

Noise and Vibration Technical Report

Galaxy Riverside (Best 4 Less) Project Riverside, California

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TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 Introduction.....	1
1.1 Project Description and Setting	1
1.1.1 Project Location and Setting	1
1.1.2 Project Description.....	1
2.0 Fundamentals of Noise and Vibration	1
2.1 Noise	1
2.2 Vibration	3
3.0 Regulatory Setting	5
3.1 Noise	5
3.1.1 Federal.....	5
3.1.2 State.....	7
3.1.3 Local.....	8
3.2 Vibration	10
3.2.1 Federal.....	10
3.2.2 State.....	10
3.2.3 Local.....	10
4.0 Methodology	11
4.1 CEQA Significance Thresholds.....	11
4.2 Noise Analysis Methods.....	11
4.2.1 Construction Noise	11
4.2.2 Operational Noise.....	11
4.3 Vibration Analysis Methods.....	12
4.3.1 Construction Vibration.....	12
4.3.2 Operational Vibration.....	12
5.0 Environmental Setting	13
5.1 Sensitive Receptors	13
5.2 Existing Noise Environment.....	13
6.0 Impact Analysis.....	13
6.1 Noise	13
6.1.1 Construction Noise	14
6.1.2 Operational Noise.....	16

6.2	Vibration	17
6.2.1	Construction Vibration.....	17
6.2.2	Operational Vibration.....	18
6.3	Airport Noise.....	18
6.4	Mitigation Measures	19
7.0	Conclusion	19
8.0	References	20

TABLES

<u>Table</u>	<u>Page</u>
1	Noise Levels For Common Events
2	FTA Construction Noise Criteria
3	City of Riverside Noise/Land Use Compatibility Criteria.....
4	Average Construction Noise Levels at Nearby Receptors.....
5	Comparison of Existing (2025) Traffic Noise Levels With and Without The Proposed Project.....
6	Project Construction Vibration Impact assessment
	2
	7
	9
	15
	16
	18

EXHIBITS

<u>Exhibit</u>	<u>Follows Page</u>
1	Project Location.....
2	Site Plan.....
	1
	1

ATTACHMENTS

Attachment

A	Construction Noise and Vibration Calculations
B	Operational Noise Analyses Data

Acronyms

ADT	Average Daily Traffic
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	A-weighted Decibels
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HUD	Housing and Urban Development
HVAC	heating, ventilation, and air conditioning
L _{dn}	Day-Night Sound Level
L _{eq}	Equivalent Sound Level
L _{max}	Maximum Sound Level
L _{min}	Minimum Sound Level
OSHA	Occupational Safety and Health Administration
ONAC	Office of Noise Abatement and Control
PPV	Peak Particle Velocity
RCNM	Roadway Construction Noise Model
TNM	Traffic Noise Model
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
VdB	Vibration Decibels

1.0 INTRODUCTION

This Technical Report presents the results of the noise and vibration analysis for the proposed Galaxy Riverside Project located along the south side of Jurupa Avenue between Dale Street and Columbus Avenue (Assessor Parcel Number 189-190-006) in the City of Riverside, California (hereinafter referred to as the “Project”). This analysis addresses the potential noise and vibration impacts associated with the Project in accordance with the California Environmental Quality Act (CEQA) (California Public Resources Code §21000 et seq.) and the State CEQA Guidelines (California Code of Regulations, Title 14, §15000 et seq.).

1.1 Project Description and Setting

1.1.1 PROJECT LOCATION AND SETTING

The Project is located in the City of Riverside, Riverside County, California. The Project site is bound by Jurupa Avenue to the north, Mountain View Avenue to the east, and Dale Street along the south and west. Exhibit 1, Project Location, depicts the existing Project vicinity map. Land uses in the immediate vicinity of the Project site are designated as Business/Office Park and Industrial in the City of Riverside General Plan. Actual land uses include an automobile auction encompassing areas to the west, south, and southeast of the Project site; a vacant parcel and an automobile dealership to the east; and industrial uses and vacant land to the north, across Jurupa Avenue. The nearest noise-sensitive land uses are residential properties located at distances of approximately 775 to 1,000 feet from the eastern Project site limit.

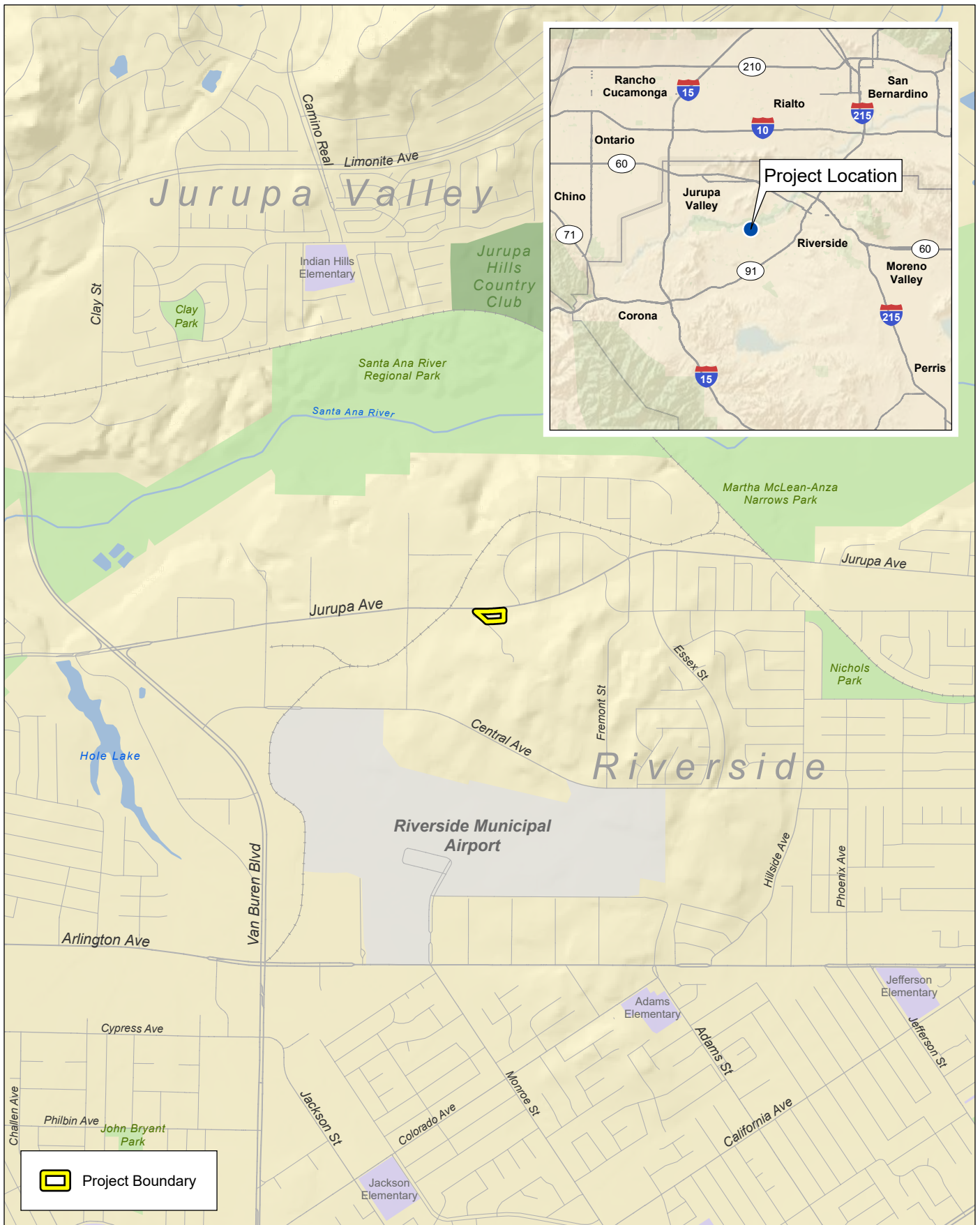
1.1.2 PROJECT DESCRIPTION

The Project involves the construction of a new fueling station within the City of Riverside. The proposed fueling station would consist of two canopies, Canopy A (2,500sf) and Canopy B (950sf). Canopy A would contain four (4) fuel dispensers (fuel pumps) which works out to eight (8) fueling positions and Canopy B would contain 2 commercial diesel pumps resulting in three fueling positions. The Project also proposes the construction of an electrical room structure (121 sf), two underground storage tanks, driveway, sidewalk, curbs, gutters, signage, landscaping, and paving of the balance of the Project site. The Project would also demolish and reconstruct an existing asphalt concrete berm. Exhibit 2, Site Plan, is the Project layout plan showing the various Project components and features.

2.0 FUNDAMENTALS OF NOISE AND VIBRATION

2.1 Noise

“Sound” is a vibratory disturbance created by a moving or vibrating source and is capable of being detected. “Noise” is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance; interference with speech communication; sleep disturbance; and, in the extreme, hearing impairment (Caltrans 2013).



Project Location

Galaxy Riverside (Best 4 Less) Project



0 1,000 2,000 Feet

PR-2024-00170 (CUP, DR) Exhibit 8 - Technical Studies (Noise & Vibration Report)

Exhibit 1

PSOMAS

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KEY NOTES:

ITEM NO. DESCRIPTION:

- | | | | |
|----|---|----|---|
| 1 | NEW ELECTRICAL ROOM STRUCTURE - 121 SQ. FT. | 16 | NEW AIR & WATER UNIT. |
| 2 | NEW COMMERCIAL DIESEL OVERHEAD CANOPY STRUCTURE - 950 SQ. FT. | 17 | NEW 18"x18" CATCH BASIN DRAIN INLET. |
| 3 | NEW RETAIL GAS OVERHEAD CANOPY STRUCTURE - 2,500 SQ. FT. | 18 | NEW 3'-0" WIDE CONCRETE VALLEY GUTTER. |
| 4 | NEW CONCRETE PAVING. | 19 | NEW 8" WIDE CONCRETE CURB W/ 3'-0" HIGH RAILING. |
| 5 | NEW UNDERGROUND STORAGE TANKS. | 20 | NEW CONCRETE CURB & GUTTER PER CITY STANDARD DRAWING NO.: 200, TYPE I. |
| 6 | NEW TANK VENT RISERS. | 21 | NEW COMMERCIAL DRIVEWAY APPROACH PER CITY STANDARD DRAWING NO.: 302 (R=12', W=40'). |
| 7 | NEW AREA LIGHT FIXTURE AND POLE. | 22 | NEW CONCRETE SIDEWALK PER CITY STANDARD DRAWING NO.: 325. |
| 8 | NEW CONCRETE CURB. | 23 | NEW ASPHALT CONCRETE BERM PER CITY STANDARD DRAWING NO.: 250, TYPE I. |
| 9 | NEW CMU RETAINING WALL W/ 3'-0" HIGH RAILING. | 24 | EXISTING ASPHALT CONCRETE BERM TO BE REMOVED. |
| 10 | NEW CONCRETE CURB & GUTTER. | 25 | NEW R1-1 "STOP" SIGN. |
| 11 | NEW CONCRETE CURB WITH 12" WIDE WALK STEP. | 26 | NEW STOP BAR AND "STOP" PAVEMENT LEGEND. |
| 12 | NEW CONCRETE SIDEWALK. | 27 | NEW BACKFLOW PREVENTER DEVICE (FOR IRRIGATION). |
| 13 | NEW TWO BIKE LOOP STYLE RACK. | | |
| 14 | NEW MONUMENT I.D. & PRICE SIGN. | | |
| 15 | NEW FILTERRA UNIT. | | |

Site Plan

Galaxy Riverside (Best 4 Less) Project



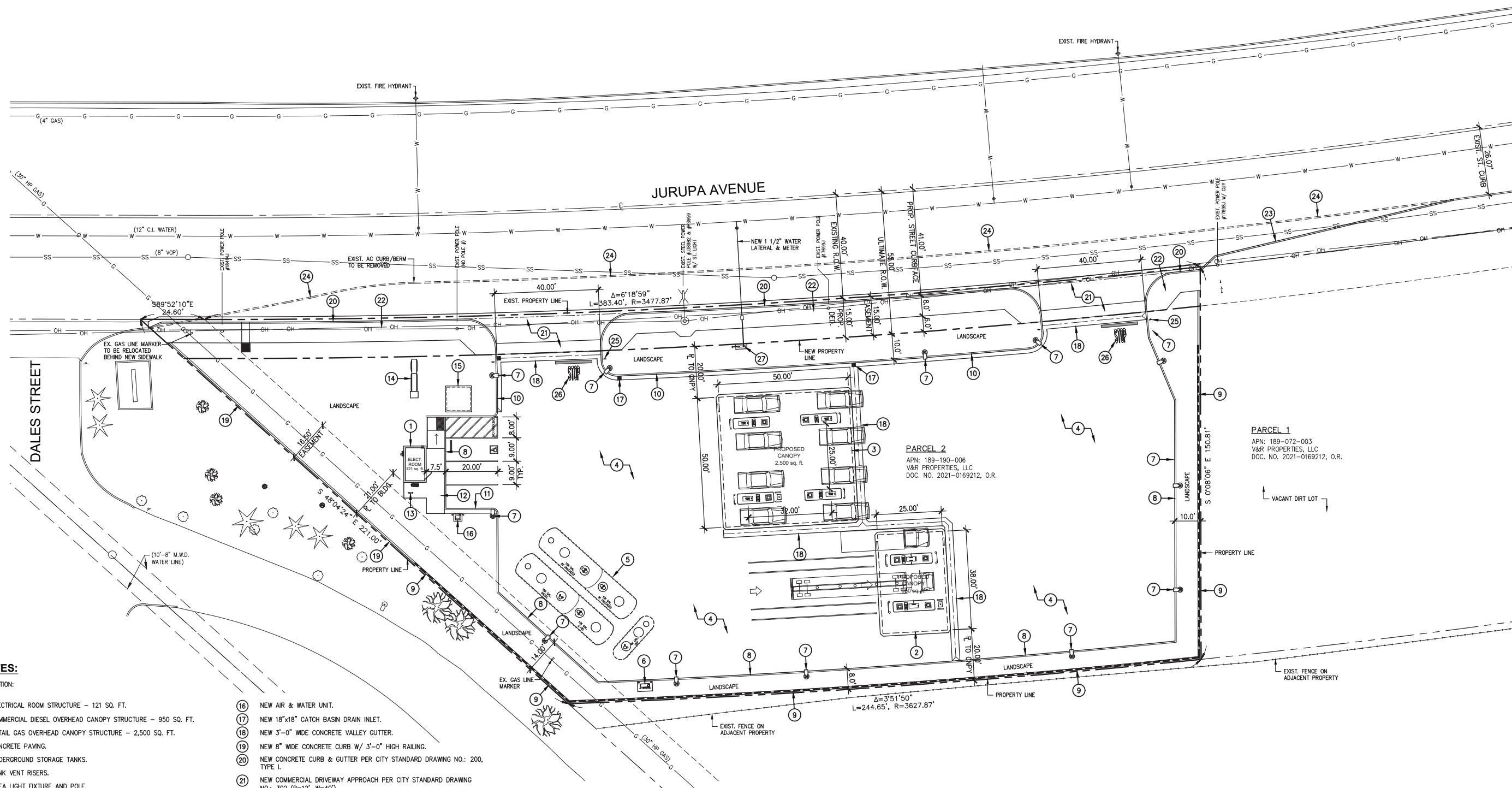
PR-2024-00170 (CUP, DR) Exhibit 8 - Technical Studies (Noise & Vibration Report)

Source: Travis Companies Inc. 2025

Exhibit 2



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Sound pressure levels are described in units called the decibel (dB). Decibels are measured on a logarithmic scale. A doubling of the energy of a noise source (such as doubling of traffic volume) would increase the noise level by 3 dB. The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-scale was devised; the A-weighted decibel scale (dBA) approximates the frequency response of the average healthy ear when listening to most ordinary everyday sounds and is used in this analysis.

Human perception of noise has no simple correlation with acoustical energy. Due to subjective thresholds of tolerance, the annoyance of a given noise source is perceived very differently from person to person. The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at 3 feet is approximately 60 dBA, while loud jet engine noises at 1,000 feet equate to 100 dBA, which can cause serious discomfort. Table 1: Noise Levels for Common Events, shows the relationship of various noise levels in dBA to commonly experienced noise events.

TABLE 1
NOISE LEVELS FOR COMMON EVENTS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet fly-over at 300 m (1,000 ft)	100	
Gas lawn mower at 1 m (3 ft)	90	
Diesel truck at 15 m (50 ft) at 80 km/hr (50 mph)	80	Food blender at 1 m (3 ft); garbage disposal at 1 m (3 ft)
Noisy urban area, daytime gas lawn mower at 30 m (100 ft)	70	Vacuum cleaner at 3 m (10 ft)
Commercial area, heavy traffic at 90 m (300 ft)	60	Normal speech at 1 m (3 ft)
Quiet urban daytime	50	Large business office, dishwasher in next room
Quiet urban nighttime	40	Theater, large conference room (background)
Quiet suburban nighttime	30	Library
Quiet rural nighttime	20	Bedroom at night, concert hall (background)
	10	Broadcast/recording studio
Lowest threshold of human hearing	0	Lowest threshold of human hearing
dBA: A-weighted decibels; m: meter; ft: feet; km/hr: kilometers per hour; mph: miles per hour Source: Caltrans 2013.		

Two equal noise sources, when heard together, do not “sound twice as loud” as one of the sources. As stated above, a doubling of noise sources results in a noise level increase of 3 dB. It is widely accepted that (1) the average healthy ear can barely perceive changes of a 3 dB increase or decrease; (2) a change of 5 dB is readily perceptible; and (3) an increase (decrease) of 10 dB sounds twice (half) as loud (Caltrans 2013).

From the source to the receiver, noise changes both in the level and frequency spectrum. The most obvious change is the decrease in noise level as the distance from the source increases. Sound from a small, localized source (approximating a “point” source) radiates uniformly outward as it travels away from the source in a spherical pattern. For point sources, such as heating, ventilation, and air conditioning (HVAC) units or construction equipment, the sound level attenuates (or drops off) at a rate of 6 dB for each doubling of distance (i.e., if the noise level is 70 dBA at 25 feet, it is 64 dBA at 50 feet). Vehicle movement on a road makes the source of the sound appear to emanate from a line (line source) rather than a point when viewed over some time interval. The sound level attenuates or drops off at a rate of 3 dB per doubling of distance for line sources.

A large object in the path between a noise source and a receiver can significantly attenuate noise levels at that receiver location. The amount of attenuation provided by this “shielding” depends on the size of the object and the frequencies of the noise levels. Natural terrain or landform features as well as man-made features (e.g., buildings and walls) can significantly alter noise exposure levels. For a noise barrier to work, it must be high enough and long enough to block the view from the receiver to a road or to the noise source. Effective noise barriers can reduce outdoor noise levels at the receptor by up to 15 dB.

Several rating scales (or noise “metrics”) exist to analyze effects of noise on a community. These scales include the average equivalent noise level (L_{eq}), maximum noise level (L_{max}), and minimum noise level (L_{min}), which are respectively the highest and lowest A-weighted sound levels that occur during a noise event, and the Community Noise Equivalent Level (CNEL). Average noise levels over a period of minutes or hours are usually expressed as dBA L_{eq} , which is the equivalent average noise level for that period of time. The period of time averaging may be specified; for example, $L_{eq(3)}$ would be a three-hour average. Noise of short duration (i.e., substantially less than the averaging period) is averaged into ambient noise during the period of interest. Thus, a loud noise lasting a few seconds may have minimal effect on the measured sound level averaged over a one-hour period.

To evaluate community noise impacts, CNEL was developed to account for human sensitivity to nighttime noise. CNEL represents the 24-hour average sound level with a penalty for noise occurring at night. The CNEL computation divides a 24-hour day into three periods: daytime (7:00 AM to 7:00 PM), evening (7:00 PM to 10:00 PM), and nighttime (10:00 PM to 7:00 AM). The evening sound levels are assigned an approximately 5-dB penalty, and the nighttime sound levels are assigned a 10-dB penalty prior to averaging with daytime hourly sound levels.

2.2 Vibration

Vibration is an oscillatory motion through a solid medium in which the amplitude of the motion can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities such as railroads or vibration-intensive stationary sources but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers. Vibration displacement is the distance that a point on a surface moves away from its original static position. The instantaneous speed that a point on a surface moves is described as the velocity, and the rate of change of the speed is described as the acceleration. Each of these descriptors can be used to correlate vibration to human

response, building damage, and acceptable equipment vibration levels. During construction of a project, the operation of construction equipment can cause ground borne vibration. During the operational phase of a project, receptors may be subject to levels of vibration that can cause annoyance due to noise generated from vibration of a structure or items within a structure. Analysis of this type of vibration is best measured in velocity and acceleration.

The three main wave types of concern in the propagation of groundborne vibrations are surface or Rayleigh waves, compression or P-waves, and shear or S-waves.

- Surface or Rayleigh waves travel along the ground surface. They carry most of their energy along an expanding cylindrical wave front, similar to the ripples produced by throwing a rock into a lake. The particle motion is more or less perpendicular to the direction of propagation (known as retrograde elliptical).
- Compression or P-waves are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal, in a push-pull motion. P-waves are analogous to airborne sound waves.
- Shear or S-waves are also body waves, carrying their energy along an expanding spherical wave front. Unlike P-waves, however, the particle motion is transverse, or perpendicular to the direction of propagation.

The peak particle velocity (PPV) or the root mean square (rms) velocity is usually used to describe vibration amplitudes. The PPV is defined as the maximum instantaneous peak of the vibration signal and the rms is defined as the square root of the average of the squared amplitude of the signal. The PPV is more appropriate for evaluating potential building damage and also used for evaluating human response.

The units for PPV are normally inches per second (in/sec). Often, vibration is presented and discussed in VdB units in order to compress the range of numbers required to describe the vibration. In this study, all PPV velocity levels are in in/sec and all vibration levels are in VdB relative to one microinch per second.

The threshold of human perception is approximately 0.3 in/sec PPV. Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Even the more persistent Rayleigh waves decrease relatively quickly as they move away from the source of the vibration. Manmade vibration problems are, therefore, usually confined to short distances (500 feet or less) from the source.

Construction generally includes a wide range of activities that can generate groundborne vibration. In general, blasting and demolition of structures and pile driving generate the highest vibrations. Heavy trucks can also generate groundborne vibrations, which vary depending on vehicle type, weight, and pavement conditions. Potholes, pavement joints, discontinuities, differential settlement of pavement, and other anomalies all increase the vibration levels from vehicles passing over a road surface. Construction vibration is normally of greater concern than vibration of normal traffic on streets and freeways with smooth pavement conditions (FTA 2018).

3.0 REGULATORY SETTING

3.1 Noise

3.1.1 FEDERAL

U.S. Department of Housing and Urban Development

The U.S. Department of Housing and Urban Development (HUD) has set a goal of 45 dBA L_{dn} as a desirable maximum interior noise standard for residential units developed under HUD funding (HUD 1984). While HUD does not specify acceptable exterior noise levels, standard construction of residential dwellings constructed pursuant to standards established under Title 24 of the California Code of Regulations typically provides 20 dBA, or more, of attenuation with the windows closed. Based on this premise, the exterior L_{dn} should not exceed 65 dBA (CBSC 2023).

Occupational Safety and Health Act of 1970

Under the Occupational Safety and Health Act of 1970 (29 U.S.C. Section 1919 et seq.), the Occupational Safety and Health Administration (OSHA) has adopted regulations designed to protect workers against the effects of occupational noise exposure. These regulations list permissible noise level exposure as a function of the amount of time during which the worker is exposed. The regulations further specify a hearing conservation program that involves monitoring noise to which workers are exposed, ensuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation (OSHA 1970).

Noise Control Act of 1972

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

- Promulgating noise emission standards for interstate commerce
- Assisting state and local abatement efforts
- Promoting noise education and research

This act authorized the United States Environmental Protection Agency (USEPA) to publish descriptive data on the effects of noise and establish levels of sound "requisite to protect the public welfare with an adequate margin of safety." These levels are separated into health (hearing loss levels) and welfare (annoyance levels). The USEPA cautions that these identified levels are not standards because they do not consider the cost or feasibility of the levels.

For protection against hearing loss, 96 percent of the population would be protected if sound levels are less than or equal to an $L_{eq}(24)$ of 70 dBA. The "(24)" signifies an L_{eq} duration of 24 hours. The USEPA activity and interference guidelines are designed to ensure reliable speech communication at about 5 feet in the outdoor environment. For outdoor and indoor

environments, interference with activity and annoyance should not occur if levels are below 55 dBA and 45 dBA, respectively.

At 55 dBA L_{dn} , 95 percent sentence clarity (intelligibility) may be expected at 11 feet, and no substantial community reaction. However, 1 percent of the population may complain about noise at this level and 17 percent may indicate annoyance.

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees. Among the agencies now regulating noise are OSHA, which limits noise exposure of workers to 90 dB L_{eq} or less for 8 continuous hours or 105 dB L_{eq} or less for 1 continuous hour; the United States Department of Transportation (USDOT), which assumed a significant role in noise control through its various operating agencies; and the Federal Aviation Administration (FAA), which regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the FTA. Transit noise is regulated by the federal Urban Mass Transit Administration, while freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA).

Finally, the federal government encourages local jurisdictions use their land use regulatory authority to site new development in such a way that “noise-sensitive” uses are either prohibited from being sited adjacent to a highway, or alternatively, that developments are planned and constructed in such a manner that minimize potential noise impacts. Since the federal government has preempted the setting of standards for noise levels that can be emitted by transportation sources, local jurisdictions are limited to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

Federal Transit Administration

The Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (FTA 2018) has developed construction impact guidelines shown in Table 2.

TABLE 2
FTA CONSTRUCTION NOISE CRITERIA

1-Hour Criteria (Leq)		
Land Use	Day	Night
Residential	90	80
Commercial	100	100
Industrial	100	100
8-Hour Criteria (Leq)		
Land Use	Day	Night
Residential	80	70
Commercial	85	85
Industrial	90	90
Source: FTA 2018		

3.1.2 STATE

California Building Standards Code - Title 24

The California Buildings Standards Code, Title 24 of the *California Code of Regulations*, also known as the CBC, establishes building standards, including noise insulation standards, applicable to all occupancies throughout the State. The most recent building standards adopted by the legislature and used throughout the State is the 2022 version. Section 1206.4, Allowable interior noise levels, states “Interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric shall be either the day-night average sound level (L_{dn}) or the CNEL, consistent with the noise element of the local general plan.” (DGS 2021). These noise standards are for new construction in California for the purposes of interior compatibility with exterior noise sources. The regulations specify that acoustical studies must be prepared for new buildings with habitable rooms that are near major transportation noises, and where such noise sources create an exterior noise level of 60 dBA CNEL/ L_{dn} or higher.

General Plan Guidelines/California Office of Noise Control—Noise Compatibility Standards

Established in 1973, the California Department of Health Services Office of Noise Control 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,” which allows the local jurisdiction to delineate compatibility of sensitive uses with various incremental levels of noise.¹

The California Office of Noise Control has set acceptable noise limits for sensitive uses. Sensitive land uses, such as homes, are “normally acceptable” in exterior noise environments

¹ California Department of Health Services Office of Noise Control, “Land Use Compatibility for Community Noise Environments Matrix,” 1976.

up to 65 dBA CNEL and “conditionally acceptable” in areas up to 70 dBA CNEL. A “conditionally acceptable” designation implies that new development should be undertaken only after a detailed analysis of the necessary noise reduction measures that would need to be incorporated into the new development to ensure that acceptable noise levels could be achieved (e.g., needed noise insulation features are incorporated in the design). By comparison, a “normally acceptable” designation indicates that standard construction could occur with no special noise reduction requirements incorporated into the design of the new development (OPR 2024).

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines referenced above, which rank noise/land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable. As discussed further below, because the Project is subject to review under CEQA, the impact thresholds for potential noise and vibration impacts set forth in Appendix G of the CEQA Guidelines are relevant in applying the foregoing guidelines.

3.1.3 LOCAL

Municipal Code

Noise is regulated by the City under Municipal Code Section 7.25.010. The Municipal Code has established stationary-source (operational) exterior noise limits for residential uses in the Project study area of 55 dBA L_{eq} for daytime hours of 7:00 a.m. to 10:00 p.m., and 45 dBA L_{eq} during the noise-sensitive nighttime hours of 10:00 p.m. to 7:00 a.m. The City’s exterior noise standards for Office/Commercial and Industrial land uses are 65 dBA and 70 dBA, respectively, at any time.

The City’s Municipal Code Section 7.35.020 exempts noise sources associated with construction, repair, remodeling, or grading of any real property from its exterior noise standards; provided that a permit has been obtained from the City as required; and provided that construction activities do not take place between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, between the hours of 5:00 p.m. and 8:00 a.m. on Saturdays, or at any time on Sunday or a federal holiday. In the absence of local construction noise limits, the FTA construction noise criteria (shown in Table 2) have been utilized in this analysis to assess the significance of construction noise impacts.

General Plan

General Plan Noise Element

The City of Riverside Noise Element of the General Plan utilizes the noise/land use compatibility guidelines outlined in Table 3, Noise/Land Use Compatibility Criteria, in making land use decisions. These compatibility guidelines show a range of noise standards for various land use categories. Depending on the ambient environment of a particular community, these basic guidelines may be tailored to reflect existing noise and land use characteristics. The matrix defines noise in terms of CNEL.

TABLE 3
CITY OF RIVERSIDE NOISE/LAND USE COMPATIBILITY CRITERIA

Land Use Category	Community Noise Equivalent Level (CNEL) or Day-Night Level (Ldn), dB						
	55	60	65	70	75	80	85
Single Family Residential*							
Infill Single Family Residential*							
Commercial- Motels, Hotels, Transient Lodging							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Amphitheaters, Concert Hall, Auditorium, Meeting Hall							
Sports Arenas, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Rec., Cemeteries							
Office Buildings, Business, Commercial, Professional							
Industrial, Manufacturing Utilities, Agriculture							
Freeway Adjacent Commercial, Office, and Industrial Uses.							

Nature of the noise environment where the CNEL or Ldn level is:

Below 55 dB

Relatively quiet suburban or urban areas, no arterial streets within 1 block, no freeways within 1/4 mile.

55-65 dB

Most somewhat noisy urban areas, near but not directly adjacent to high volumes of traffic.

65-75 dB

Very noisy urban areas near arterials, freeways or airports.

75+ dB

Extremely noisy urban areas adjacent to freeways or under airport traffic patterns. Hearing damage with constant exposure outdoors.

 Normally Acceptable	 Conditionally Acceptable	 Normally Unacceptable	 Conditionally Unacceptable
Specific land use is satisfactory, based on the assumption that any building is of normal conventional construction, without any special noise insulation requirements.	New construction or development should be undertaken only after a detailed analysis of noise reduction requirements is made and needed noise insulation features included in design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in design.	New construction or development should generally not be undertaken, unless it can be demonstrated that noise reduction requirements can be employed to reduce noise impacts to an acceptable level. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.

The Community Noise Equivalent Level (CNEL) and Day-Night Noise Level (Ldn) are measures of the 24-hour noise environment. They represent the constant A-weighted noise level that would be measured if all the sound energy received over the day were averaged. In order to account for the greater sensitivity of people to noise at night, the CNEL weighting includes a 5-decibel penalty on noise between 7:00 p.m. and 10:00 p.m. and a 10-decibel penalty on noise between 10:00 p.m. and 7:00 a.m. of the next day. The Ldn includes only the 10-decibel weighting for late-night noise events. For practical purposes, the two measures are equivalent for typical urban noise environments.

* For properties located within airport influence areas, acceptable noise limits for single family residential uses are established by the Riverside County Airport Land Use Compatibility Plan.

SOURCE: STATE DEPARTMENT OF HEALTH,
AS MODIFIED BY THE CITY OF RIVERSIDE

Source: City of Riverside General Plan Noise Element, 2007

The City will pursue proactive measures to limit additional exposure of sensitive uses and to address longstanding noise issues. Land uses deemed the most noise sensitive include amphitheaters, concert halls, auditoriums and meeting halls. Many jurisdictions consider residential uses particularly noise sensitive because families and individuals expect to use time in the home for rest and relaxation; intrusive noise can interfere with such pursuits. Some variability in standards for noise sensitivity may apply to different densities of residential development, specifically infill and mixed use developments; single family uses are frequently considered the most sensitive. New construction or development should generally not be undertaken, unless it can be demonstrated that noise reduction requirements can be employed to reduce noise impacts to an acceptable level. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.

Sensitive receptors must also be protected from excessive noise associated with commercial and industrial businesses and agricultural activities. Application and enforcement of the City Noise Control Code will continue to be the primary means of regulating and controlling so-called point-source noise. During the preliminary stages of the development process, potential noise impacts and appropriate mitigation will be identified (City of Riverside 2007).

3.2 Vibration

3.2.1 FEDERAL

The FTA has adopted standards associated with human annoyance for determining the groundborne vibration impacts on various land use categories (FTA 2018). For residential land uses and any buildings where people sleep, such as hotels and hospitals, the FTA has established a groundborne vibration threshold of 72 VdB for “frequent events,” which is defined as 70 events or more per day.

3.2.2 STATE

California Department of Transportation Vibration Standards

California Department of Transportation (Caltrans) in its Transportation and Construction Vibration Guidance Manual has established vibration damage potential guideline thresholds (Caltrans 2020). Based on the Caltrans guidance, the vibration damage thresholds for older residential structures and new residential or modern industrial buildings exposed to frequent intermittent vibration sources are 0.3 in/sec PPV and 0.5 in/sec PPV, respectively. Additionally, Caltrans suggests a vibration level of 0.04 in/sec PPV as “distinctly perceptible” in terms of potential for human annoyance.

3.2.3 LOCAL

The City of Riverside has not established a vibration impact threshold. For the assessment of Project vibration impacts from construction or operations, the Caltrans vibration damage criterion of 0.3 in/sec PPV has been used for both construction and operational sources. For human annoyance, a distinctly perceptible threshold of 0.04 in/sec PPV is used.

4.0 METHODOLOGY

4.1 CEQA Significance Thresholds

Under CEQA requirements, noise and vibration impacts are analyzed in accordance with CEQA Guidelines Appendix G, as well as the local City of Riverside Environmental Review Guidelines and Thresholds of Significance, which state that Project impacts would be considered significant if the project would:

- A. Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established by the City of Riverside.
- B. Result in generation of excessive groundborne vibration or groundborne noise levels.
- C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in exposing people residing or working in the project area to excessive noise levels.

4.2 Noise Analysis Methods

4.2.1 CONSTRUCTION NOISE

The analysis of construction noise involves the modeling of average and highest construction noise levels using the FHWA Roadway Construction Noise Model (RCNM) Version 1.1, which allows for quantification of noise levels emanating from individual machinery. RCNM is a computer program that enables the prediction of construction noise levels for a variety of construction operations based on a compilation of empirical data and the application of acoustical propagation formulas (FHWA 2017).

Average noise levels represent the noise levels that would typically occur during construction and are calculated using the distance between the closest noise-sensitive receptors and the center of activity for each of the corresponding construction phases. To assess construction noise impacts, the equipment types and utilization rates during each phase of construction and distances to the center of construction activities were input into the RCNM for each of the representative receptor locations shown in Exhibit 3. The resultant construction noise levels were then compared to the FTA construction noise criteria to determine the level of significance of impacts.

4.2.2 OPERATIONAL NOISE

Operational noise sources associated with the proposed Project would include Project-related vehicular traffic on area roadways. The Project would not include any consistent noise-generating stationary sources.

Potential increases in roadway traffic noise due to the Project are determined by adding Project traffic trips to existing traffic volumes on Jurupa Avenue based on available traffic

count and fleet mix data. Roadway traffic noise was modeled using the FHWA Traffic Noise Model (TNM) version 2.5.

The main source of roadway and mobile noise in the vicinity of the Project site is vehicular traffic along Jurupa Avenue, which is classified as four-lane arterial Corridor in the City's General Plan Circulation and Community Mobility Element. The number of trips generated by the Project were added to the existing (2025) Jurupa Avenue traffic. Existing (2025) average daily traffic (ADT) volumes along Jurupa Avenue were determined by applying a 1.2% annual growth factor to 2022 ADT counts obtained from the City. The segment of Jurupa Avenue that extends along the north side of the Project site handled an average of 13,753 vehicle trips per day (6,964 eastbound and 6,789 westbound) in 2022. The Project is expected to generate 1,720 vehicle trips per day (Kimley-Horn 2025). Distribution of traffic on Jurupa Avenue by vehicle categories (automobiles, medium trucks, and heavy trucks) over a 24-hour period was estimated based on Appendix I-1 of the Riverside County General Plan (Riverside County, 2015). The traffic data used in the noise analysis are included in Attachment C of this report.

For assessment of Project off-site traffic noise impacts, the 2025 traffic noise levels without Project were compared to 2025 traffic noise levels with Project. Increases in traffic noise levels were compared with an assumed significance threshold of 3-dB increase in traffic noise.

4.3 Vibration Analysis Methods

4.3.1 CONSTRUCTION VIBRATION

The analysis of construction vibration is based on the vibration levels presented in the FTA's 2018 Transit Noise and Vibration Impact Assessment Manual and in Attachment B of this report. The assessment of construction vibration is performed by assuming that construction equipment would be operating near the property lines of adjoining receptors. For analyses of Project construction vibration levels, the reference vibration level from the particular construction source is projected to the closest off-site structures, unlike analyses of noise impacts, which are conducted at the exterior use areas of affected properties.

4.3.2 OPERATIONAL VIBRATION

The proposed Project would not include any long-term vibration-generating sources. Therefore, there is no need to quantify operational vibration related to the Project.

5.0 ENVIRONMENTAL SETTING

5.1 Sensitive Receptors

The State of California defines noise-sensitive receptors as those land uses that require serenity or are otherwise adversely affected by noise events or conditions (State of California 2017). The land use categories requiring the lowest noise thresholds are schools, libraries, churches, hospitals, and residences. The nearest noise-sensitive uses are sparse residences located between approximately 800 to 1,000 feet east and northeast of the Project site.

5.2 Existing Noise Environment

The existing noise environment in the vicinity of the Project site is typical for those along an urban arterial roadway. The predominant sources of noise in the Project area are vehicles travelling along Jurupa Avenue. Other noise sources include more distant traffic on other local roadways, miscellaneous activities occurring within the adjacent properties, natural sounds from chirping birds, and occasional distant aircraft overflights and train passbys on the railroad tracks located west of the Project site.

6.0 IMPACT ANALYSIS

6.1 Noise

Under CEQA Guidelines Appendix G, Project impacts are considered significant if the Project would result in:

- A) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.***

The Project may have a significant impact if:

- **Construction Noise:** Provided that construction activities do not take place between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, between the hours of 5:00 p.m. and 8:00 a.m. on Saturdays, or at any time on Sunday or a federal holiday, the FTA construction noise criteria (shown in Table 2) have been utilized in this analysis to assess the significance of construction noise impacts.
- **Operational Noise (Transportation):** If the traffic generated by the project would result in a noticeable increase of 3 dBA or more in roadway noise.

Less than Significant Impact

6.1.1 CONSTRUCTION NOISE

In accordance with the City's requirements, the Project construction will be limited to weekdays between 7:00 a.m. and 7:00 p.m. for typical construction activities. Project construction noise is evaluated at the representative noise receptor locations based on the thresholds for construction noise. Estimated noise levels attributable to construction of the proposed Project are shown in Table 4, Average Construction Noise Levels at Nearby Receptors, and the calculations are included in Attachment A, Construction Noise and Vibration Calculations.

Average hourly noise levels (L_{eq}) from Project-related construction activities would be 50 to 59 dBA at exterior areas of noise-sensitive residential uses. At the adjoining commercial and industrial land uses, Project construction activities would result in average hourly L_{eq} of 66 to 73 dBA. It should be noted that the construction noise calculations conservatively assume simultaneous operation of all equipment during each construction phase.

Based on the results of construction noise calculations, Project construction noise levels at all off-site receptors would be below the applicable daytime noise limits. Therefore, the Project construction noise impacts would be less than significant without the need for mitigation.

TABLE 4
AVERAGE CONSTRUCTION NOISE LEVELS AT NEARBY RECEPTORS

Construction Phase	Receptor 1 6374 Jurupa Avenue		Receptor 2 6344 Jurupa Avenue		Receptor 3 5983 Ordway Street		Receptor 4 Nearest Commercial Use South of Project Site		Receptor 5 Nearest Industrial Use North of Project Site	
	Project L_{eq} (dBA)	Exceeds Daytime L_{eq} Limit of 80 dBA?	Project L_{eq} (dBA)	Exceeds Daytime L_{eq} Limit of 80 dBA?	Project L_{eq} (dBA)	Exceeds Daytime L_{eq} Limit of 80 dBA?	Project L_{eq} (dBA)	Exceeds Daytime L_{eq} Limit of 85 dBA?	Project L_{eq} (dBA)	Exceeds Daytime L_{eq} Limit of 90 dBA?
Site Preparation	58.0	No	56.7	No	58.5	No	73.2	No	72.2	No
Grading/Excavation	56.6	No	55.3	No	57.1	No	71.8	No	70.8	No
Building Construction	51.3	No	50.0	No	51.8	No	66.4	No	65.5	No
Paving	57.7	No	56.4	No	58.2	No	72.9	No	71.9	No
L_{eq} dBA: average noise energy level in A-weighted decibels * Based on calculated L_{eq} at distances from center of construction activity for each corresponding Project construction phase. Source: RCNM. Construction noise calculations are provided in Attachment A.										

6.1.2 OPERATIONAL NOISE

Operational noise sources associated with the proposed Project would include Project-related traffic on local roads. There are no identifiable on-site sources that would generate noise levels that could impact the adjoining properties.

Roadway Traffic Noise

The Project is anticipated to generate 1,720 trips per day. Project ingress and egress would be provided along the south side of Jurupa Avenue. Therefore, all Project daily trips would travel along Jurupa Avenue. According to the Project traffic distribution, roughly half of the daily Project trips would travel on Jurupa Avenue west of the Project site and the remaining half would move east of the Project site. To assess potential traffic noise impacts associated with the Project, a roadway traffic noise model including Jurupa Avenue, nearby residential receptors, and existing buildings in the area was developed using TNM. Existing (2025) traffic volumes were input into the noise model to compute traffic noise levels at the selected noise receptor locations without the Project. Project traffic volumes with their anticipated distribution were then added to the estimated existing (2025) traffic volumes along Jurupa Avenue in the noise model for the with-Project scenario. Comparisons of calculated traffic CNEL values at the selected noise modeling locations are shown in Table 5.

**TABLE 5
COMPARISON OF EXISTING (2025) TRAFFIC NOISE LEVELS
WITH AND WITHOUT THE PROPOSED PROJECT**

Noise Receptor Location	Traffic CNEL (dBA)		Project-Related Increase in CNEL (dB)	Exceeds 3-dB Increase Threshold
	Without Project	With Project		
Receptor 1: 6374 Jurupa Avenue	67.8	68.1	0.3	No
Receptor 2: 6344 Jurupa Avenue	67.8	68.1	0.3	No
Receptor 3: 5983 Ordway Street	59.7	60.0	0.3	No
CNEL: Community Noise Equivalent Level dBA: A-weighted decibels Traffic noise analysis data are provided in Attachment B.				

The existing traffic noise levels at the first row of noise-sensitive land uses along Jurupa Avenue generally exceed the City's 65 dBA CNEL threshold. At residential receptor locations behind the first row of buildings, traffic noise levels are below the CNEL limit. Therefore, the Project would result in significant traffic noise impacts if the Project plus ambient noise levels exceed 65 dBA CNEL or the Project results in a 3-dB increase in CNEL. From the traffic noise data presented in Table 5, it is apparent that Project-related increase in traffic volumes on Jurupa Avenue would result in a traffic noise increase of up to 0.3 dB in terms of CNEL at off-site noise-sensitive receptors in the vicinity of the Project site. Therefore, Project-related traffic noise increase would be less than significant.

6.2 Vibration

Under CEQA Guidelines Appendix G, Project impacts are considered significant if the Project would result in:

B) Generation of excessive groundborne vibration or groundborne noise levels.

Based on the Caltrans vibration impact guidelines, a project may have a significant impact if it creates construction or operational vibration in excess of 0.30 PPV inch/second at the off-site buildings nearest to the project site.

Less than Significant Impact

6.2.1 CONSTRUCTION VIBRATION

As indicated previously, the City has not established vibration significance thresholds for either construction or operational vibration. Construction induced vibration was modeled using data and methodology published by the FTA. The assessment of construction vibration levels was performed by assuming that construction equipment would operate along the Project site boundaries.

Vibration generated during the Project construction would be minimal and limited to the duration of the construction phase. In addition, the Project would not require the use of unusual equipment or would require any pile driving or blasting. Table 6, Project Construction Vibration Impact Assessment, shows the computed Project construction vibration levels at the nearest buildings located north and east of the Project site and compares them with the Caltrans vibration impact thresholds. As shown in Table 6, levels of vibration at the nearest buildings generated during construction would be below the Caltrans vibration damage limit of 0.3 in/sec PPV. In addition, all construction vibration levels would also be below the human perception of 0.04 in/sec PPV. As a result, potential construction vibration impacts are expected to be less than significant.

TABLE 6
PROJECT CONSTRUCTION VIBRATION IMPACT ASSESSMENT

Equipment	Vibration Levels (PPV, in/sec)	
	Building at 6825 Jurupa Avenue	Building at 6600 Jurupa Avenue
	(PPV @ 165 ft)	(PPV @ 425 ft)
Vibratory Roller	0.012	0.003
Large Bulldozer	0.005	0.001
Loaded Trucks	0.004	0.001
Jackhammer	0.002	0.0005
Small Bulldozer	0.0002	0.00004
Building Damage Threshold	0.3	0.3
Exceeds Vibration Damage Threshold?	No	No
Vibration Perception Threshold	0.04	0.04
Exceeds Vibration Perception Threshold?	No	No
PPV: peak particle velocity; in/sec: inches per second; ft: feet Notes: - Vibration calculations are performed at locations of nearest off-site structures in each receptor area. - Calculation details are included in Attachment A-2. Source: FTA 2018		

6.2.2 OPERATIONAL VIBRATION

The proposed Project would not include any sources of operational vibration. Stationary equipment within the Project site would not generate any detectable vibrations. Vehicular traffic associated with the Project would be similar to the existing mix of traffic in the general Project area. Therefore, Project operational vibration impacts would be less than significant.

6.3 Airport Noise

Under CEQA Guidelines Appendix G, Project impacts are considered significant if the Project would result in:

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

No Impact

Pursuant to the CEQA guidelines, a project may have a significant impact if the project exposes people residing or working in the vicinity of the project site to aircraft noise from a public airport or private airstrip. The proposed Project is located less than one mile north of the Riverside Municipal Airport and approximately 2.4 miles southwest of Flabob Airport.

According to the airport noise contours in the City's General Plan Noise Element, the Project site is outside the 55 dBA CNEL contours of the Riverside Municipal Airport and far from the noise impact areas of Flabob Airport. Therefore, noise exposure within the Project site would be less than significant relative to aircraft noise.

6.4 Mitigation Measures

The analyses presented in this report show that noise and vibration impacts associated with the Project construction and noise impacts due to Project operations would be less than significant at nearby buildings and noise-sensitive properties. Therefore, mitigation of noise or vibration due to the Project construction or operations would not be required.

7.0 CONCLUSION

Implementation of the proposed Project would result in less than significant impacts with respect to Project construction noise and vibration and off-site operational noise from Project-related increases in roadway traffic noise. Furthermore, no impact would result with respect to the exposure of construction workers or future Project patrons to excessive airstrip or airport-related noise.

8.0 REFERENCES

- California Department of Transportation (Caltrans). 2020 (April) Transportation and Construction Vibration Guidance Manual. Sacramento, CA: Caltrans. <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf>.
- . 2013 (September) Technical Noise Supplement to the Traffic Noise Analysis Protocol. Sacramento, CA: Caltrans. <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf>.
- California Office of Planning and Research (OPR). 2024 (accessed February 12). General Plan Guidelines and Technical Advisories, Appendix D: Noise Element Guidelines. Sacramento, CA: OPR. https://opr.ca.gov/docs/OPR_Appendix_D_final.pdf.
- City of Riverside. 2007 (November) General Plan 2025, Noise Element. https://riversideca.gov/cedd/sites/riversideca.gov.cedd/files/pdf/planning/general-plan/10_Noise_Element_with%20maps.pdf
- . 2019 (November) Riverside Municipal Code, Title 7 – Noise Control. https://library.municode.com/ca/riverside/codes/code_of_ordinances?nodeId=CICORICA
- County of Riverside. 2015 (December) County of Riverside General Plan, Appendix I-1: Noise Element Data. <https://planning.rctlma.org/sites/g/files/aldnop416/files/migrated/Portals-14-genplan-general-plan-2016-appendices-Appendix-I-1-120815.pdf>
- Kimley-Horn and Associates. 2025 (May) Traffic Analysis Scoping Form, Galaxy Fuel Station Project.
- Federal Highway Administration (FHWA). 2017 (last updated June 28). Roadway Construction Noise Model - RCNM. Washington, D.C.: FHWA. https://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm.
- Federal Transit Administration (FTA). 2018 (September). Transit Noise and Vibration Impact Assessment. Washington D.C.: USDOT – FTA. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf.
- United States Department of Labor Occupational Safety and Health Administration (OSHA). 2023 (accessed December 6). Occupational Noise Exposure. Washington, D.C.: OSHA. <https://www.osha.gov/noise>.

ATTACHMENT A

CONSTRUCTION NOISE AND VIBRATION CALCULATIONS

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/6/2025
Case Description: Site Preparation

---- Receptor #1 ----															
		Baselines (dBA)													
Description	Land Use	Daytime	Evening	Night											
6374 Jurupa Ave	Residential	62	62	52											
		Equipment													
		Impact		Spec	Actual	Receptor	Estimated								
		Device	Usage(%)	Lmax	Lmax	Distance	Shielding								
Description		No	20		89.6	975	0								
Concrete Saw		No	40		81.7	975	0								
Dozer															
		Results													
		Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)							
				Day	Evening		Night			Day	Evening		Night		
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		63.8	56.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		55.9	51.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	63.8	58	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
*Calculated Lmax is the Loudest value.															
---- Receptor #2 ----															
		Baselines (dBA)													
Description	Land Use	Daytime	Evening	Night											
6344 Jurupa Ave	Residential	62	62	52											
		Equipment													
		Impact		Spec	Actual	Receptor	Estimated								
		Device	Usage(%)	Lmax	Lmax	Distance	Shielding								
Description		No	20		89.6	1130	0								
Concrete Saw		No	40		81.7	1130	0								
Dozer															
		Results													
		Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)							
				Day	Evening		Night			Day	Evening		Night		
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		62.5	55.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		54.6	50.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	62.5	56.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
*Calculated Lmax is the Loudest value.															

		---- Receptor #3 ----													
		Baselines (dBA)													
Description	Land Use	Daytime	Evening	Night											
5983 Ordway St	Residential	62	62	52											
		Equipment													
		Impact		Spec	Actual	Receptor	Estimated								
		Device	Usage(%)	Lmax	Lmax	Distance	Shielding								
Description				(dBA)	(dBA)	(feet)	(dBA)								
Concrete Saw		No	20		89.6	918	0								
Dozer		No	40		81.7	918	0								
		Results													
		Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)							
				Day	Evening	Night		Day	Evening	Night					
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		64.3	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		56.4	52.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	64.3	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		*Calculated Lmax is the Loudest value.													
		---- Receptor #4 ----													
		Baselines (dBA)													
Description	Land Use	Daytime	Evening	Night											
Commercial south of Project	Commercial	62	62	52											
		Equipment													
		Impact		Spec	Actual	Receptor	Estimated								
		Device	Usage(%)	Lmax	Lmax	Distance	Shielding								
Description				(dBA)	(dBA)	(feet)	(dBA)								
Concrete Saw		No	20		89.6	170	0								
Dozer		No	40		81.7	170	0								
		Results													
		Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)							
				Day	Evening	Night		Day	Evening	Night					
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		79	72	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		71	67.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	79	73.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		*Calculated Lmax is the Loudest value.													

		---- Receptor #5 ----													
		Baselines (dBA)													
Description	Land Use	Daytime	Evening	Night											
Industrial Uses North of Project	Industrial	65	65	55											
		Equipment													
		Impact		Spec	Actual	Receptor	Estimated								
		Device	Usage(%)	Lmax	Lmax	Distance	Shielding								
Description				(dBA)	(dBA)	(feet)	(dBA)								
Concrete Saw		No	20		89.6	190	0								
Dozer		No	40		81.7	190	0								
		Results													
		Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)							
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		78	71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer		70.1	66.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	78	72.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		*Calculated Lmax is the Loudest value.													

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/6/2025
Case Description: Excavation/Grading

---- Receptor #1 ----															
		Baselines (dBA)													
Description	Land Use	Daytime	Evening	Night											
6374 Jurupa Ave	Residential	62	62	52											
Equipment															
		Impact		Spec	Actual	Receptor	Estimated								
		Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)								
Excavator		No	40		80.7	975	0								
Grader		No	40	85		975	0								
Results															
		Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)							
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		54.9	50.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader		59.2	55.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	59.2	56.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
*Calculated Lmax is the Loudest value.															

---- Receptor #2 ----															
		Baselines (dBA)													
Description	Land Use	Daytime	Evening	Night											
6344 Jurupa Ave	Residential	62	62	52											
Equipment															
		Impact		Spec	Actual	Receptor	Estimated								
Description		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)								
Excavator		No	40		80.7	1130	0								
Grader		No	40	85		1130	0								
Results															
Calculated (dBA)				Noise Limits (dBA)				Noise Limit Exceedance (dBA)							
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		53.6	49.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader		57.9	53.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	57.9	55.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
*Calculated Lmax is the Loudest value.															

---- Receptor #3 ----																
Description	Land Use	Baselines (dBA)														
		Daytime	Evening	Night												
5983 Ordway St	Residential	62	62	52												
Equipment																
Description		Impact		Spec	Actual	Receptor	Estimated									
		Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)									
Excavator		No	40		80.7	918	0									
Grader		No	40	85		918	0									
Results																
Calculated (dBA)				Noise Limits (dBA)				Noise Limit Exceedance (dBA)								
Equipment				Day		Evening		Night		Day		Evening		Night		
		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	
Excavator		55.4	51.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Grader		59.7	55.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Total		59.7	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
*Calculated Lmax is the Loudest value.																
---- Receptor #4 ----																
Description	Land Use	Baselines (dBA)														
		Daytime	Evening	Night												
Commercial south of Project	Commercial	62	62	52												
Equipment																
Description		Impact		Spec	Actual	Receptor	Estimated									
		Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)									
Excavator		No	40		80.7	170	0									
Grader		No	40	85		170	0									
Results																
Calculated (dBA)				Noise Limits (dBA)				Noise Limit Exceedance (dBA)								
Equipment				Day		Evening		Night		Day		Evening		Night		
		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	
Excavator		70.1	66.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Grader		74.4	70.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Total		74.4	71.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
*Calculated Lmax is the Loudest value.																

		---- Receptor #5 ----													
Description	Land Use	Baselines (dBA)													
		Daytime	Evening	Night											
Industrial north of Project	Industrial	62	62	52											
		Equipment													
Description		Impact	Usage(%)	Spec	Actual	Receptor	Estimated								
		Device		(dBA)	Lmax	(dBA)	Distance	Shielding							
Excavator		No	40		80.7	190	0								
Grader		No	40	85		190	0								
		Results													
		Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)							
Equipment				Day	Evening		Night	Day		Evening		Night			
		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq		
Excavator		69.1	65.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader		73.4	69.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	73.4	70.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		*Calculated Lmax is the Loudest value.													

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/6/2025
Case Description: Building Construction

---- Receptor #1 ----															
		Baselines (dBA)													
Description	Land Use	Daytime	Evening	Night											
6374 Jurupa Ave	Residential	62	62	52											
		Equipment													
		Impact		Spec	Actual	Receptor	Estimated								
		Device	Usage(%)	Lmax	Lmax	Distance	Shielding								
Description				(dBA)	(dBA)	(feet)	(dBA)								
Crane		No	16		80.6	975	0								
Front End Loader		No	40		79.1	975	0								
Results															
		Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)							
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		54.7	46.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader		53.3	49.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	54.7	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
*Calculated Lmax is the Loudest value.															
---- Receptor #2 ----															
		Baselines (dBA)													
Description	Land Use	Daytime	Evening	Night											
6344 Jurupa Ave	Residential	62	62	52											
		Equipment													
		Impact		Spec	Actual	Receptor	Estimated								
		Device	Usage(%)	Lmax	Lmax	Distance	Shielding								
Description				(dBA)	(dBA)	(feet)	(dBA)								
Crane		No	16		80.6	1130	0								
Front End Loader		No	40		79.1	1130	0								
Results															
		Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)							
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		53.5	45.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader		52	48	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	53.5	50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
*Calculated Lmax is the Loudest value.															

		---- Receptor #3 ----													
		Baselines (dBA)													
Description	Land Use	Daytime	Evening	Night											
5983 Ordway St	Residential	62	62	52											
		Equipment													
		Impact		Spec	Actual	Receptor	Estimated								
		Device	Usage(%)	Lmax	Lmax	Distance	Shielding								
				(dBA)	(dBA)	(feet)	(dBA)								
Crane		No	16		80.6	918	0								
Front End Loader		No	40		79.1	918	0								
		Results													
		Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)							
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		55.3	47.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader		53.8	49.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	55.3	51.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		*Calculated Lmax is the Loudest value.													
		---- Receptor #4 ----													
		Baselines (dBA)													
Description	Land Use	Daytime	Evening	Night											
Commercial south of Project	Commercial	62	62	52											
		Equipment													
		Impact		Spec	Actual	Receptor	Estimated								
		Device	Usage(%)	Lmax	Lmax	Distance	Shielding								
				(dBA)	(dBA)	(feet)	(dBA)								
Crane		No	16		80.6	170	0								
Front End Loader		No	40		79.1	170	0								
		Results													
		Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)							
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		69.9	62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader		68.5	64.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	69.9	66.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		*Calculated Lmax is the Loudest value.													

		---- Receptor #5 ----													
Description	Land Use	Baselines (dBA)													
		Daytime	Evening	Night											
Industrial north of Project	Industrial	62	62	52											
Equipment															
Description		Impact		Spec	Actual	Receptor	Estimated								
		Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)								
Crane		No	16		80.6	190	0								
Front End Loader		No	40		79.1	190	0								
Results															
		Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)							
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		69	61	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader		67.5	63.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	69	65.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
*Calculated Lmax is the Loudest value.															

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/6/2025
Case Description: Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)			Equipment		
		Daytime	Evening	Night	Spec	Actual	Receptor
6374 Jurupa Ave	Residential	62	62	52	Lmax	Lmax	Distance
					(dBA)	(dBA)	(feet)
		Impact Device	Usage(%)				Estimated Shielding
							(dBA)
Paver		No	50			77.2	975
Roller		No	20			80	975
Vibratory Concrete Mixer		No	20			80	975
All Other Equipment > 5 HP		No	50	85			975

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)		Evening		Night		Noise Limit Exceedance (dBA)					
	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Day	Leq	Lmax	Leq	Lmax	Leq
Paver	51.4	48.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	54.2	47.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vibratory Concrete Mixer	54.2	47.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	59.2	56.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	59.2	57.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)			Equipment		
		Daytime	Evening	Night	Spec	Actual	Receptor
6344 Jurupa Ave	Residential	62	62	52	Lmax	Lmax	Distance
					(dBA)	(dBA)	(feet)
		Impact Device	Usage(%)				Estimated Shielding
							(dBA)
Paver		No	50			77.2	1130
Roller		No	20			80	1130
Vibratory Concrete Mixer		No	20			80	1130
All Other Equipment > 5 HP		No	50	85			1130

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)		Evening		Night		Noise Limit Exceedance (dBA)					
	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Day	Leq	Lmax	Leq	Lmax	Leq
Paver	50.1	47.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	52.9	45.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vibratory Concrete Mixer	52.9	45.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	57.9	54.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	57.9	56.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

		---- Receptor #3 ----														
Description	Land Use	Baselines (dBA)														
		Daytime	Evening	Night												
5983 Ordway St	Residential	62	62	52												
		Equipment														
Description		Impact		Spec	Actual	Receptor	Estimated									
		Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)									
Paver		No	50		77.2	918	0									
Roller		No	20		80	918	0									
Vibratory Concrete Mixer		No	20		80	918	0									
All Other Equipment > 5 HP		No	50	85		918	0									
		Results														
		Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)								
				Day		Evening		Night		Day		Evening		Night		
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	
Paver		51.9	48.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Roller		54.7	47.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Vibratory Concrete Mixer		54.7	47.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
All Other Equipment > 5 HP		59.7	56.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	Total	59.7	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
*Calculated Lmax is the Loudest value.																

		---- Receptor #4 ----														
Description	Land Use	Baselines (dBA)														
		Daytime	Evening	Night												
Commercial south of Project	Commercial	62	62	52												
		Equipment														
Description		Impact	Device	Usage(%)	Spec	Actual	Receptor	Estimated								
					Lmax	Lmax	Distance	Shielding								
					(dBA)	(dBA)	(feet)	(dBA)								
Paver		No		50		77.2	170	0								
Roller		No		20		80	170	0								
Vibratory Concrete Mixer		No		20		80	170	0								
All Other Equipment > 5 HP		No		50	85		170	0								
		Results														
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)						
				Day		Evening		Night		Day		Evening		Night		
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	
Paver		66.6	63.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Roller		69.4	62.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Vibratory Concrete Mixer		69.4	62.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
All Other Equipment > 5 HP		74.4	71.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	Total	74.4	72.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
*Calculated Lmax is the Loudest value.																

		---- Receptor #5 ----													
Description	Land Use	Baselines (dBA)													
		Daytime	Evening	Night											
Industrial north of Project	Industrial	62	62	52											
		Equipment													
Description		Impact		Spec	Actual	Receptor	Estimated								
		Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)								
Paver		No	50		77.2	190	0								
Roller		No	20		80	190	0								
Vibratory Concrete Mixer		No	20		80	190	0								
All Other Equipment > 5 HP		No	50	85		190	0								
		Results													
		Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)							
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		65.6	62.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		68.4	61.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vibratory Concrete Mixer		68.4	61.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		73.4	70.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	73.4	71.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		*Calculated Lmax is the Loudest value.													

A-2. Construction Vibration Calculations

	Receptors			
	Building at 6825 Jurupa Avenue		Building at 6600 Jurupa Avenue	
	Distance to Closest Receiver (ft)		Distance to Closest Receiver (ft)	
	165		425	
Distance				
Equipment	PPV _{ref} (@ 25 ft, in/sec)	PPV (in/sec)	PPV _{ref} (@ 25 ft, in/sec)	PPV (in/sec)
Vibratory Roller	0.21	0.012	0.21	0.003
Hoe Ram	0.089	0.005	0.089	0.001
Large Bulldozer	0.089	0.005	0.089	0.001
Caisson Drilling	0.089	0.005	0.089	0.001
Loaded Trucks	0.076	0.004	0.076	0.001
Jackhammer	0.035	0.002	0.035	0.0005
Small Bulldozer	0.003	0.0002	0.003	0.00004
Maximum Vibration Levels		0.012		0.003
Vibration Impact Threshold		0.30		0.30
Exceeds Vibration Impact Threshold?		No		No

Note: Construction vibration levels are calculated at the setback of the nearest buildings to the Project site within each of the receptor properties.

Source: FTA 2018

ATTACHMENT B

OPERATIONAL NOISE ANALYSES DATA

B-1. Noise Modeling Traffic Data

Roadways designated as major, arterial highways, or expressways:

VEHICLE TYPE	OVERALL %	DAY	EVENING	NIGHT
Automobiles	92	69.50%	12.90%	9.60%
Medium Truck	3	1.44%	0.06%	1.50%
Heavy Truck	5	2.40%	0.10%	2.50%
Totals	100	73.34%	13.06%	13.60%

Existing (2025) ADT Volumes

Roadway	Scenario	ADT
Jurupa Ave EB	Existing	7,218
Jurupa Ave WB	Existing	7,036

Existing (2025) Jurupa Avenue Eastbound

VEHICLE TYPE	OVERALL	DAY	EVENING	NIGHT
Automobiles	6,640	5,016	931	693
Medium Truck	217	104	4	108
Heavy Truck	361	173	7	180

Existing (2025) Jurupa Avenue Westbound

VEHICLE TYPE	OVERALL	DAY	EVENING	NIGHT
Automobiles	6,473	4,890	908	675
Medium Truck	211	101	4	106
Heavy Truck	352	169	7	176

Existing (2025) Plus Project ADT Volumes

Roadway	Scenario	ADT
Jurupa Ave EB	Existing + Project	8,078
Jurupa Ave WB	Existing + Project	7,896

Existing (2025) Plus Project Jurupa Avenue Eastbound

VEHICLE TYPE	OVERALL	DAY	EVENING	NIGHT
Automobiles	7,328	5,567	1,069	693
Medium Truck	274	150	16	108
Heavy Truck	476	265	30	180

Existing (2025) Plus Project Jurupa Avenue Westbound

VEHICLE TYPE	OVERALL	DAY	EVENING	NIGHT
Automobiles	7,161	5,441	1,045	675
Medium Truck	268	147	16	106
Heavy Truck	467	261	30	176

Sources:

City of Riverside Traffic Division, 2022 Traffic Counts

County of Riverside, General Plan Appendix I: Noise Element Technical Data, December 2015

Kimley-Horn and Associates, Inc. (KHA) and the Project's Technical Studies (Noise & Vibration Report)

RE-2024-06170 (CUP)

Exhibit B

INPUT: ROADWAYS
Galaxy Riverside Project

City of Riverside					6 June 2025						
Psomas					TNM 2.5						
INPUT: ROADWAYS											
PROJECT/CONTRACT:	Galaxy Riverside Project					Average pavement type shall be used unless					
RUN:	Jurupa Avenue - Existing CNEL					a State highway agency substantiates the use					
						of a different type with the approval of FHWA					
Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control	Speed	Percent	Pvmt	On
							Device	Constraint	Vehicles	Type	Struct?
									Affected		
	ft			ft	ft	ft		mph	%		
EB Jurupa Ave	28.0	point1	1	1,506,797.2	12,329,622.0	0.00				Average	
		point2	2	1,506,983.2	12,329,668.0	0.00				Average	
		point3	3	1,507,163.2	12,329,724.0	0.00				Average	
		point4	4	1,507,426.5	12,329,825.0	0.00				Average	
		point5	5	1,507,670.8	12,329,940.0	0.00				Average	
		point6	6	1,507,874.6	12,330,061.0	0.00					
WB Jurupa Ave	28.0	point12	12	1,507,857.5	12,330,088.0	0.00	Stop	0.00	100	Average	
		point13	13	1,507,656.0	12,329,969.0	0.00				Average	
		point14	14	1,507,420.1	12,329,857.0	0.00				Average	
		point15	15	1,507,233.1	12,329,783.0	0.00				Average	
		point16	16	1,506,963.5	12,329,697.0	0.00				Average	
		point17	17	1,506,689.9	12,329,633.0	0.00					

INPUT: RECEIVERS

Galaxy Riverside Project

City of Riverside						6 June 2025					
Psomas						TNM 2.5					
INPUT: RECEIVERS											
PROJECT/CONTRACT:	Galaxy Riverside Project										
RUN:	Jurupa Avenue - Existing CNEL										
Receiver											
Name	No.	#DUs	Coordinates (ground)			Height	Input Sound Levels and Criteria				Active
			X	Y	Z	above	Existing	Impact Criteria		NR	in
						Ground	L _{Aeq} 1h	L _{Aeq} 1h	Sub'l	Goal	Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
Receiver 1 - 6374 Jurupa Ave.	1	1	1,507,333.8	12,329,728.0	0.00	5.00	0.00	66	10.0	8.0	Y
Receiver 2 - 6344 Jurupa Ave.	2	1	1,507,483.9	12,329,788.0	0.00	5.00	0.00	66	10.0	8.0	Y
Receiver 3 - 5983 Ordway St.	6	1	1,507,187.0	12,329,905.0	0.00	5.00	0.00	66	10.0	8.0	Y

INPUT: BARRIERS

Galaxy Riverside Project

City of Riverside					6 June 2025													
Psomas					TNM 2.5													
INPUT: BARRIERS																		
PROJECT/CONTRACT:					Galaxy Riverside Project													
RUN:					Jurupa Avenue - Existing CNEL													
Barrier										Points								
Name	Type	Height		If Wall	If Berm			Add'tnl		Name	No.	Coordinates (bottom)			Height	Segment		
		Min	Max	\$ per Unit	\$ per Unit	Top Width	Run:Rise	\$ per Unit				X	Y	Z	at Point	Seg Ht	Perturbs	On
				Area	Vol.			Length								Incre-	#Up	#Dn
		ft	ft	\$/sq ft	\$/cu yd	ft	ft:ft	\$/ft				ft	ft	ft	ft	ft		Struct?
																		Reflec-tions?
6485 Jurupa Ave	W	0.00	99.99	0.00				0.00		point1	1	1,507,130.0	12,329,885.0	0.00	15.00	0.00	0	0
										point2	2	1,507,202.4	12,329,885.0	0.00	15.00	0.00	0	0
										point3	3	1,507,202.6	12,329,841.0	0.00	15.00	0.00	0	0
										point4	4	1,507,128.9	12,329,843.0	0.00	15.00	0.00	0	0
										point5	5	1,507,130.0	12,329,885.0	0.00	15.00			

INPUT: TRAFFIC FOR LAeq1h Volumes
Galaxy Riverside Project

City of Riverside												
Psomas												
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	Galaxy Riverside Project											
RUN:	Jurupa Avenue - Existing CNEL											
Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
EB Jurupa Ave	point1	1	307	45	25	45	42	45	0	0	0	0
	point2	2	307	45	25	45	42	45	0	0	0	0
	point3	3	307	45	25	45	42	45	0	0	0	0
	point4	4	307	45	25	45	42	45	0	0	0	0
	point5	5	307	45	25	45	42	45	0	0	0	0
	point6	6										
WB Jurupa Ave	point12	12	299	45	24	45	41	45	0	0	0	0
	point13	13	299	45	24	45	41	45	0	0	0	0
	point14	14	299	45	24	45	41	45	0	0	0	0
	point15	15	299	45	24	45	41	45	0	0	0	0
	point16	16	299	45	24	45	41	45	0	0	0	0
	point17	17										

RESULTS: SOUND LEVELS
Galaxy Riverside Project

City of Riverside												
Psomas												
RESULTS: SOUND LEVELS												
PROJECT/CONTRACT:												
RUN:												
BARRIER DESIGN:												
ATMOSPHERICS:												
Receiver												
Name	No.	#DUs	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h		Increase over existing		Type	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n	Impact	LAeq1h	Calculated	Goal	Calculated
							Sub'l Inc					minus
												Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver 1 - 6374 Jurupa Ave.	1	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0
Receiver 2 - 6344 Jurupa Ave.	2	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0
Receiver 3 - 5983 Ordway St.	6	1	0.0	59.7	66	59.7	10	----	59.7	0.0	8	-8.0
Dwelling Units		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		3	0.0	0.0	0.0							
All Impacted		2	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

INPUT: TRAFFIC FOR LAeq1h Volumes

Galaxy Riverside Project

City of Riverside												
Psomas												
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	Galaxy Riverside Project											
RUN:	Jurupa Avenue - Existing + Project CNEL											
Roadway	Points											
Name	Name	No.	Segment		MTrucks		HTrucks		Buses		Motorcycles	
			Autos									
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
EB Jurupa Ave	point1	1	327	45	27	45	45	45	0	0	0	0
	point2	2	327	45	27	45	45	45	0	0	0	0
	point3	3	327	45	27	45	45	45	0	0	0	0
	point4	4	327	45	27	45	45	45	0	0	0	0
	point5	5	327	45	27	45	45	45	0	0	0	0
	point6	6										
WB Jurupa Ave	point12	12	319	45	26	45	44	45	0	0	0	0
	point13	13	319	45	26	45	44	45	0	0	0	0
	point14	14	319	45	26	45	44	45	0	0	0	0
	point15	15	319	45	26	45	44	45	0	0	0	0
	point16	16	319	45	26	45	44	45	0	0	0	0
	point17	17										

RESULTS: SOUND LEVELS
Galaxy Riverside Project

City of Riverside												
Psomas												
RESULTS: SOUND LEVELS												
PROJECT/CONTRACT:												
RUN:												
BARRIER DESIGN:												
ATMOSPHERICS:												
Receiver												
Name	No.	#DUs	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h		Increase over existing		Type	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n	Impact	LAeq1h	Calculated	Goal	Calculated
							Sub'l Inc					minus
												Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver 1 - 6374 Jurupa Ave.	1	1	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	8	-8.0
Receiver 2 - 6344 Jurupa Ave.	2	1	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	8	-8.0
Receiver 3 - 5983 Ordway St.	6	1	0.0	60.0	66	60.0	10	----	60.0	0.0	8	-8.0
Dwelling Units		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		3	0.0	0.0	0.0							
All Impacted		2	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							