidelines included in the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA 1977; FHWA RD-77-108) were used to evaluate traffic-related noise conditions along roadway segments in the project vicinity. This model requires various parameters, including traffic volumes, vehicle mix, vehicle speed, and roadway geometry to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the CNEL values. The existing (2024) average daily traffic (ADT) volumes were derived from the project trip generation information contained in the *Caliber Collision Paint and Auto Body Repair Shop Project Traffic Analysis Memorandum* (LSA 2024b) and traffic counts for the proposed project. The standard vehicle mix for Southern California roadways was used for traffic on these roadway segments. Table J provides the existing traffic noise levels in the project vicinity. These noise levels represent the worst-case scenario, which assumes that no shielding is provided between the traffic and the location where the noise contours are drawn. Attachment D provides the specific assumptions used in developing these noise levels and model printouts.

Table J: Existing (2024) Traffic Noise Levels

Roadway Segment	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane
Zeiders Road between Scott Road and Project Driveway	7,455	< 50	74	157	66.2
Scott Road between Haun Road/Zeiders Road and I-215 Southbound Ramps	32,441	94	196	418	71.5
Scott Road between I-215 Southbound Ramps and I-215 Northbound Ramps	37,535	103	216	461	72.0

Source: Compiled by LSA (2024).
Note: Traffic noise within 50 ft of the roadway centerline should be evaluated with site-specific information.
ADT = average daily traffic
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibel
ft = foot/feet
I-215 = Interstate 215

IMPACTS

Short-Term Construction Noise Impacts

Two types of short-term noise impacts would occur during project construction. The first type would be from construction crew commutes and the transport of construction equipment and materials to the project site and would incrementally raise noise levels on roadways leading to the site. The pieces of construction equipment for construction activities would move on site, would remain for the duration of each construction phase, and would not add to the daily traffic volume in the project vicinity. Although there would be a relatively high single-event noise exposure potential causing intermittent noise nuisance (passing trucks at 50 ft would generate up to a maximum of 84 dBA), the effect on longer-term (hourly or daily) ambient noise levels would be small because the number of hourly/daily construction-related vehicle trips is small compared to the existing hourly/daily traffic volume on Zeiders Road and Scott Road. The grading phase would generate the most trips out of all of the construction phases, at 610 trips per day based on the California Emissions Estimator Model (Version 2022.1) results in Appendix C of the *Air Quality, Greenhouse Gas Emissions, and Energy Analysis for the Caliber Collision Paint and Auto Body Repair Project* (LSA 2024a). Roadways that would be used to access the project site are Zeiders Road and Scott Road. Based on Table J, Zeiders Road and Scott Road have existing daily traffic volumes of 7,555 and 32,441, respectively, near the project site. Based on the maximum daily trips generated by construction-related traffic, construction-related traffic would increase noise by up to 0.3 dBA. A noise level increase of less than 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, no short-term construction-related impacts associated with worker commutes and transport of construction equipment and material to the project site would occur, and no noise reduction measures would be required.

The second type of short-term noise impact is related noise generated from construction activities. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. The project anticipates site preparation and grading, building construction, paving, and architectural coating phases of construction. These various sequential phases change the character of the noise generated on a project site. Therefore, the noise

levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table K lists the L_{max} recommended for noise impact assessments for typical construction equipment included in the *FHWA Highway Construction Noise Handbook* (FHWA 2006), based on a distance of 50 ft between the equipment and a noise receptor.

Table K: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor[1] (%)	Maximum Noise Level (L_{max}) at 50 ft[2]
Backhoe	40	80
Compactor (ground)	20	80
Compressor	40	80
Crane	16	85
Dozer	40	85
Dump Truck	40	84
Excavator	40	85
Flatbed Truck	40	84
Forklift	20	85
Front-End Loader	40	80
Grader	40	85
Impact Pile Driver	20	95
Jackhammer	20	85
Pavement Scarifier	20	85
Paver	50	85
Pickup Truck	40	55
Pneumatic Tools	50	85
Pump	50	77
Rock Drill	20	85
Roller	20	85
Scraper	40	85
Tractor	40	84
Welder	40	73

Source: *FHWA Highway Construction Noise Handbook.* Table 9.1 (FHWA 2006).
Note: The noise levels reported in this table are rounded to the nearest whole number.
[1] The usage factor is the percentage of time during a construction noise operation that a piece of construction equipment is operating at full power.
[2] Maximum noise levels were developed based on Specification 721.560 from the CA/T program to be consistent with the City of Boston, Massachusetts, Noise Code for the "Big Dig" project.
CA/T = Central Artery/Tunnel
FHWA = Federal Highway Administration
ft = foot/feet
L_{max} = maximum instantaneous noise level

Table L lists the anticipated construction equipment for each construction phase based on the CalEEMod (Version 2022.1) results contained in Appendix C of the *Air Quality, Greenhouse Gas Emissions, and Energy Analysis for the Caliber Collision Paint and Auto Body Repair Project* (LSA 2024a). Table L shows the combined noise level at 50 ft from all of the equipment in each phase and the L_{eq} noise level for each piece of equipment at 50 ft based on the quantity, reference L_{max} noise level at 50 ft, and the acoustical usage factor. As shown in Table L, construction noise levels would reach up to 88.5 dBA L_{eq} at a distance of 50 ft.

Table L: Summary of Construction Phase, Equipment, and Noise Levels

Construction Phase	Construction Equipment	Quantity	Reference Noise Level at 50 ft (dBA L_{max})	Acoustical Usage Factor[1] (%)	Noise Level at 50 ft (dBA L_{eq})	Combined Noise Level at 50 ft (dBA L_{eq})
Site Preparation	Front End Loader	4	80	40	82.0	87.3
	Dozer	3	85	40	85.8	
Grading	Grader	1	85	40	81.0	87.0
	Dozer	1	85	40	81.0	
	Front End Loader	3	80	40	80.8	
	Excavator	1	85	40	81.0	
Building Construction	Crane	1	85	16	77.0	86.5
	Man Lift	3	85	20	82.8	
	Generator	1	82	50	79.0	
	Front End Loader	3	80	40	80.8	
	Welder / Torch	1	73	40	69.0	
Paving	Concrete Mixer Truck	2	85	40	84.0	88.5
	Paver	1	85	50	82.0	
	Pavement Scarafier	2	85	20	81.0	
	Roller	2	85	20	81.0	
	Front End Loader	1	80	40	76.0	
Architectural Coating	Compressor (air)	1	80	40	76.0	76.0

Source: Compiled by LSA (2024).

[1] The acoustical usage factor is the percentage of time during a construction noise operation that a piece of construction equipment operates at full power

dBA = A-weighted decibels
ft = foot/feet
L_{eq} = equivalent continuous sound level
L_{max} = maximum instantaneous noise level

The closest residential property line is approximately 80 ft from the center of the project site and may be subject to noise levels of 84.4 dBA L_{eq}. Measured ambient noise levels in the project vicinity range between 50.5 and 72.5 dBA L_{eq} based on the short-term and long-term noise level measurements shown in Tables F and I. Although the noise generated by project construction activities would be higher than the ambient noise levels and may result in a temporary increase in the ambient noise levels, construction noise would stop once project construction is completed. Compliance with the allowable construction hours pursuant to Section 8.01.010 of the City's Municipal Code and best construction practices listed below would minimize construction noise.

- The construction contractor shall limit construction activities to between the hours of 6:30 a.m. and 7:00 p.m. on Monday through Saturday. No construction shall be permitted outside these hours, on Sunday, or on nationally recognized holidays unless approval is obtained from the City Building Official or City Engineer.

- During all project site excavation and grading, the project contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.

- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and most noise-sensitive receptors nearest the project site during all project construction.

- The construction contractor shall place all stationary construction equipment so that the emitted noise is directed away from the sensitive receptors nearest the project site.

Therefore, no noise impacts from construction activities would occur. No noise reduction measures are required.

Short-Term Construction Vibration Impacts

Although vibration levels generated from short-term construction are exempt based on Section 9.215.070 of the City's Development Code (City of Menifee 2019), vibration levels generated from short-term construction were evaluated for the level of human annoyance and potential for building damage. This construction vibration impact analysis discusses the level of human annoyance using vibration levels in VdB and assesses the potential for building damage using vibration levels in PPV (in/sec). Vibration levels calculated in RMS velocity are best for characterizing human response to building vibration, whereas vibration levels in PPV are best for characterizing damage potential. As shown in Table D, the FTA guidelines indicate that a vibration level up to 0.5 PPV (in/sec) is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster) and would not result in any construction vibration damage (FTA 2018). For a non-engineered timber and masonry building, the construction vibration damage criterion is 0.2 PPV (in/sec). For a fragile building, the construction vibration damage criterion is 0.12 PPV (in/sec).

Table M shows the reference vibration levels at a distance of 25 ft for each type of standard construction equipment from the *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018). Outdoor site preparation and grading for the project are expected to require the use of a large bulldozer and loaded trucks, which would generate ground-borne vibration levels of up to 87 VdB (0.089 PPV [in/sec]) and 86 VdB (0.076 PPV [in/sec]), respectively, when measured at 25 ft.

Table M: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV/L_V at 25 ft	
	PPV (in/sec)	L_V (VdB)[1]
Pile Driver (Impact), Typical	0.644	104
Pile Driver (Sonic), Typical	0.170	93
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large Bulldozer[2]	**0.089**	**87**
Caisson Drilling	0.089	87
Loaded Trucks[2]	**0.076**	**86**
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Sources: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

[1] RMS vibration velocity in decibels (VdB) is 1 µin/sec.

[2] Equipment shown in **bold** is expected to be used on site.

µin/sec = micro-inches per second
ft = foot/feet
FTA = Federal Transit Administration
in/sec = inches per second
L_V = velocity in decibels
PPV = peak particle velocity
RMS = root-mean-square
VdB = vibration velocity decibels

The greatest vibration levels are anticipated during the site preparation and grading phase. All other phases are expected to result in lower vibration levels. The distance to the nearest buildings for

vibration impact analysis is measured between the nearest off-site buildings and the project boundary (assuming the construction equipment would be used at or near the project boundary), because vibration impacts normally occur within the buildings.

The formulas for vibration transmission are provided below:

$$L_vdB\ (D) = L_vdB\ (25\ ft) - 30\ Log\ (D/25)$$

$$PPV_{equip} = PPV_{ref}\ x\ (25/D)^{1.5}$$

Table N lists the projected vibration levels, from various construction equipment expected to be used on the project site in the active construction area, to the closest building structures in the project vicinity. As shown in Table N, the closest residential, industrial, and commercial building structures are approximately 175 ft, 580 ft, and 700 ft from the center of the project, respectively, and would experience a vibration level of up to 74 VdB, 56 VdB, and 51 VdB, respectively. These vibration levels would not result in community annoyance because vibration levels would not exceed the FTA's community annoyance threshold of 78 VdB for daytime residences and 84 VdB for uses not as sensitive to vibration. Other building structures that surround the project site would experience lower vibration levels because they are farther away.

Table N: Potential Construction Vibration Annoyance

Land Use	Direction	Equipment/ Activity	Reference Vibration Level (VdB) at 25 ft	Distance (ft)[1]	Vibration Level (VdB)
Residence	North	Large bulldozers	87	330	60
		Loaded trucks	86	330	59
Commercial	Northeast	Large bulldozers	87	700	51
		Loaded trucks	86	700	50
Industrial	Southeast	Large bulldozers	87	580	56
		Loaded trucks	86	580	55
Residence	South	Large bulldozers	87	175	74
		Loaded trucks	86	175	73

Source: Compiled by LSA (2024).
Note: The FTA community annoyance thresholds are 78 VdB for daytime residences and 84 VdB for uses not as sensitive to vibration.
[1] Distance from the center of the project site to the building structure.
ft = foot/feet
FTA = Federal Transit Administration
VdB = vibration velocity decibels

Similarly, Table O lists the projected vibration levels from various construction equipment expected to be used on the project site at the project construction boundary to the closest building structures in the project vicinity. As shown in Table O, the closest residential, industrial, and commercial building structures are approximately 70 ft, 260 ft, and 400 ft from the project construction boundary, respectively, and would experience a vibration level of up to 0.019 PPV (in/sec), 0.003 PPV (in/sec), and 0.001 PPV (in/sec), respectively. These vibration levels would not have the potential to result in building damage because the closest residential, industrial, and commercial building structures would be constructed equivalent to or better than non-engineered timber and masonry, and vibration levels would not exceed the FTA vibration damage threshold of 0.2 PPV (in/sec). Other building structures that surround the project site would experience lower vibration levels because they are farther away.

Table O: Potential Construction Vibration Damage

Land Use	Direction	Equipment/ Activity	Reference Vibration Level at 25 ft	Distance to Structure (ft)[1]	Vibration Level
			PPV (in/sec)		PPV (in/sec)
Residence	North	Large bulldozers	0.089	195	0.004
		Loaded trucks	0.076	195	0.003
Commercial	Northeast	Large bulldozers	0.089	400	0.001
		Loaded trucks	0.076	400	0.001
Industrial	Southeast	Large bulldozers	0.089	260	0.003
		Loaded trucks	0.076	260	0.002
Residence	South	Large bulldozers	0.089	70	0.019
		Loaded trucks	0.076	70	0.016

Source: Compiled by LSA (2024).
Note: The FTA-recommended building damage threshold is 0.20 PPV (in/sec) at the receiving nonengineered timber and masonry building.
[1] Distance from the project construction boundary to the building structure.
ft = foot/feet
FTA = Federal Transit Administration
in/sec = inches per second
PPV = peak particle velocity

Therefore, no construction vibration impacts would occur, and no vibration reduction measures are required.

Long-Term Traffic Noise Impacts

The guidelines included in the *FHWA Highway Traffic Noise Prediction Model* (FHWA 1977) (FHWA RD-77-108) were used to evaluate traffic-related noise conditions along roadway segments in the project vicinity. This model requires various parameters, including traffic volumes, vehicle mix, vehicle speed, and roadway geometry to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the CNEL values. The existing (2024) ADT volumes were derived from the project trip generation information contained in the *Caliber Collision Paint and Auto Body Repair Shop Project Traffic Analysis Memorandum* (LSA 2024b) and traffic counts. The standard vehicle mix for Southern California roadways was used for traffic on these roadway segments. Table P shows the existing (2024) traffic noise levels without and with the project along roadways in the project vicinity. These noise levels represent the worst-case scenario, which assumes that no shielding is provided between the traffic and the location where the noise contours are drawn. Attachment D provides the specific assumptions used in developing these noise levels and model printouts.

As shown in Table P, the project-related traffic noise would not increase noise levels. Therefore, no traffic noise impacts from project-related traffic on off-site sensitive receptors would occur. No noise reduction measures are required.

Table P: Existing (2024) Traffic Noise Levels Without and With Project

Roadway Segment	Without Project Traffic Conditions					With Project Traffic Conditions					
	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase from Baseline Conditions
Zeiders Road between Scott Road and Project Driveway	7,455	< 50	74	157	66.2	7,540	< 50	74	159	66.2	0.0
Scott Road between Haun Road/Zeiders Road and I-215 Southbound Ramps	32,441	94	196	418	71.5	32,522	94	196	419	71.5	0.0
Scott Road between I-215 Southbound Ramps and I-215 Northbound Ramps	37,535	103	216	461	72.0	37,578	103	216	461	72.0	0.0

Source: Compiled by LSA (2024).
Note: Traffic noise within 50 ft of the roadway centerline should be evaluated with site-specific information.
ADT = average daily traffic
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibel
ft = foot/feet
I-215 = Interstate 215

Long-Term Stationary Noise Impacts

Operations of the proposed paint and auto body repair shop would generate stationary noise sources that would include heating, ventilation, and air conditioning (HVAC) equipment, pneumatic tools, air compressor, parking activities, and trucks delivering parts supplies and vehicles along with truck unloading activities. Stationary noise sources associated with the project would potentially affect the existing off-site sensitive land uses. The following provides a detailed noise analysis and discussion of each stationary noise source.

Heating, Ventilation, and Air Conditioning Equipment

The project would include a rooftop HVAC unit for the office portion of the project. The HVAC equipment could operate 24 hours per day. Each HVAC unit would generate a noise level of 44.4 dBA at 50 ft. Section 9.215.060(B)(10) of the City's Development Code (City of Menifee 2019) exempts sound emanating from heating and air conditioning equipment in proper repair. Therefore, no noise impacts from on-site HVAC equipment would occur. No noise reduction measures are required.

Auto Body Repair Activities

The project would include service bays within the proposed building to repair vehicles. Noise generated from repair and service activities would include noise generated by a torque gun, vehicle lift, and compressor similar to a typical auto mechanic garage, which would occur during the planned hours of operation from 7:30 a.m. to 5:30 p.m. Monday through Friday and 8:00 a.m. to 12:00 p.m. on Saturday. Noise generated by the torque gun, vehicle lift, and compressor are 73.8 dBA L_{eq}, 60.8 dBA L_{eq}, and 71.0 dBA L_{eq}, respectively, at a distance of 50 ft based on noise level measurements conducted by LSA. The combined noise level from the torque gun, vehicle lift, and compressor operating together at the same time as a worst-case scenario is 75.7 dBA L_{eq} at 50 ft.

The proposed auto body shop building with the overhead doors open on the north and west sides would shield noise generated from auto body shop activities occurring within the building and would provide a minimum noise reduction of 5 dBA and 20 dBA for the residences to the north and south, respectively. The residential property lines are approximately 235 ft north and 35 ft south, respectively, from the center of the auto body shop area.

Parking Activity

The project would include surface parking on the north, east, and west sides of the proposed building. Noise generated from parking lot activities would include noise generated by vehicles traveling at slow speeds, engine start-up noise, car door slams, car horns, car alarms, and tire squeals. These activities would occur during the planned hours of operation from 7:30 a.m. to 5:30 p.m. Monday through Friday and 8:00 a.m. to 12:00 p.m. on Saturday. Representative parking activities would generate 60 to 70 dBA L_{max} at 50 ft. It is estimated that parking activities would generate the maximum noise level for a cumulative period of 5 minutes in any hour and parking activities would generate a noise level of 49.2 to 59.2 dBA L_{eq} at 50 ft. The residential property lines are approximately 235 ft north and 95 ft south, respectively, from the center of the parking area.

Truck Delivery and Truck Unloading Activities

Trucks delivering parts supplies and vehicles in need of repair along with truck unloading activities for the project would take place on either the north or west sides of the auto body shop building. These activities would take place during the planned hours of operation from 7:30 a.m. to 5:30 p.m. Monday through Friday and 8:00 a.m. to 12:00 p.m. on Saturday. Noise levels generated from these activities include truck movement, backup alarms, air brakes, idling, and unloading activities. These activities would result in a maximum noise similar to noise readings from truck delivery and truck unloading activities for other projects, which would generate a noise level of 75 dBA L_{max} at 50 ft. Although a typical truck unloading process takes an average of 15 to 20 minutes, this maximum noise level occurs in a much shorter period of time (less than 5 minutes). Also, it is estimated that there would be a maximum of five delivery trucks and truck unloading activities per hour, which would result in a cumulative period of 25 minutes in any hour. Based on the assumptions above, truck delivery and truck unloading activities would generate a noise level of 61.2 dBA L_{eq} at 50 ft. The residential property lines are approximately 195 ft north and 40 ft south, respectively, from truck delivery and truck unloading activities.

Stationary Noise Impacts Summary

Table Q shows the individual and combined stationary noise from the operations of the proposed auto body shop, which include noise generated from auto body shop activities (torque gun, vehicle lift, and compressor), parking activities, and trucks delivering parts supplies and vehicles along with truck unloading activities. As shown in Table Q, the combined stationary noise generated from the proposed project would be 58.2 dBA L_{eq} and 64.8 dBA L_{eq} at the residential property lines to the north and south, respectively. These noise levels would not exceed the City's daytime exterior 10-minute noise standard of 65 dBA L_{eq}.

In addition, interior noise levels at the closest residences were calculated based on windows and doors open, which would have an exterior-to-interior noise reduction of 12 dBA (EPA 1978). Table Q shows that interior noise levels from the project's combined stationary noise at the closest residence to the north and south would be 46.2 dBA L_{eq} and 52.8 dBA L_{eq}, respectively. These noise levels would not exceed the City's daytime interior 10-minute noise standard of 55 dBA L_{eq}. Also, the City's nighttime exterior and interior noise standards would not be exceeded because the proposed project would not operate during nighttime hours. Therefore, no noise impacts from project operations would occur. No noise reduction measures are required.

Long-Term Vibration Impacts

The project would not generate vibration. In addition, vibration levels generated from project-related traffic on the adjacent roadways (Zeiders Road and Scott Road) are exempt based on Section 9.215.070 of the City's Development Code. Therefore, no vibration impacts from project-related operations would occur, and no vibration reduction measures are required.

Table Q: Stationary Noise Levels

Land Use	Direction	Activity	Reference Noise Level at 50 ft (dBA L_{max})	Reference Noise Level at 50 ft (dBA L_{eq})	Distance (ft)	Distance Attenuation (dBA)	Shielding (dBA)	Exterior Noise Level (dBA L_{max})	Exterior Noise Level (dBA L_{eq})	Combined Exterior Noise Level (dBA L_{eq})	Combined Interior Noise Level[2] (dBA L_{eq})
Residential	North	Auto body Repair	--	75.7	235	13.4	5[3]	--	57.3	58.2	46.2
		Parking Activity	70	59.2	235	13.4	0	56.6	45.8		
		Truck[1]	75	61.2	195	11.8	0	63.2	49.4		
Residential	South	Auto body Repair	--	75.7	35	-3.1	20[4]	--	58.8	64.8	52.8
		Parking Activity	70	59.2	95	5.6	0	64.4	53.6		
		Truck[1]	75	61.2	40	-1.9	0	76.9	63.1		

Source: Compiled by LSA (2024).

[1] Trucks delivering parts supplies and vehicles along with truck unloading activities.

[2] The interior noise level was calculated based on an exterior-to-interior noise level reduction of 12 dBA with windows and doors open based on the United States Environmental Protection Agency (EPA) Protective Noise Levels: Condensed Version of EPA Levels Document (1978), with a combination of exterior walls, doors, and windows, and standard construction for Southern California (warm climate).

[3] The proposed auto body shop building with the overhead doors open on the north and west side would shield noise generated from auto body shop activities occurring within the building and would provide a minimum noise reduction of 5 dBA.

[4] The proposed auto body shop building with the overhead doors open on the north and west side would shield noise generated from auto body shop activities occurring within the building and would provide a minimum noise reduction of 20 dBA.

dBA = A-weighted decibel

ft = feet/foot

L_{eq} = equivalent continuous sound level

BEST CONSTRUCTION PRACTICES

The following best construction practices would be consistent with the City's requirements outlined in Section 9.215.060(B)(10) of the City's Development Code and would further minimize construction noise.

- The construction contractor shall limit construction activities to between the hours of 6:30 a.m. and 7:00 p.m. on Monday through Saturday. No construction shall be permitted outside these hours, on Sunday, or on nationally recognized holidays unless approval is obtained from the City Building Official or City Engineer.
- During all project site excavation and grading, the project contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and most noise-sensitive receptors nearest the project site during all project construction.
- The construction contractor shall place all stationary construction equipment so that the emitted noise is directed away from the sensitive receptors nearest the project site.

REDUCTION MEASURES

Short-Term Construction Noise Impacts

No noise reduction measures are required.

Short-Term Construction Vibration Impacts

No vibration reduction measures are required.

Aircraft Noise Impacts

No noise reduction measures are required.

Traffic Noise Impacts

No noise reduction measures are required.

Long-Term Stationary Noise Impacts

No noise reduction measures are required.

Long-Term Vibration Impacts

No vibration reduction measures are required.

Attachments: A: References
B: Figures 1 through 3
C: Noise Monitoring Results
D: FHWA Traffic Noise Model Printouts

ATTACHMENT A

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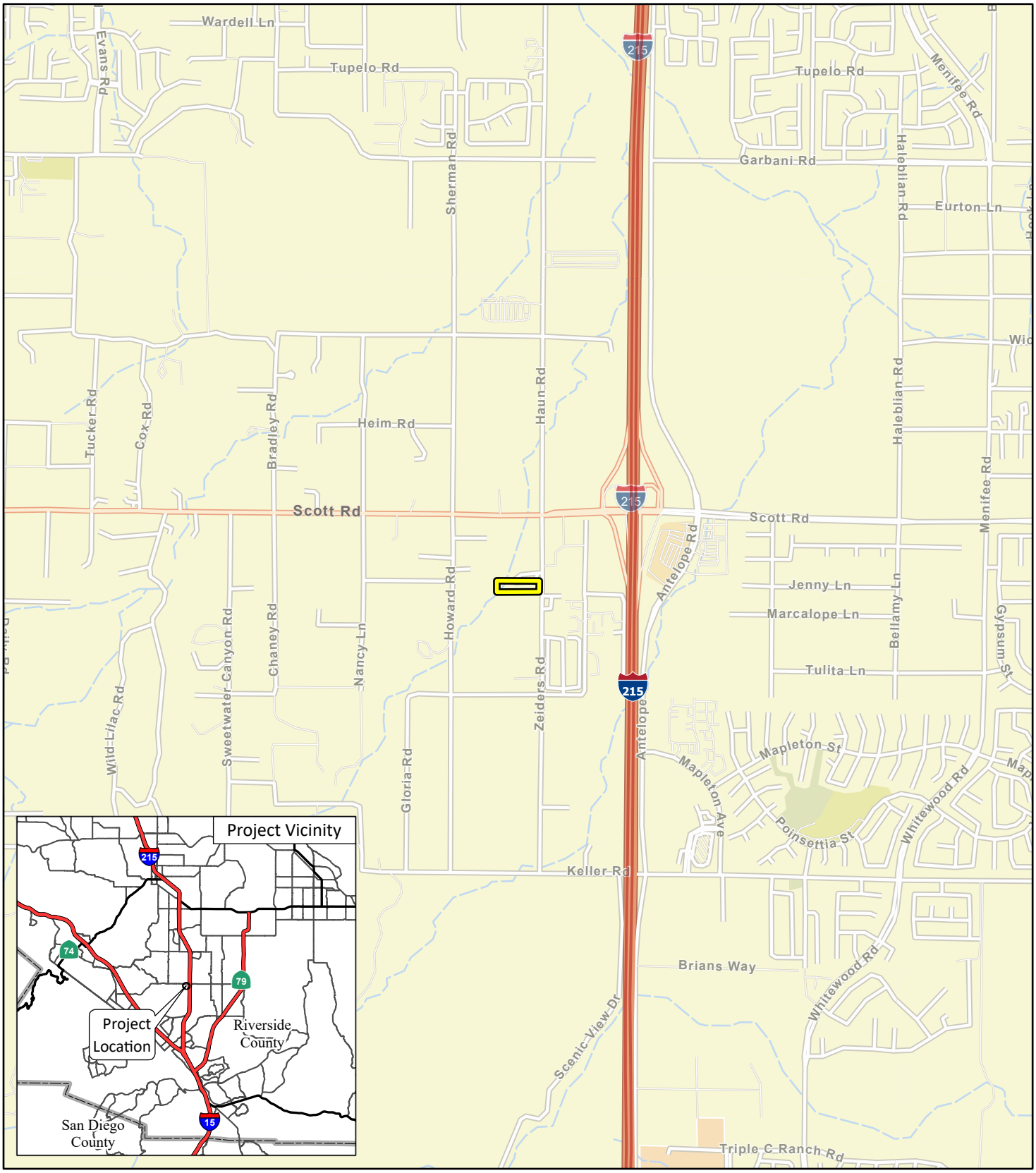
ATTACHMENT B

FIGURES 1 THROUGH 3



LSA

Project Location

FIGURE 1

N

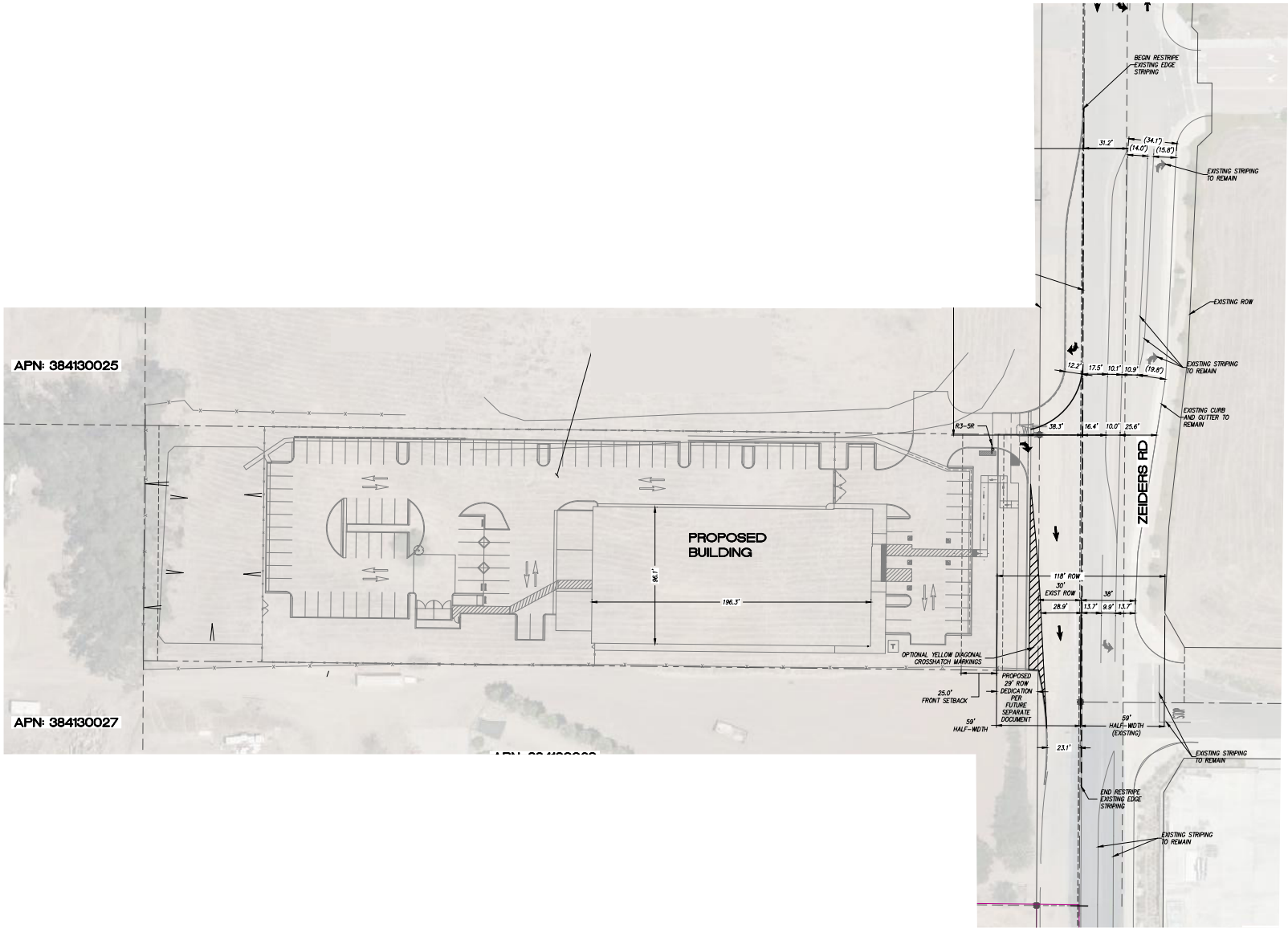
0 1000 2000
FEET

SOURCE: Esri Street Map 2024

I:\2023\20231078.02\GIS\Pro\Caliber Collision\Caliber Collision.aprx (10/21/2024)

Caliber Collision Paint and Auto Body Repair Shop Project

Project Location and Vicinity



LSA

FIGURE 2

N

0 70 140

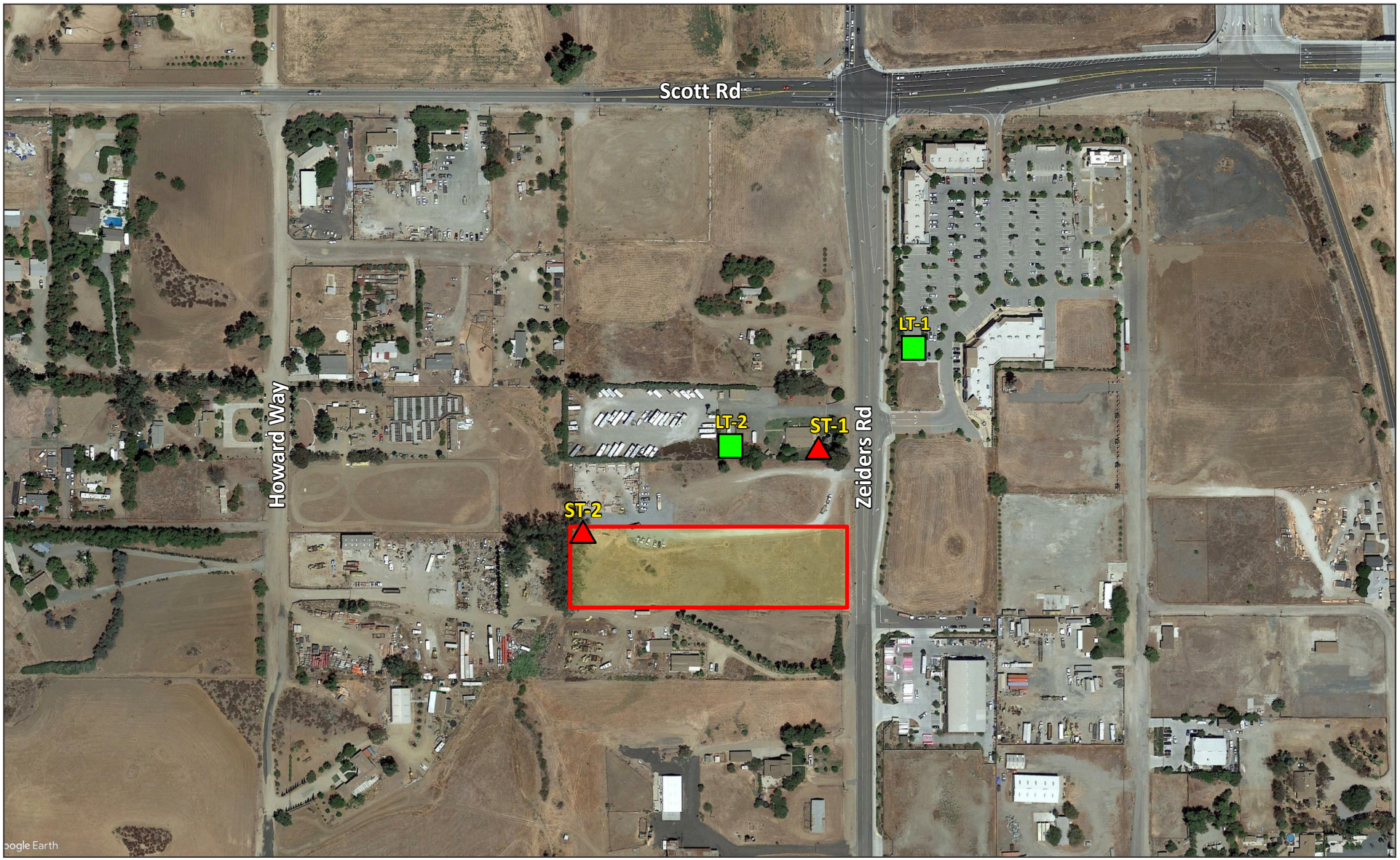
FEET

SOURCE: Latitude 33 Engineering

I:\2023\20231078.02\G\Site_Plan.ai (10/22/2024)

Caliber Collision Paint and Auto Body Repair Shop

Site Plan



LSA

FIGURE 3

LEGEND

Project Location

ST-1 Short-term Noise Monitoring Location

LT-1 Long-term Noise Monitoring Location

0 100 200

FEET

SOURCE: Google Earth 2022

Caliber Collision Paint and Auto Body Repair Shop

Noise Monitoring Locations

I:\2023\20231078.02\G\Noise_Locs.ai (10/21/2022)

ATTACHMENT C

NOISE SURVEY SHEETS

Noise Measurement Survey

Project Number: CIM2201 Test Personnel: Kevin Nguyendo

Project Name: Caliber Collision Equipment: Larson Davis 824

Site Number: ST-1 Date: 5/25/22 Time: From 10:52 a.m. To 11:12 a.m.

Site Location: Located in the front yard of 33255 Zeiders Road, Menifee, CA 92584. At the Southeast corner of the property. Approximately 30 feet from the front yard's fountain and 20feet from the southern fence.

Primary Noise Sources: Faint water fountain noise. Faint truck loading/unloading noise from southeast of the residential property. Regular traffic noise on Zeiders Road. Faint construction noise.

Measurement Results

	dBA
L_{eq}	54.2
L_{max}	62.6
L_{min}	47.6
L_{peak}	88.1
L_2	59.4
L_8	57.4
L_{25}	54.8
L_{50}	53.0
SEL	--

Atmospheric Conditions:

Maximum Wind Velocity (mph)	4.3
Average Wind Velocity (mph)	1.7
Temperature (F)	83.5
Relative Humidity (%)	37.4
Comments:	

Comments: File # 30. Chain link fence surrounds property. Running water fountain located in the front yard. Fence is approximately 7 feet high.

Traffic Description:

Roadway	# Lanes	Speeds	NB/EB Counts			SB/WB Counts		
			Auto	MT	HT	Auto	MT	HT

Diagram:

Location Photo:

Noise Measurement Survey

Project Number: CIM2201 Test Personnel: Kevin Nguyendo

Project Name: Caliber Collision Equipment: Larson Davis 824

Site Number: ST-2 Date: 5/25/22 Time: From 11:25 a.m. To 11:45 a.m.

Site Location: Western edge of project site near group of trees. Approximately 100 feet south from construction and landscaping material yard.

Primary Noise Sources: Active cutting noise on site at the northwest corner of the project Site. Loading/unloading noise coming from the northwest corner of the project site.

Measurement Results

	dBA
L_{eq}	55.9
L_{max}	71.2
L_{min}	50.4
L_{peak}	98.3
L_2	61.5
L_8	58.2
L_{25}	55.8
L_{50}	54.3
SEL	--

Atmospheric Conditions:

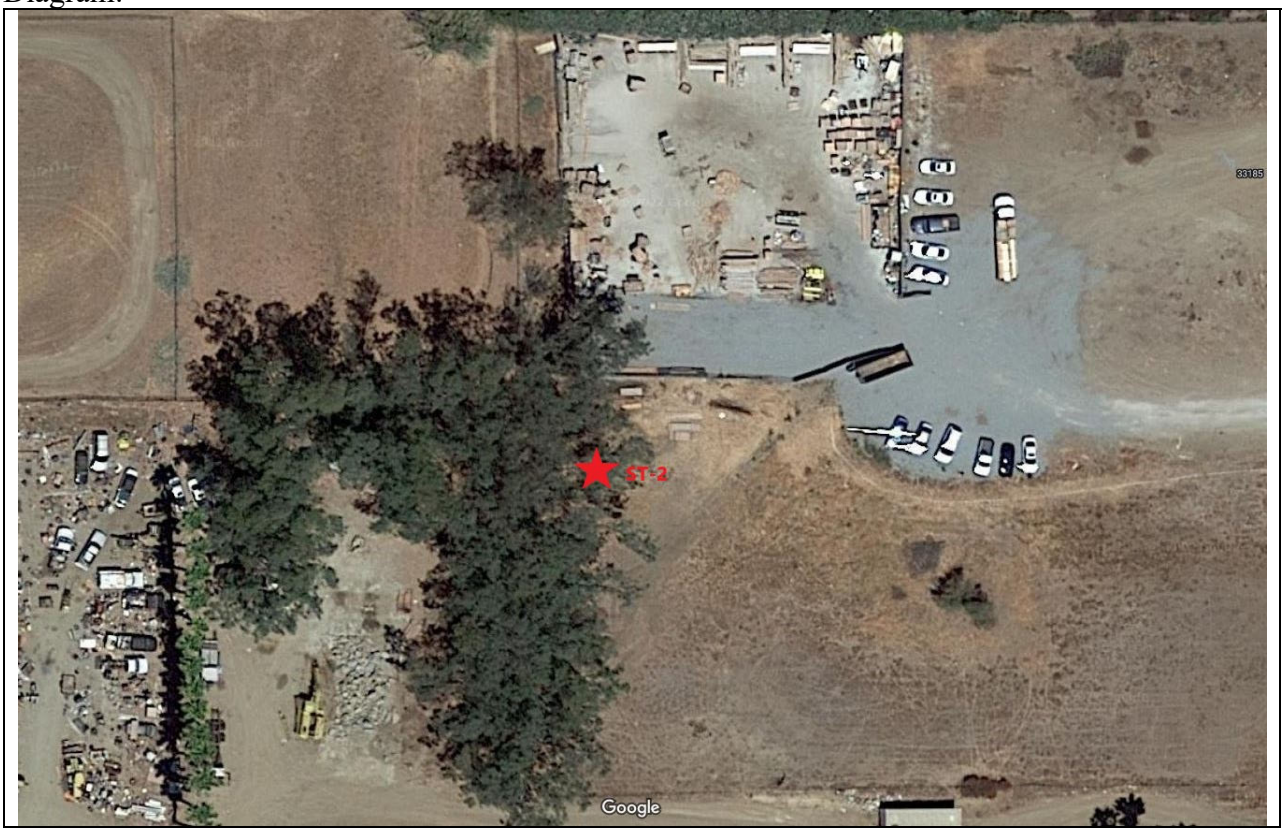
Maximum Wind Velocity (mph)	4.4
Average Wind Velocity (mph)	2.0
Temperature (F)	89.5
Relative Humidity (%)	36.7
Comments:	

Comments: File # 31. Saw blade cutting noise throughout measurement. Actively cutting and loading pallets of wood on-site. At 11 minutes 16 seconds into measurement, saw noise stopped and then resumed at the 15 minute mark.

Traffic Description:

Roadway	# Lanes	Speeds	NB/EB Counts			SB/WB Counts		
			Auto	MT	HT	Auto	MT	HT

Diagram:



Location Photo:

Noise Measurement Survey – 24 HR

Project Number: CIM2201
Project Name: Caliber Collision

Test Personnel: Kevin Nguyendo
Equipment: Spark 706RC (SN:18905)

Site Number: LT-1 Date: 5/25/22

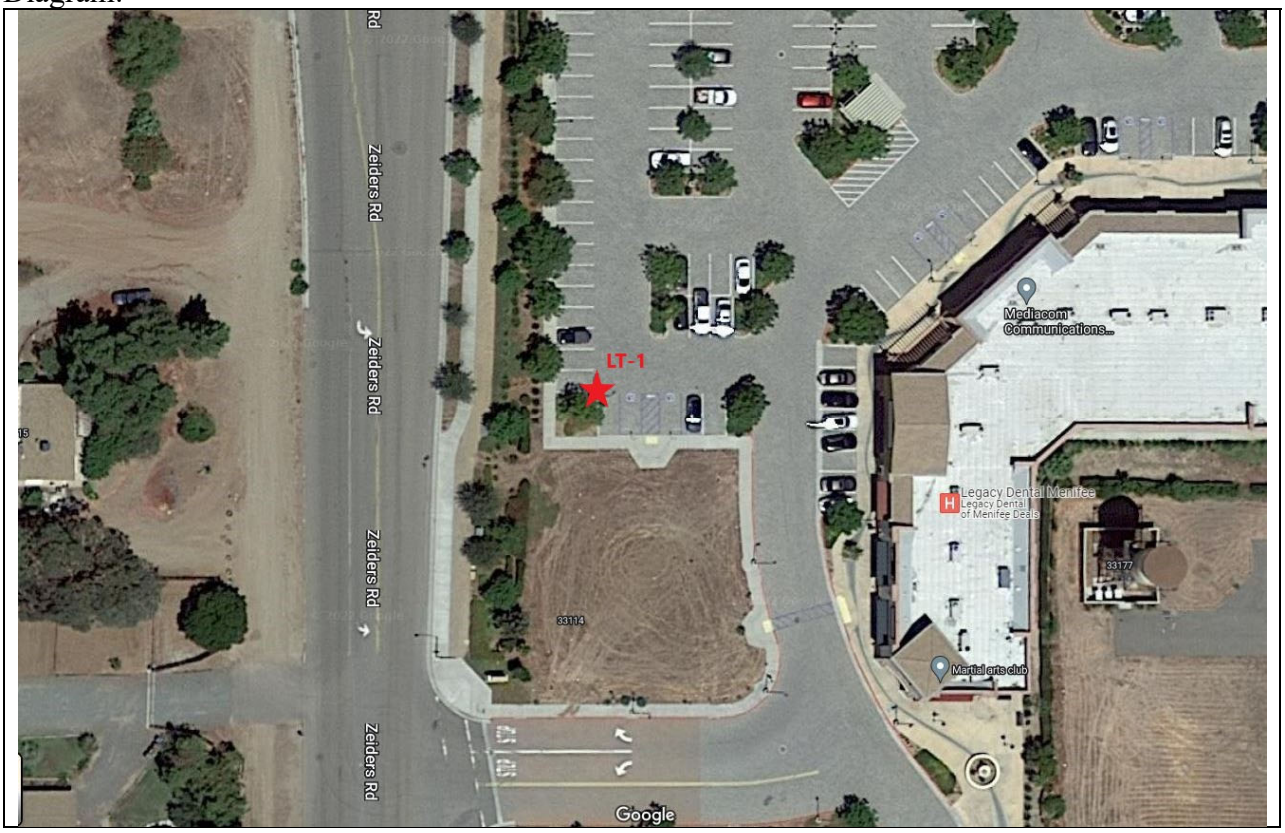
Time: From 11:00 a.m. To 11:00 a.m.

Site Location: Located in the parking lot in front of 27701 Scott Road. On a light pole closest to Zeiders Road. Southwest corner of the plaza.

Primary Noise Sources: Faint constant traffic noise from I-215 freeway and regular traffic noise on Zeiders Road. Parking lot noise activity. Some bird noise.

Comments:

Diagram:



Location Photo:

Noise Measurement Survey – 24 HR

Project Number: CIM2201
Project Name: Caliber Collision

Test Personnel: Kevin Nguyendo
Equipment: Spark 706RC (SN:18906)

Site Number: LT-2 Date: 5/25/22

Time: From 11:00 a.m. To 11:00 a.m.

Site Location: Located on the property of 33255 Zeiders Road, Menifee, CA 92584
Along the southern chained fence where the trailer storage and residential property meet.

Primary Noise Sources: Faint noise coming from the construction and landscaping material yard and workers talking. Some bird noise.

Comments:

Diagram:

Location Photo:

ATTACHMENT D

FHWA TRAFFIC NOISE MODEL PRINTOUTS

TABLE Existing No Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/17/2024
ROADWAY SEGMENT: Zeiders Road Between Scott Road and Project Driveway
NOTES: Caliber Collision - Existing No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7455 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	73.9	157.4	338.3

TABLE Existing No Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/17/2024
ROADWAY SEGMENT: Scott Road Between Haun Road/Zeiders Road and I-215 Southbound Ramps
NOTES: Caliber Collision - Existing No Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 32441 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.51

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
93.7	195.6	418.5	900.1

TABLE Existing No Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/17/2024
ROADWAY SEGMENT: Scott Road Between I-215 Southbound Ramps and I-215 Northbound Ramps
NOTES: Caliber Collision - Existing No Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37535 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 29 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.96

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
103.3	215.6	461.1	991.7

TABLE Existing With Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/17/2024
ROADWAY SEGMENT: Zeiders Road Between Scott Road and Project Driveway
NOTES: Caliber Collision - Existing With Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7540 SPEED (MPH): 50 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.23

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL 70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	74.4	158.6	340.9

TABLE Existing With Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/17/2024
ROADWAY SEGMENT: Scott Road Between Haun Road/Zeiders Road and I-215 Southbound Ramps
NOTES: Caliber Collision - Existing With Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 32522 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.52

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
93.8	196.0	419.2	901.6

TABLE Existing With Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/17/2024
ROADWAY SEGMENT: Scott Road Between I-215 Southbound Ramps and I-215 Northbound Ramps
NOTES: Caliber Collision - Existing With Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37578 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 29 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.96

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
103.4	215.8	461.5	992.5
