Appendix E: Noise Impact Study

General Plan Update
Noise Impact Study
City of Lawndale, CA

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1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

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

The following is provided in this report:

- A description of the Project Area and the proposed Project
- Information regarding the fundamentals of noise and vibration
- A description of the local noise and vibration guidelines and standards
- An analysis of traffic noise impacts to and from the project site
- An analysis of stationary noise impacts to and from the project site
- An analysis of construction noise impacts
- An analysis of ground-borne vibration impacts to and from the project site
- Suggested mitigation measures to reduce impacts

1.2 Site Location and Project Area

The City of Lawndale is located in the South Bay area of Los Angeles County, approximately 10 miles southwest of downtown Los Angeles. The City is approximately 1.9 square miles (1,241 acres) and is bounded by the City of Hawthorne to the north and west, by unincorporated areas of Los Angeles County and the City of Gardena to the east, by the City of Torrance to the south, and by the City of Redondo Beach to the south and west. Regional access to the City is provided by Interstate 405, a major north-south highway which provides access to Lawndale and the greater Los Angeles region.

The General Plan Update Study Area, as shown in Exhibit A, includes the entire City limits (approximately 1,241 acres) as well as the City of Lawndale's Sphere of Influence (approximately 314 acres); the entire Study Area is approximately 1,555 acres.

1.3 Proposed Project Description

The City of Lawndale is preparing a comprehensive update to its existing General Plan. The updated Lawndale General Plan is expected to be adopted in 2023 and will guide the City's development, growth, and conservation through land use objectives and policy guidance. The General Plan Update is intended to be an expression of the community's vision for the City and Study Area, and constitutes the policy and regulatory framework by which future development projects will be reviewed, and public improvements will be implemented. The City will implement the General Plan Update by requiring development, infrastructure improvements, and other projects to be consistent with its policies and by implementing the actions included in the General Plan Update.

This report will aid in the development of the noise portion of the Public Safety Element of the General Plan Update. The Public Safety Element establishes goals, policies, and actions to protect the community from risk associated with geologic, fire, and flood hazards, as well as setting standards for emergency preparedness. The Public Safety Element supports the City's participation in the Lawndale Local Hazard Mitigation Plan, the County of Los Angeles All-Hazards Mitigation Plan, and the Lawndale Climate Action Plan. This Element also addresses the required topics related to noise, including standards and policies to protect the community from the harmful and annoying effects of exposure to excessive noise levels. This Element includes strategies to reduce land use conflicts that may result in exposure to unacceptable noise levels.

1.4 General Plan Update Buildout Assumptions

Buildout of the General Plan could yield a total of up to 15,405 housing units, a population of 47,430 people, approximately 5.35 million square feet of non-residential building square footage, and 9,208 jobs within the Planning Area. As shown in Table 1, this represents development growth over existing conditions of up to approximately 3,942 new housing units, 9,482 people, 808,864 square feet of new non-residential building square footage, and 738 jobs.

The analysis of the General Plan Update is based on various assumptions regarding existing and future conditions in Lawndale. Unless otherwise stated, the assumptions are as specified in Table 1, which are based on the General Plan 2045 Buildout.

Table 1: General Plan Update Growth Assumptions

Description	Housing Units	Population	Non-Residential Development (Square Feet)	Jobs
Existing Conditions (2022)	11,463	38,948	4,542,162	8,470
2045 General Plan	15,405	47,430	5,351,026	9,208
Net Change	+3,942	+9,482	+808,864	+738

Exhibit A

Plan Area

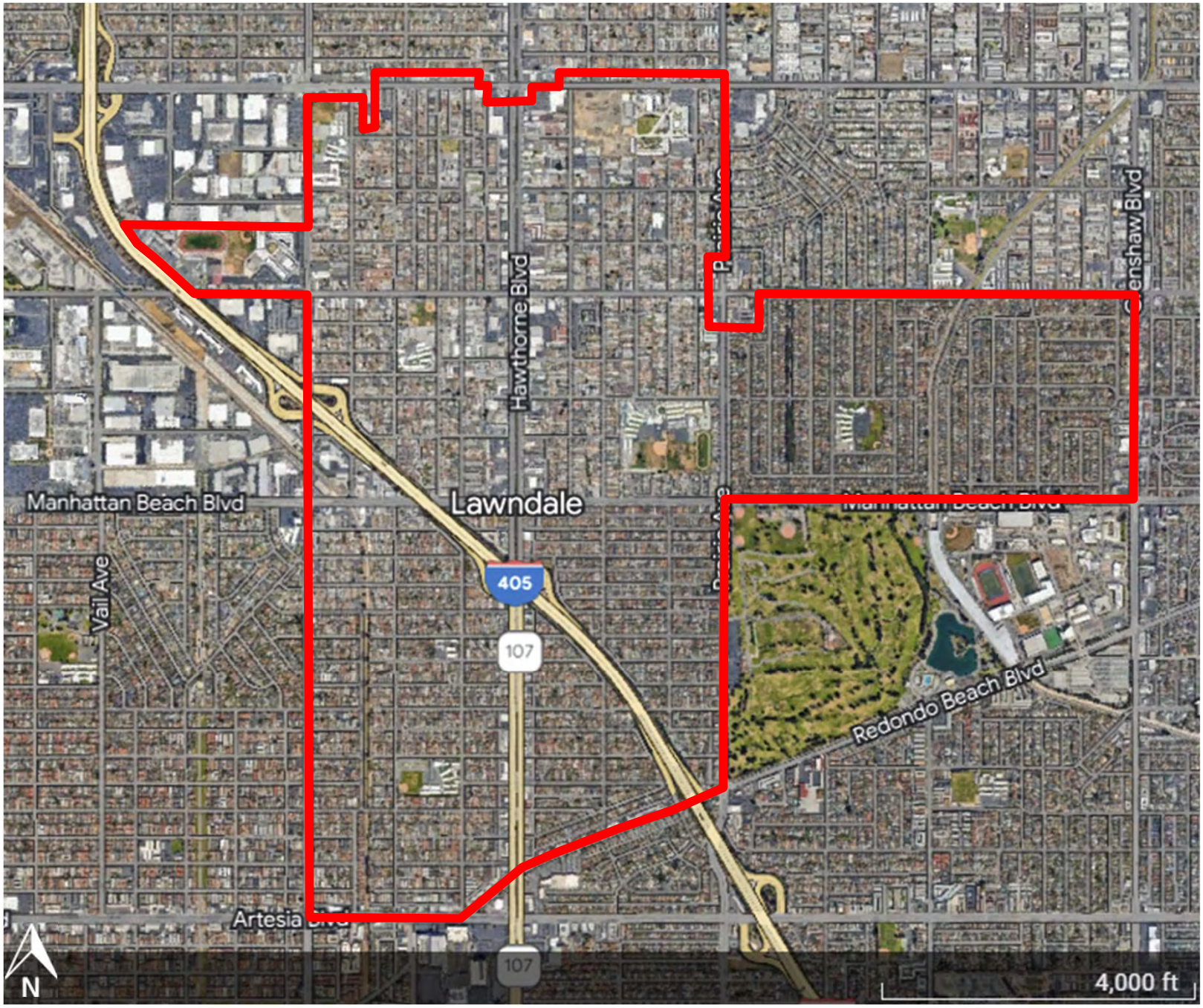


Exhibit B

Existing General Plan Land Use Map

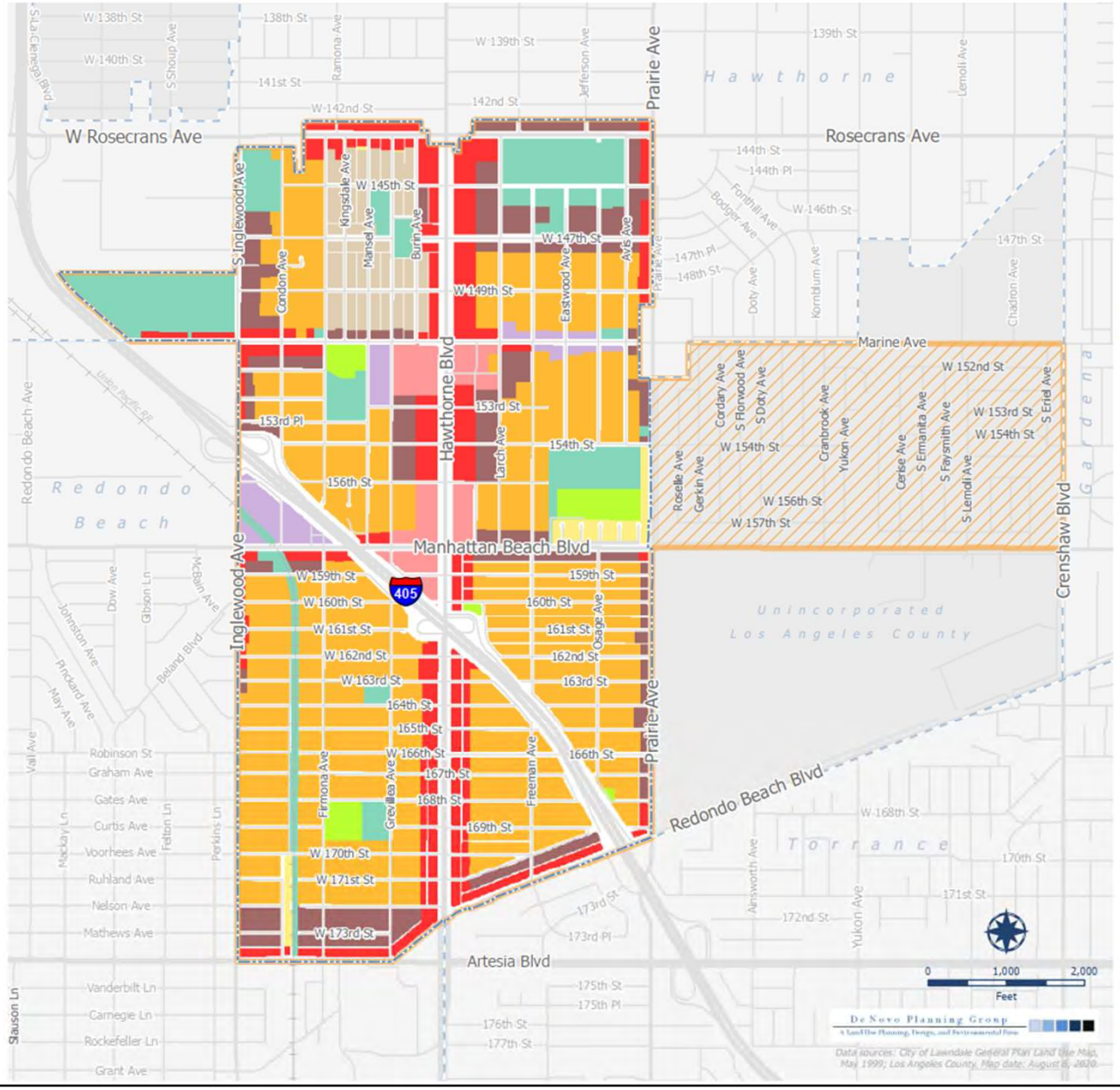


Figure 2-2.

Current General Plan Land Use Map

LEGEND

- City of Lawndale
- Sphere of Influence
- Planning Area/Sphere of Influence
- Surrounding Jurisdiction
- Unincorporated Los Angeles County

General Plan Land Use

- Commercial
- Downtown Commercial
- Industrial
- Open Space
- Public Facilities/Schools
- Residential Multiple Family Low
- Residential Multiple Family Medium
- Residential Single Family Low
- Residential Single Family Medium

City of Lawndale
The heart of the Southbay

2020 GENERAL PLAN &
HAWTHORNE BOULEVARD SPECIFIC PLAN UPDATE

Exhibit C

Proposed General Plan Land Use Map

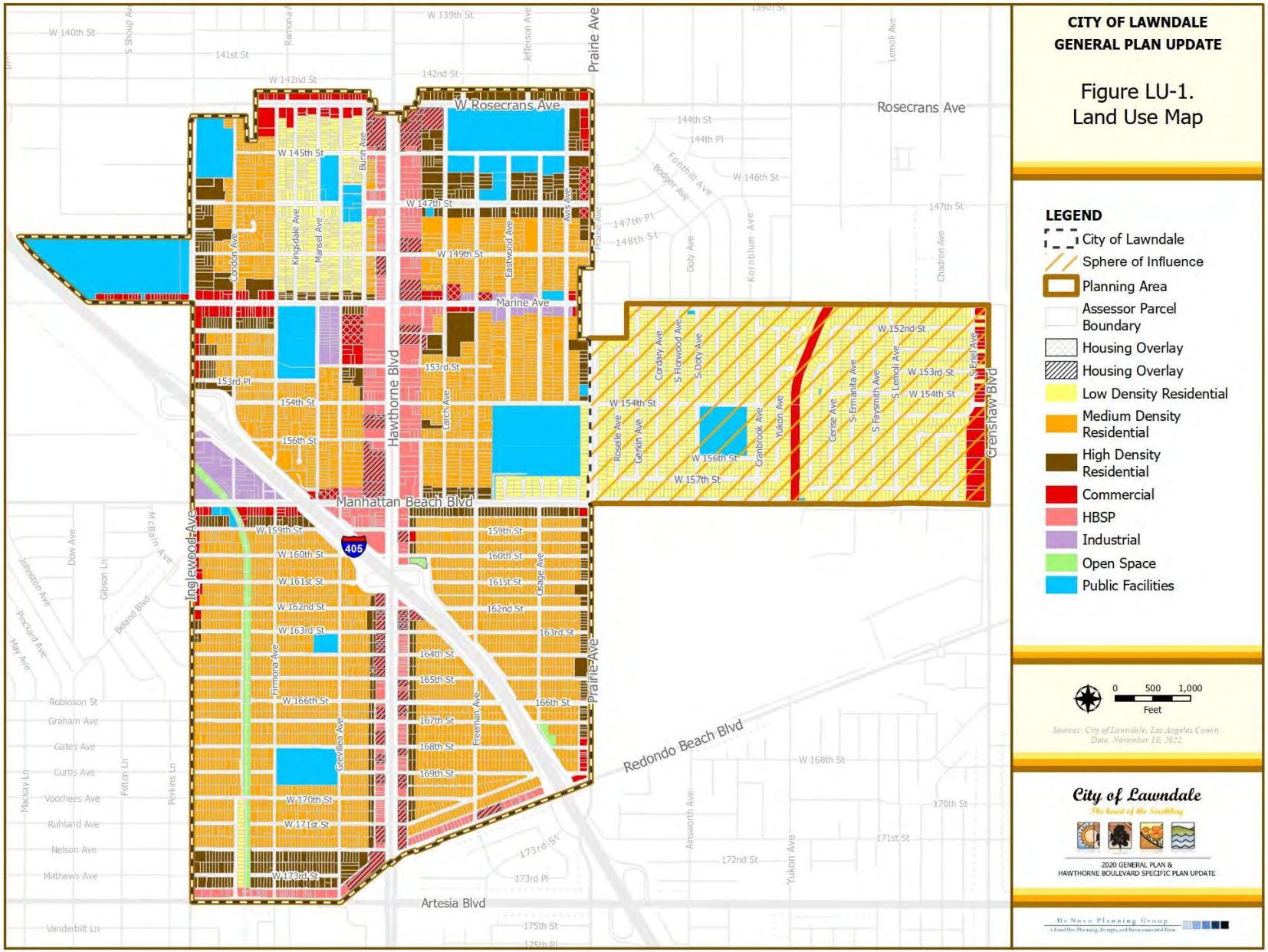
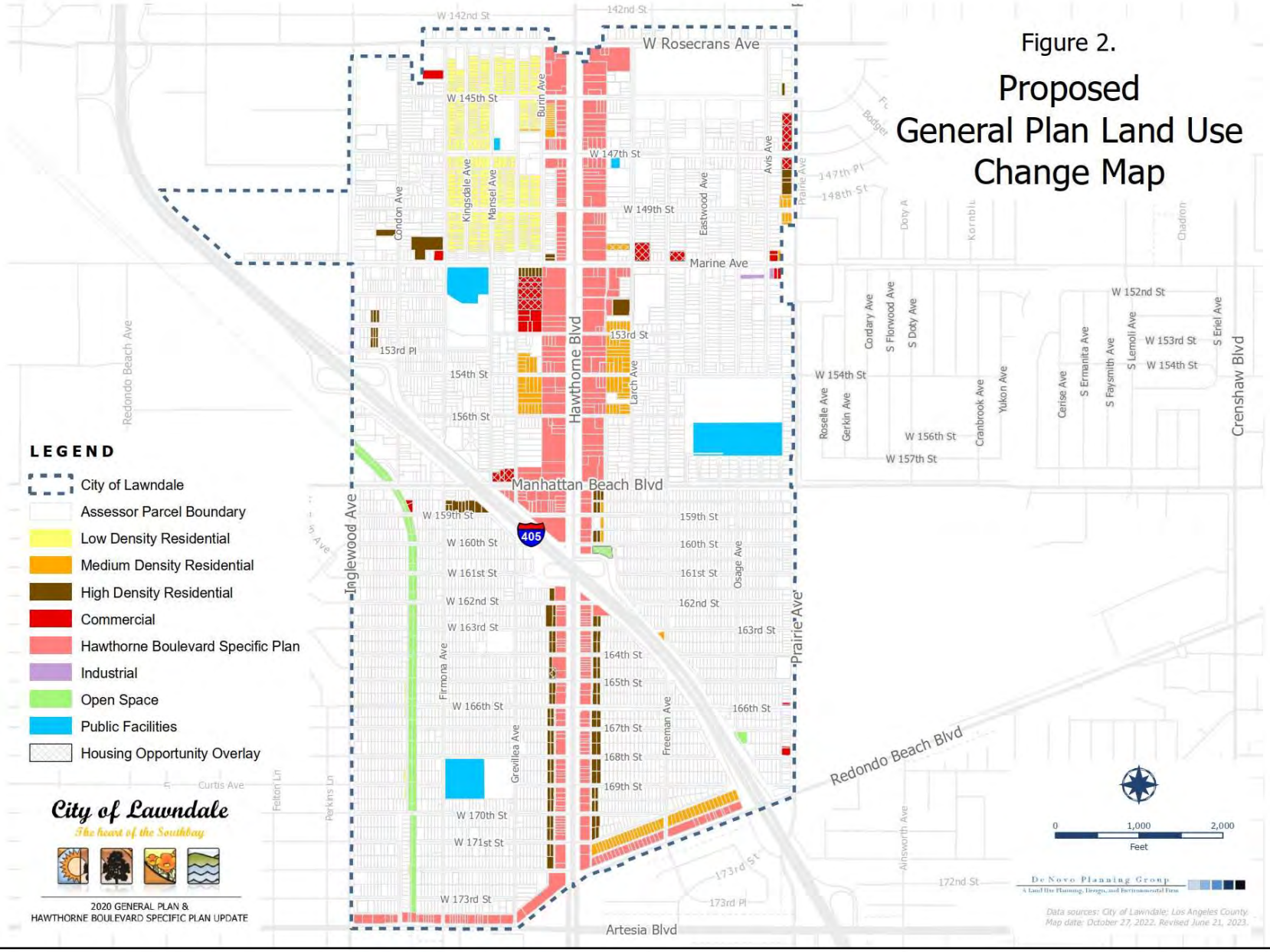


Exhibit D

Proposed General Plan Land Use Change Map



2.0 Fundamentals of Noise

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

2.1 Sound, Noise, and Acoustics

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

2.2 Frequency and Hertz

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

2.3 Sound Pressure Levels and Decibels

The *amplitude* of a sound determines its loudness. The loudness of sound increases or decreases as the amplitude increases or decreases. Sound pressure amplitude is measured in units of micro-Newton per square meter ($\mu N/m^2$), also called micro-Pascal (µPa). One µPa is approximately one hundred billionths (0.00000000001) of normal atmospheric pressure. Sound pressure level (SPL or L_p) is used to describe in logarithmic units the ratio of actual sound pressures to a reference pressure squared. These units are called decibels abbreviated dB.

2.4 Addition of Decibels

Because decibels are on a logarithmic scale, sound pressure levels cannot be added or subtracted by simple plus or minus addition. When two sounds of equal SPL are combined, they will produce an SPL 3 dB greater than the single SPL. In other words, sound energy that is doubled produces a 3 dB increase. If two sounds differ by approximately 10 dB, the higher sound level is the predominant sound. When combining sound levels, estimates shown in Table 2 may be utilized.

Table 2: Decibel Addition

When Two Decibel Values Differ by:	Add This Amount to Higher Value	Example
0 or 1 dB	3 dB	70+69=73 dB
2 or 3 dB	2 dB	74+71=76 dB
4 to 9 dB	1 dB	66+60=67 dB
10 dB or more	0 dB	65+55=65 dB
Source: Caltrans Technical Noise Supplement to the Traffic Noise Analysis Protocol. Caltrans, 2013		

2.5 Human Response to Changes in Noise Levels

In general, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, and it perceives a sound within that range as being more intense than a sound with a higher or lower frequency with the same magnitude. For purposes of this report as well as with most environmental documents, A-scale weighting is typically used and is reported in terms of the A-weighted decibel (dBA). The A-scale was designed to account for the frequency-dependent sensitivity of the human ear. Typical A-weighted noise levels are shown in Table 3.

Table 3: Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor
	110	Rock Band
Jet flyover at 1,000 feet		
	100	
Gas lawnmower at 3 feet		
	90	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower, 100 feet	70	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60	
		Large Business Office
Quiet urban daytime	50	Dishwasher in next room
Quiet urban nighttime	40	Theater, large conference room (background)
Quiet suburban nighttime		
	30	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20	
		Broadcasting/recording studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: Caltrans Technical Noise Supplement to the Traffic Noise Analysis Protocol. Caltrans, 2013.

In general, the human ear can barely perceive a change in the noise level of 3 dB. As shown in Table 4, a change in 5 dB is readily perceptible, and a change in 10 dB is perceived as being twice or half as loud. As previously discussed, a doubling of sound energy results in a 3 dB increase in sound, which means that a doubling of sound energy (e.g., doubling the volume of traffic on a highway) would result in a barely perceptible change in sound level.

Table 4: Perceived Changes in Noise Levels

Changes in Intensity Level, dBA	Changes in Apparent Loudness
1	Not perceptible
3	Just perceptible
5	Clearly noticeable
10	Twice (or half) as loud
Source: Caltrans Technical Noise Supplement to the Traffic Noise Analysis Protocol. Caltrans, 2013.	

2.6 Noise Descriptors

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

A-Weighted Sound Level: The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high-frequency components of the sound in a manner similar to the response of the human ear. A numerical method of rating human judgment of loudness.

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

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

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

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

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

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

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

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

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

Percent Noise Levels: See L(n).

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

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

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

2.7 Tonal Sounds

A pure tone sound is a sound produced at or near a single frequency. Laboratory tests have shown that humans are more perceptible to changes in sound levels of a pure tone. For a noise source to contain a "pure tone," there must be a significantly higher A-weighted sound energy in a given frequency band than in the neighboring bands, thereby causing the noise source to "stand out" against other noise sources. A pure tone occurs if the sound pressure level in the one-third octave band with the tone exceeds the average of the sound pressure levels of the two contagious one-third octave bands by 5 dB for center frequencies of 500 Hertz (Hz) and above; by 8 dB for center frequencies between 160 and 400 Hz; and by 15 dB for center frequencies of 125 Hz or less.

2.8 Sound Propagation

As sound propagates from a source it spreads geometrically. Sound from a small, localized source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The

sound level attenuates at a rate of 6 dB per doubling of distance. The movement of vehicles down a roadway makes the source of the sound appear to propagate from a line (i.e., line source) rather than a point source. This line source results in the noise propagating from a roadway in a cylindrical spreading versus a spherical spreading that results from a point source. The sound level attenuates for a line source at a rate of 3 dB per doubling of distance.

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

2.9 Ground Absorption

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

2.10 Sound Attenuation

Noise-related land use issues are typically composed of three basic elements: (1) the noise source, (2) a transmission path, and (3) a receiver.

The appropriate acoustical treatment for a given project should consider the nature of the noise source and the sensitivity of the receiver. When the potential for a noise-related problem is present, either avoidance of the noise-related problem or noise control techniques should be selected to provide an acceptable noise environment for the receiver while remaining consistent with local aesthetic standards and practical structural and economic limits. Fundamental noise control options are described below.

2.10.1 Noise Barriers

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. To achieve that reduction, the barrier must be high enough and long enough to block the line-of-sight of the vehicles on the road. A noise barrier can still achieve a 5 dBA noise level reduction when it is tall enough to barely allow a line-of-sight of the vehicles. A noise barrier is most effective when placed close to the noise source or receiver. When the noise barrier is an earthen berm instead of a wall, the noise attenuation can be increased by another 3 dBA.

2.10.2 Setbacks

Noise exposure may be reduced by increasing the setback distance between the noise source and the receiving use. Setback areas can take the form of open space, frontage roads, recreational areas, and storage yards. The available noise attenuation from this technique is limited by the characteristics of the noise source but generally ranges between 4 and 6 dBA.

2.10.3 Site Design

Buildings can be placed on a property to shield other structures or areas affected by noise and to prevent an increase in noise levels caused by reflections. The use of one building to shield another can significantly reduce overall noise control costs, particularly if the shielding structure is insensitive to noise. An example would be placing a detached garage nearest the noise source to shield the house or backyard. Site design should guard against creating reflecting surfaces that may increase onsite noise levels. For example, two buildings placed at an angle facing a noise source may cause noise levels within that angle to increase by up to 3 dBA. The open end of U-shaped buildings should point away from noise sources for the same reason. Landscaping walls or noise barriers located within a development may inadvertently reflect noise to a noise-sensitive area unless carefully located.

2.10.4 Building Facades

When interior noise levels are of concern in a noisy environment, noise reduction may be obtained through the acoustical design of building facades. Standard construction practices provide a noise reduction of 10–15 dBA for building facades with open windows and a noise reduction of approximately 25 dBA when windows are closed (Table 5). An exterior-to-interior noise reduction of 25 dBA can be obtained by requiring that building design include adequate ventilation systems, which would allow windows facing a noise source to remain closed, even during periods of excessively warm weather.

Where greater noise reduction is required, acoustical treatment of the building facade may be necessary. Reducing relative window area is the most effective control technique, followed by providing acoustical glazing (e.g., thicker glass or increased air space between panes) within frames with low air infiltration rates, using fixed (i.e., non-movable) acoustical glazing, or eliminating windows. Noise transmitted through walls can be reduced by increasing wall mass (e.g., using stucco or brick in lieu of wood siding), or isolating wall members by using double or staggered stud walls, while noise transmitted through doorways can be lessened by reducing door area, using solid-core doors, or sealing door perimeters with suitable gaskets. Noise-reducing roof treatments include using plywood sheathing under roofing materials.

Table 5: Noise Reduction Afforded by Common Building Construction

Construction Type	Typical Occupancy	General Description	Range of Noise Reduction (dB)[1]
1	Residential, Commercial, Schools	Wood frame, stucco, or wood sheathing exterior. Interior drywall or plaster. Sliding glass windows, with windows partially open.	15-20
2	Same as 1 above	Same as 1 above, but with windows closed.	25-30
3	Commercial, Schools	Same as 1 above, but with fixed 0.25-inch plate glass windows.	30-35
4	Commercial, Industrial	Steel or concrete frame, curtain wall, or masonry exterior wall. Fixed 0.25-inch plate glass windows.	35-40

Source: California Airport Land Use Planning Handbook, 2002.

2.10.5 Landscaping

While the use of trees and other vegetation is often thought to provide significant noise attenuation, approximately 100 feet of dense foliage – with no visual path extending through the foliage – is required to achieve a 5 dBA attenuation of traffic noise. Thus, the use of vegetation as a noise barrier is not considered a practical method of noise control unless large tracts of dense foliage are part of the existing landscape.

Vegetation can be used, however, to acoustically "soften" intervening ground between a noise source and a receiver, increasing ground absorption of sound, and thus, increasing the attenuation of sound with distance. Planting trees and shrubs also offers aesthetic and psychological value, and it may reduce adverse public reaction to a noise source by removing the source from view, even though noise levels would be largely unaffected.

3.0 Ground-Borne Vibration Fundamentals

3.1 Vibration Descriptors

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors, where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and mainly exists indoors since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves. Several different methods are used to quantify vibration amplitude. Typical human reaction and effect on buildings due to ground-borne vibration is shown in Table 6. Exhibit E illustrates common vibration sources and the human and structural responses to ground-borne vibration.

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

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

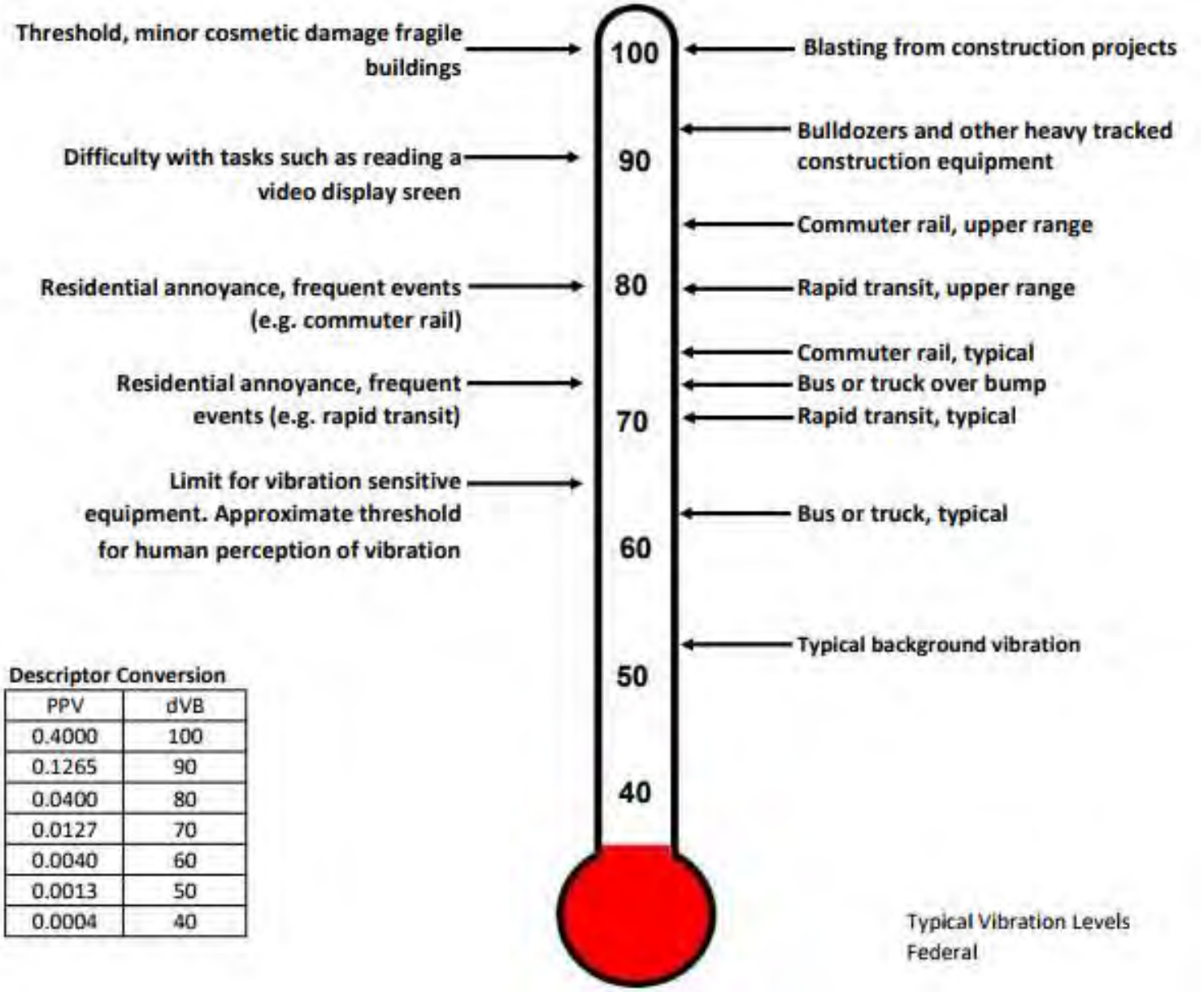
VdB – A commonly used abbreviation to describe the vibration level (VdB) for a vibration source.

Table 6: Typical Human Reaction and Effect on Buildings Due to Ground-Borne Vibration

Vibration Level Peak Particle Velocity (PPV)	Human Reaction	Effect on Buildings
0.006–0.019 in/sec	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08 in/sec	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10 in/sec	Level at which continuous vibration begins to annoy people	Virtually no risk of “architectural” (i.e., not structural) damage to normal buildings
0.20 in/sec	Vibrations annoying to people in buildings	Threshold at which there is a risk to “architectural” damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6 in/sec	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause “architectural” damage and possibly minor structural damage
Source: Caltrans Transportation and Construction Vibration Guidance Manual, 2020.		

Exhibit E

Typical Ground-Borne Vibration Levels



Descriptor Conversion

PPV	dVB
0.4000	100
0.1265	90
0.0400	80
0.0127	70
0.0040	60
0.0013	50
0.0004	40

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Outdoor sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration.

The California Department of Transportation has published one of the seminal works for the analysis of ground-borne noise and vibration relating to transportation- and construction-induced vibrations and although the Project is not subject to these regulations, it serves as useful tools to evaluate vibration impacts. (California Department of Transportation, 2020).

3.3 Vibration Propagation

There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation. As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. This drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 Regulatory Setting

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

4.1 Federal Regulations

4.1.1 Noise Control Act of 1972

The Federal Office of Noise Abatement and Control (ONAC) was originally tasked with implementing the Noise Control Act. However, it was eventually eliminated leaving other federal agencies and committees to develop noise policies and programs. Some examples of these agencies are as follows:

- The Department of Transportation (DOT) assumed a significant role in noise control through its various agencies.
- The Federal Aviation Agency (FAA) regulates noise from aircraft and airports.
- The Federal Highway Administration (FHWA) regulates noise from the interstate highway system.
- The Occupational Safety and Health Administration (OSHA) is responsible for the prohibition of excessive noise exposure to workers.

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

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

The intent of a General Plan Noise Element or Section is to set goals to limit and reduce the effects of noise intrusion and to set acceptable noise levels for varying types of land uses. To this end, the City has the authority to set land use noise standards and restrict private activities that generate excessive or intrusive noise. However, it should be recognized that the City does not have the authority to regulate all sources of noise within the City and various other agencies may supersede City authority. The following is a summary of some federal agency requirements that apply to noise within the Project Area.

4.1.2 Federal Highway Administration

Federal Highway Administration State routes and freeways that run through the City are subject to Federal funding and, as such, are under the purview of the Federal Highway Administration (FHWA). The FHWA has developed noise standards that are typically used for Federally funded roadway projects or projects that require either Federal or Caltrans review. These noise standards are based on Leq and L10 values and are included in Table 7, FHWA Design Noise Levels.

Table 7: FHWA Design Noise Levels

Activity Category	Description of Category	Design Noise Levels[1]	
		Leq (dBA)	L10 (dBA)
A	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. Examples include natural parks or wildlife habitats.	57 (exterior)	60 (exterior)
B	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.	67 (exterior)	70 (exterior)
C	Developed lands, properties, or activities not included in Categories A or B, above.	72 (exterior)	75 (exterior)
D	Undeveloped lands.		
E	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.	52 (interior)	55 (interior)

Source: FHWA Noise Standard. 23 Code of Federal Regulations 772.
Notes: Either Leq or L10 (but not both) design noise levels may be used on a project.

U.S. Department of Housing and Urban Development
The Department of Housing and Urban Development (HUD) issues formal requirements related specifically to standards for exterior noise levels along with policies for approving HUD-supported or assisted housing projects in high noise areas. In general, these requirements established three zones. These include:

- 65 dBA Ldn or less - an acceptable zone where all projects could be approved,

- Exceeding 65 dBA Ldn but not exceeding 75 dBA Ldn - a normally unacceptable zone where mitigation measures would be required, and each Project would have to be individually evaluated for approval or denial. These measures must provide 5 dBA of attenuation above the attenuation provided by standard construction required in a 65 to 70 dBA Ldn area and 10 dBA of attenuation in a 70 to 75 dBA Ldn area, and

- Exceeding 75 dBA Ldn - an unacceptable zone in which projects would not, as a rule, be approved.

4.1.3 The Federal Interagency Committee on Noise

The Federal Interagency Committee on Noise (FICON) developed guidance for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies of the percentage of persons highly annoyed by aircraft noise. These recommendations are often used for different types of environmental noise such as traffic noise. A readily perceptible 5 dBA or greater project-related noise level increase is considered a significant impact

when the noise criteria for a given land use is exceeded. In areas where the existing noise levels range from 60 to 65 dBA Ldn, a 3 dBA barely perceptible noise level increase is considered significant. When the existing noise levels already exceed 65 dBA Ldn, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact since it likely contributes to an existing noise exposure exceedance.

4.2 State Regulations

4.2.1 California Department of Health Services

The California Department of Health Services (DHS) Office of Noise Control studied the correlation between noise levels and their effects on various land uses. As a result, the DHS established four categories for judging the severity of noise intrusion on specified land uses. These categories are presented in the State Land Use Compatibility for Community Noise Exposure table (California Office of Noise Control, 2017).

4.2.2 The California Building Code

Section 1206.4 of the 2022 California Building Code (Cal. Code Regs., Title 24, Part 2), Chapter 12 (Interior Environment), establishes an interior noise criterion of 45 dBA CNEL in any habitable room. Per California Building Code, Chapter 2 (Definitions), a habitable space is A space in a building for living, sleeping, eating or cooking. Bathrooms, toilet rooms, closets, halls, storage or utility spaces and similar areas are not considered habitable spaces. This section applies to dwelling and sleeping units.

4.2.3 California Green Building Standards Code

California Green Building Standards Code (2022), Chapter 5 (Non-residential Mandatory Measures) Section 5.507.4 (Acoustical Control), applies to all proposed buildings that people may occupy but are not residential dwelling units, with the exception of factories, stadiums, storage, enclosed parking structures, and utility buildings.

Buildings must comply with Section 5.507.4.1 or Section 5.507.4.2. Section 5.507.4.1 requires wall and roof-ceiling assemblies exposed to the noise source making up the building, or addition envelope or altered envelope, shall meet a composite Sound Transmission Class (STC) rating of at least 50 or a composite Outdoor to Indoor Transmission Class (OITC) rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 when within the 65 CNEL noise contour of an airport, freeway, expressway, railroad, industrial source, or fixed-guideway source. If contours are not available, buildings exposed to 65 dB Leq(h) must meet a composite STC rating of at least 45 or OITC of 35 with exterior windows of at least STC 40 or OITC 30. Section 5.507.4.2 requires that the interior noise attributable to exterior sources must not exceed 50 dBA Leq(h) during any hour of operation. Section 5.507.4.3 requires that assemblies separating tenant spaces from tenant spaces or public places must have an STC of at least 40.

4.3 City of Lawndale

Existing planning policies and noise regulations applicable to noise within the City of Lawndale are presented in the Noise Plan of the City of Lawndale General Plan 1992 and within the City of Lawndale Municipal Code. Applicable goals, policies, and regulations are presented below.

4.3.1 City of Lawndale General Plan 1992

General Plan Goals, Policies and Actions
The 1992 General Plan Noise Plan includes the following goals, policies and implementation programs that are intended to avoid or reduce noise impacts related to transportation, stationary, and construction related noise sources.

Noise Goal 1: To achieve and maintain an environment which is free from excessive or harmful noise through identification, control and abatement.

Policies
Policy 1a: Control and abate undesirable sounds through the development of land use compatibility guidelines and a noise ordinance.
Policy 1b: Encourage the development of industrial and commercial land uses which do not produce excessive noise.
Policy 1c: Discourage development of noise sensitive land uses in area impacted by high noise levels.
Policy 1d: Ensure that sensitive land uses are not subjected to inappropriate noise levels resulting from transportation systems.
Policy 1e: Maintain coordination of noise control policies and standards with the surrounding cities and Caltrans.
Policy 1f: Provide for implementation, periodic review and revision of the Noise Element.
Policy 1g: Provide for the education of the community in the nature and extent of noise in the City of Lawndale.

Implementation Programs
1.1 Comprehensive Noise Ordinance Adoption: Adopt a comprehensive noise ordinance to prohibit unwanted and unnecessary sound. The ordinance shall identify acceptable property line sound level limits and control noise sources such as barking dogs, mechanical equipment, amplified music, construction activity and other noise identified as disturbing, excessive or offensive.
1.2 Noise Compatibility Standards: Adopt the land use noise compatibility standards presented in Figure A for general planning and zoning purposes.
1.3 Noise Insulation Standards: Enforce the California Administrative Code, Title 24, Noise Insulation Standards. Title 24 requires that an acoustical analysis be performed for all new multi-family construction in areas where the exterior sound level exceeds 60 CNEL. The analysis shall ensure that the building design limits the interior noise environment to 45 CNEL or below.

1.4 Noise Insulation Standards for Single-Family Dwellings: Adopt a policy or implementation ordinance making California Administrative Code, Title 24, Noise Insulation Standards applicable to new single0family dwellings.

1.5 Project Review: Review actions or projects that may have the potential to generate noise impacts which may impact existing land uses.

1.6 Acoustical Analysis: Require noise studies for projects where exterior noise levels exceed 60 dB CNEL to identify potential noise impacts, analyze mitigation alternatives, and identify methods to monitor the effectiveness of the mitigation following implementation.

1.7 Transportation Noise Standards: Develop noise standards for use in reviewing the construction and improvement of any roadway, railroad, or other transit system.

1.8 Enforce Motor Vehicle Code: Enforce the provisions of the State Motor Vehicle Code which requires that all vehicles be equipped with a properly maintained muffler and that the exhaust system not be modified.

1.9 Regulate Traffic Flow: Review traffic flow systems and synchronize signals to avoid traffic stops which produce excessive noise wherever possible.

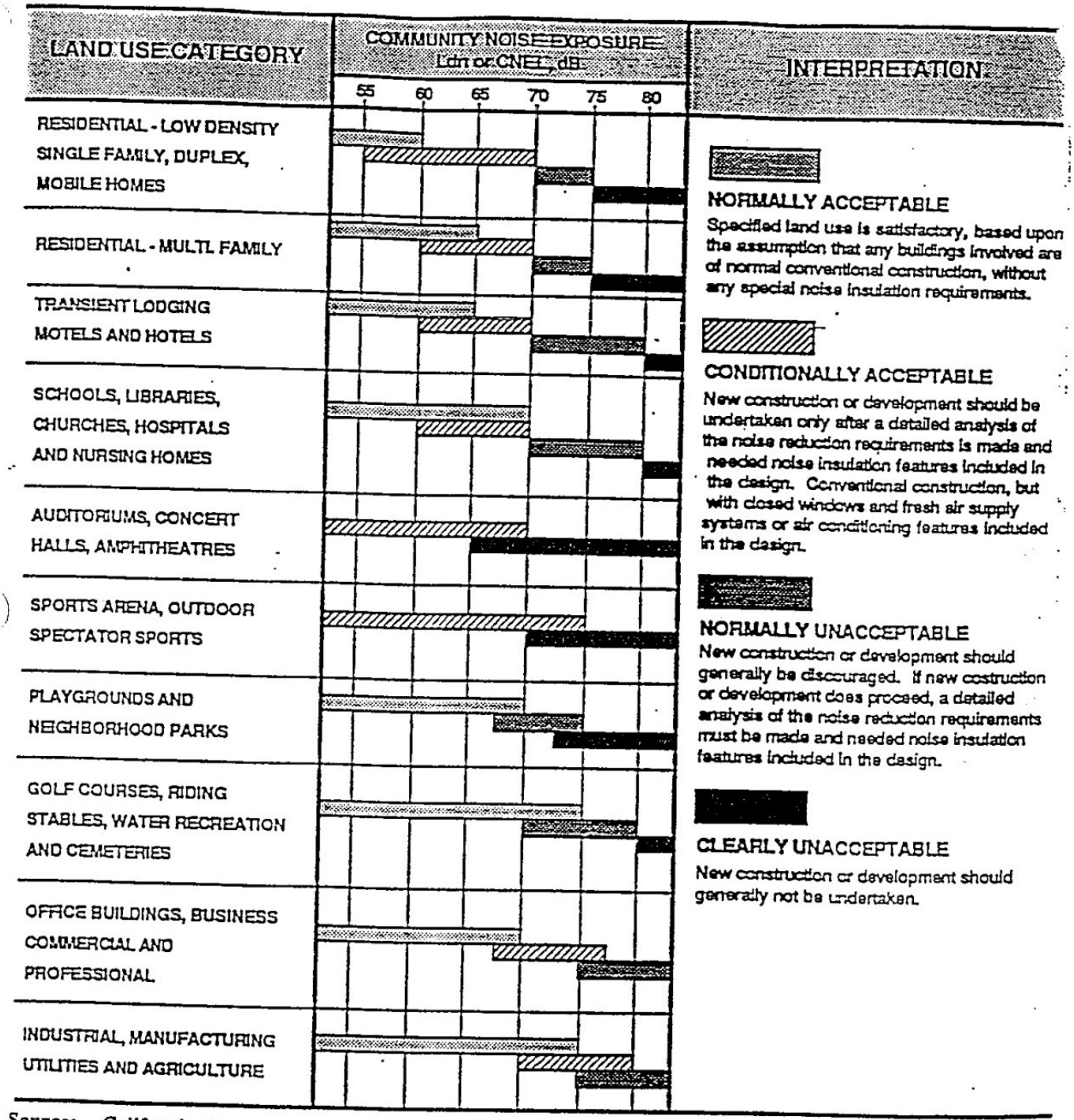
1.10 Limit Truck Noise: Limit truck traffic in noise sensitive areas.

- Increasing the distance from the noise source to sensitive receptors by creation of setbacks;
- Placing non-noise sensitive uses such as parking lots and utility areas between the noise source and receiver; and
- Orient usable outdoor living space such as balconies, patios, and children play areas away from roadways.

Noise/Land Use Compatibility

Exhibit F, Noise and Land Use Compatibility presents a land use compatibility chart for community noise originally prepared by the California Office of Noise Control (1987). The table identifies “normally acceptable,” “conditionally acceptable,” “normally unacceptable,” and “clearly unacceptable” exterior noise levels for various land uses. A “conditionally acceptable” designation implies new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use is made and needed noise insulation features are incorporated in the design. By comparison, a “normally acceptable” designation indicates that standard construction can occur with no special noise reduction requirements. This land use compatibility chart is based on the 24-hour descriptor CNEL.

Exhibit F: Existing Noise and Land Use Compatibility



Source: California Department of Health Services Noise Element Guidelines, 1987.

4.3.2 City of Lawndale General Plan 2023

The following Goal, Policies, and Actions are proposed for the 2023 City of Lawndale General Plan.

Goal PS-6: An environment where excessive or harmful noise pollution is limited.

Noise levels within the community can affect the quality of life experienced by people living and working in Lawndale. High noise levels can create stress and irritation. The following policies and actions address other potential sources of excessive noise by creating effective strategies to reduce and limit the community's exposure to loud sources of noise.

PS-6 Policies

PS-6.1 **California Building Code.** Adhere to the latest standards related to noise in the most current edition of the California Building Code to avoid or minimize noise pollution in the community.

PS-6.2 **Noise Exposure**. Consider the noise compatibility of existing and future development when making land use planning decisions. Require development and infrastructure projects to be consistent with the land use compatibility standards contained in Table PS-1 and the Lawndale Municipal Code to facilitate acceptable noise exposure levels for existing and future development.

PS-6.3 **Noise Mitigation**. Require new development to mitigate excessive noise to the standards indicated in Table PS-1 and the Lawndale Municipal Code through best practices, including building location and orientation, building design features, placement of noise-generating equipment away from sensitive receptors, shielding of noise-generating equipment, placement of noise-tolerant features between noise sources and sensitive receptors, and use of noise-minimizing materials.

PS-6.4 **Acoustical Studies**. Require acoustical studies for new discretionary developments and transportation improvements that have the potential to affect existing noise-sensitive uses such as schools, hospitals, libraries, care facilities, and residential areas; and for projects that would introduce new noise-sensitive uses into an area where existing noise levels may exceed the thresholds identified in this element. For projects that are required to prepare an acoustical study, the following mobile and stationary noise source criteria shall be used to determine the significance of those impacts.

A. Mobile Noise Sources:

- Where existing traffic noise levels are within or below the "normally acceptable" noise criteria at the affected land use (see Table PS-1), a readily perceptible 5 dBA CNEL or greater increase in roadway noise will be considered significant;

- Where existing traffic noise levels falls within the "conditionally acceptable" noise criteria at the sensitive land use, a +3 dBA CNEL or greater increase in roadway noise levels will be considered significant; and

- Where existing traffic noise levels exceed the "conditionally acceptable" noise criteria at the sensitive land use, a + 1.5 dBA CNEL or greater increase in roadway noise levels will be considered significant

B. Stationary and Non-Transportation Noise Sources

A significant impact will occur if the project results in an exceedance of the noise level standards contained in this element, or the project will result in an increase in ambient noise levels by more than 3 dB, whichever is greater.

PS-6.5 **Roadway Noise**. Encourage nonmotorized transportation alternatives for local trips and the implementation of noise sensitivity measures in the public realm, including traffic-calming road design, lateral separation, natural buffers, and setbacks to decrease excessive motor vehicle noise.

PS-6.6 **Freeway Noise**. Coordinate with the California Department of Transportation (Caltrans) to achieve maximum noise abatement in the design of new freeway projects or improvements along I-405.

PS-6.7 **Railroad Noise**. Coordinate with Burlington Northern and Santa Fe Rail (BNSF) to support and maintain reasonable limits on the use of bells and whistles, and the speed and hours of rail operation in affected areas of the City, and maintain adequate setbacks and buffer zones along rail lines to reduce adverse noise impacts on sensitive receptors.

PS-6.8 **Commercial Noise**. Require the use of noise attenuation measures, including screening and buffering techniques, for all new commercial development expected to produce excessive noise; in existing cases where the City's noise standards are exceeded, work with Code Enforcement to require compliance.

PS-6.9 **Construction Noise**. Require construction activities to reduce noise impacts on adjacent uses to the criteria identified to the maximum extent feasible by complying with Chapter 8.20 of the Lawndale Municipal Code and use best practices.

PS-6.10 **Special Events**. Temporary special events which generate noise in excess of local noise standards including, but not limited to, festivals, concerts, parades, and other similar activities may be considered on a case-by-case basis through issuance of a temporary use permit.

PS-6.11 **Temporary Emergency Operations and Emergency Equipment Usage**. Temporary emergency operations or emergency equipment usage are exempt from noise standard criteria set by this element.

PS-6.12 **Interjurisdictional and Multiagency Coordination**. Coordinate with neighboring cities and transportation providers such as Caltrans to minimize noise conflicts between land uses along the City's boundaries.

PS-6.13 **Community Education**. Provide education to the community regarding potential noise sources and how to reduce them or report violations.

PS-6.14 Vibration Studies. Require vibration impact studies for new discretionary development and transportation improvements whose construction utilizes pile drivers within 200 feet of existing buildings or vibratory rollers within 50 feet of existing buildings.

PS-6 Actions

PS-6a Monitor changes in the California Building Code and other federal and State laws and regulations related to noise and incorporate necessary changes into the Municipal Code and building codes as required.

PS-6b Review the Lawndale Municipal Code and update as necessary so that the noise standards are consistent with this General Plan, including Table PS-1, and to require new residential, mixed-use with a residential component, and other noise-sensitive development to be designed to minimize noise exposure to noise sensitive uses through incorporation of site planning and architectural techniques. The update shall also include noise standards for residential uses within a mixed-use development, which may differ from other adopted residential noise standards.

PS-6c Review new development and transportation projects for compliance with the noise requirements established in this General Plan, including the standards established in Table PS-1 and the Lawndale Municipal Code. Where necessary, require new development to mitigate excessive noise through best practices, including building location and orientation, building design features, placement of noise-generating equipment away from sensitive receptors, shielding of noise-generating equipment, placement of noise-tolerant features between noise sources and sensitive receptors, and use of noise-minimizing materials such as rubberized asphalt.

PS-6d Require acoustical studies for all new discretionary projects, including those related to development and transportation, which have the potential to generate noise impacts which exceed the standards identified in this General Plan. The studies shall include representative noise measurements, estimates of existing and projected noise levels, and mitigation measures necessary to facilitate compliance with this element.

PS-6e Review the locations of proposed projects with the potential to generate stationary noise in relation to sensitive receptors through the discretionary project review process. Limit delivery or service hours for stores and businesses with loading areas, docks, or trash bins that front, side, border, or gain access on driveways next to residential and other noise sensitive areas. Only approve exceptions if full compliance with the nighttime limits of the noise regulations is achieved.

PS-6f Require all construction activity to comply with the limits (maximum noise levels, hours and days of allowed activity) established in the Lawndale Municipal Code in order to reduce impacts associated with temporary construction noise to the extent feasible.

PS-6g Actively enforce the standards identified within the Lawndale Municipal Code to reduce impacts to the extent feasible. Update and amend the Lawndale Municipal Code as

appropriate. Provide a link on the City's website for those to file complaints against activities and uses that may be violating the Municipal Code.

PS-6h Require new residential projects located adjacent to railroad lines to follow the FTA vibration screening distance criteria to prevent residential uses from being exposed to vibrations exceeding 72 VdB for frequent events (more than 70 events per day), 75 VdB for occasional events (30-70 events per day), or 80 VdB for infrequent events (less than 30 events per day).

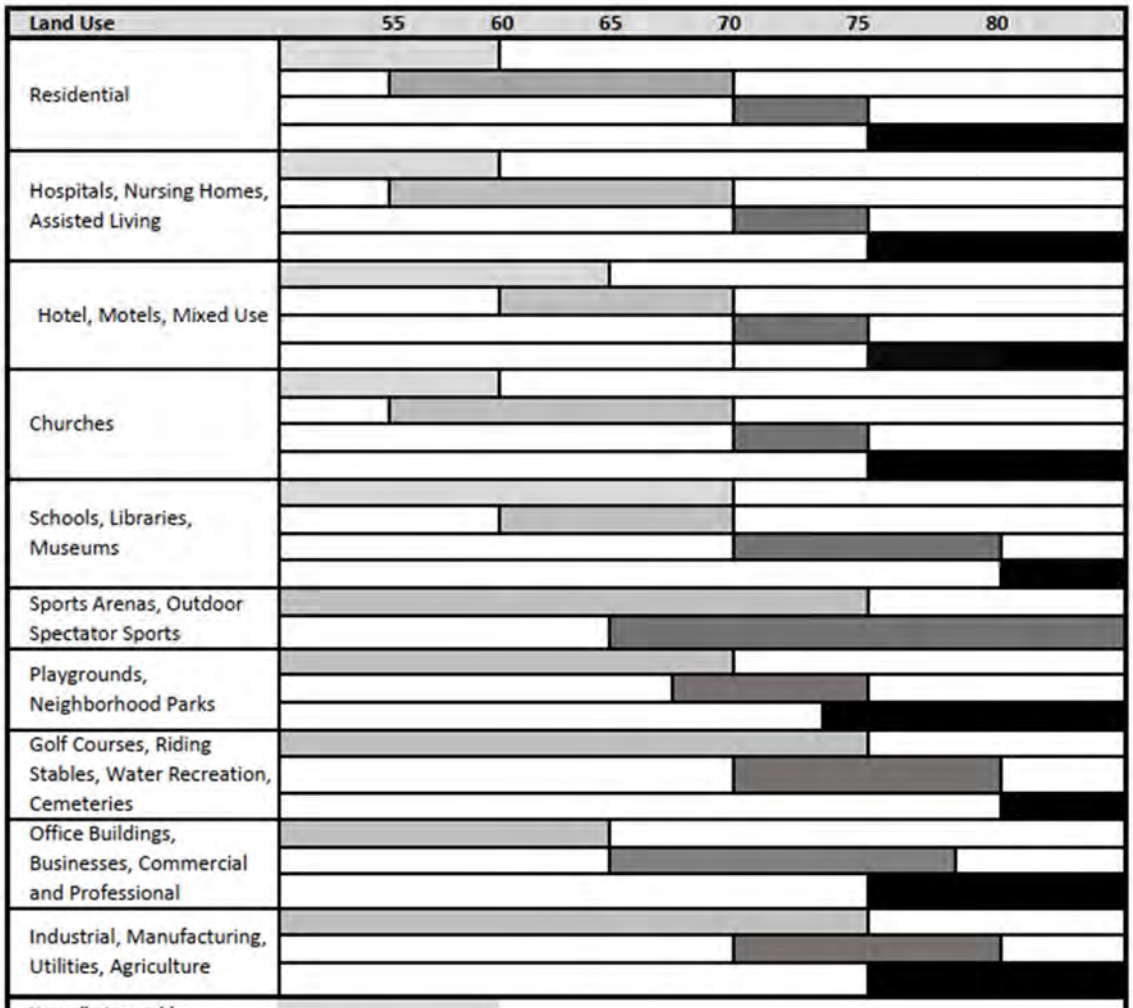
PS-6i Enforce the provisions of the most current California Motor Vehicle Code regarding muffler maintenance and exhaust systems.

PS-6j Limit truck traffic in noise sensitive areas.

PS-6k Require vibration impact studies for all new discretionary projects, including those related to development and transportation, whose construction utilizes pile drivers within 200 feet of existing buildings or vibratory rollers within 50 feet of existing buildings. The studies shall include a detailed mitigation plan to avoid any potential significant impacts to existing structures due to groundborne vibrations, based on the California Department of Transportation's Construction Vibration Guidance Manual.

Exhibit G presents the proposed Land Use Compatibilities Guidelines, Table PS-1 in the proposed Public Safety Element.

Exhibit G: Proposed Noise and Land Use Compatibility



Normally Acceptable:
Specified land uses is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation or requirements.

Conditionally Acceptable:
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice. Outdoor environment will seem noisy.

Normally Unacceptable:
New construction and development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design. Outdoor areas must be shielded.

Clearly Unacceptable
New construction or development should generally not be undertaken. Construction costs to make the indoor environment acceptable would be prohibitive and the outdoor environment would not be usable.

Source: California Office of Noise Control. Guidelines for the Preparation and Content of Noise Elements of the General Plan. February 2017.

Notes:

1. Where a proposed use is not specifically listed, the use shall comply with the standards for the most similar use as determined by the City.

2. Outdoor activity areas for residential development are considered to be the backyard patios or decks of single-family units and the common areas where people generally congregate for multi-family developments. Where common outdoor activity areas for multi-family developments comply with the outdoor noise level standard, the standard will not be applied at patios or decks of individual units provided noise-reducing measures are incorporated (e.g., orientation of patio/deck, screening of patio with masonry or other noise-attenuating material). Outdoor activity areas for non-residential developments are the common areas where people generally congregate, including pedestrian plazas, seating areas, and outside lunch facilities; not all residential developments include outdoor activity areas.

4.3.3 City of Lawndale Municipal Code

The Noise Ordinance of the Municipal Code is designed to protect people from non-transportation noise sources such as construction activity; commercial, industrial, and agricultural operations; machinery and pumps; and air conditioners. Enforcement of the ordinance ensures that adjacent properties are not exposed to excessive noise from stationary sources. Enforcing the ordinance includes requiring proposed development projects to show compliance with the ordinance, including operating in accordance with noise levels and hours of operations limits placed on the project site. The City also requires construction activity to comply with established work schedule limits. The ordinance is reviewed periodically for adequacy and amended as needed to address community needs and development patterns.

The City of Lawndale's Noise Ordinance consists of Chapter 8.20 of the Lawndale Municipal Code. The zoning code, Title 17, also contains specific noise limits relating to specific uses.

Section 8.20.010 defines sound-amplifying equipment as any machine or device for the amplification of the human voice, music, or any other sound, including automobile radios and warning devices.

Sections 8.20.020, 8.20.030, and 8.20.050 outline noise restrictions with regards to noncommercial sound trucks, commercial sound trucks or advertising vehicles, and sound-producing vehicles at night.

Section 8.20.060 states that "No person shall make, cause or suffer, or permit to be made upon any premises owned, occupied or controlled by that person any noises or sounds which are unreasonably loud or physically annoying to persons of ordinary sensitivity, or which are so harsh or so prolonged or unnatural or unusual in their use, time or place as to occasion physical discomfort to other persons." This section also states that the previous statement does not apply to noise or sounds generated in connection with any of the following:

1. Emergency vehicle response sounds and/or sounds from necessary equipment utilized by members of law enforcement, the fire department, paramedics or other emergency responders for the purpose of responding to an emergency or necessary to restore, preserve, protect or save lives or property from imminent danger of loss or harm.
2. Safety and warning devices, including but not limited to, train horns and railroad crossing warning systems, which are consistent with applicable state and federal laws.
3. The installation, maintenance, repair or replacement of public utilities or public infrastructure conducted by the city, other public entity or a public or private utility company, or their agents, contractors and employees, while undertaking a public works project, subject to the restrictions contained in Section 8.20.070 for allowable construction times.
4. School-related activities and/or programs, including, but not limited to, athletic and entertainment events and activities, provided said activities are conducted on the grounds of a public or private school or college or on other public property.
5. Noise from special community events provided said events are conducted by the city or pursuant to a permit or license issued by the city, including, but not limited to, occasional outdoor events/activities, outdoor gatherings, public dances, shows and sporting and entertainment events.
6. Any activity to the extent regulation thereof has been preempted by state or federal law.

Section 8.20.070 outlines the allowable hours for construction as follows:

> Construction activity may be conducted between the hours of seven a.m. and seven p.m., Monday through Friday (except national holidays), and eight a.m. and five p.m. Saturdays. Construction activity is prohibited at all other hours and on Sundays and national holidays. For purposes of this section, "construction" or "construction activity" shall include site preparation, demolition, grading, excavation, and the erection, improvement, remodeling or repair of structures, including operation of equipment or machinery and the delivery of materials associated with those activities.

This section also lists scenarios where the provisions of subsection A do not apply.

Section 17.48.273(A) specifies that the interior of apartments in the R-4 zone must not exceed 45 dBA CNEL. Part B states that mechanical equipment in this zone will be screened from view and not exceed a maximum of 50 dBA.

Section 17.44.020(K) regulates pool equipment to 40 dBA CNEL as measured from the property line. Part (L) regulations air conditioning equipment to 40 dBA CNEL as measured from the property line as well.

Section 17.96.040(A)12 states that small collection facilities shall not exceed noise levels of 55 dBA as measured at a residential property or 60 dBA as measured at other adjacent properties.

Section 17.80.070(A)16 states that the interior noise levels of condominiums will not exceed 40 dBA CNEL and sound insulation requirements.

Section 17.94.040(A)19 limits the noise levels of adult-oriented businesses to 55 dBA as measured on the property line.

5.0 Study Method and Procedure

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

5.1 Noise Measurement Procedure and Criteria

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

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

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

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

5.2 SoundPLAN Noise Modeling

SoundPLAN acoustical modeling software was utilized to create existing (2023), future (2045) without Project (Adopted General Plan), and future (2045) with Project (Proposed General Plan) traffic noise level contours for the 15 segments analyzed in the Project’s traffic impact analysis provided by Kittelson & Associates, Inc. and 2 segments from Caltrans traffic census program. The total change in trips from 2023 to 2045 provided by Kittelson & Associates, Inc. was applied to those 2 segments. Model parameters included average daily traffic volumes, day/evening/night split, roadway classification, width, speed, and truck mix. All modeled roadways were assumed to have a “hard site”, as the majority of analysis occurs at 50 feet from the centerline of the road. Possible reductions in noise levels due to intervening topography and buildings were not accounted for in this analysis. Roadway modeling assumptions utilized for the technical study are provided in Table 8 and Table 9 and in Appendix C. A summary of the model parameters and REMEL adjustments is presented below.

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

5.3 FHWA Traffic Noise Prediction Model

The FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) was utilized to model and compare existing traffic noise levels to 2045 Future noise levels. The FHWA model arrives at the predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Roadway modeling assumptions utilized for the technical study are provided in Table 8 and Table 9.

Table 8: Roadway Noise Modeling Parameters

Roadway	Segment	Existing ADT[1]	2045 No Project ADT[1]	2045 With Project ADT[1]	Speed[2]	Vehicle Mix[3]
Inglewood Ave	Marine Ave to 153rd Pl	30,382	29,900	30,400	35	CLASS6
Inglewood Ave	I-405 S Ent to Manhattan Beach Blvd	46,980	47,100	47,200	35	CLASS8
Inglewood Ave	Manhattan Beach Blvd to Artesia Blvd	34,669	33,600	33,800	40	CLASS6
Manhattan Beach Blvd	Inglewood Ave to Hawthorne Blvd	23,463	27,400	27,500	40	CLASS14
Artesia Blvd	Inglewood Ave to Grevillea Ave	33,333	33,500	33,500	35	CLASS6
Hawthorne Blvd	Marine Ave to Manhattan Beach Blvd	36,715	34,600	35,900	35	CLASS6
Hawthorne Blvd	Manhattan Beach Blvd to 160th St	39,254	39,000	40,300	35	CLASS6
Hawthorne Blvd	162nd St to 166th St	44,037	43,200	44,900	35	CLASS8
Hawthorne Blvd	169th St to Redondo Beach Blvd	40,769	40,200	40,300	35	CLASS8
Rosecrans Ave	Hawthorne Blvd to Prairie Ave	32,747	36,400	36,300	40	CLASS6
Redondo Beach Blvd	Hawthorne Blvd to Prairie Ave	18,912	22,300	22,300	40	CLASS14
Manhattan Beach Blvd	Freeman Ave to Prairie Ave	19,794	23,800	24,100	40	CLASS14
Prairie Ave	Marine Ave to Manhattan Beach Blvd	25,223	28,300	28,900	40	CLASS14
Manhattan Beach Blvd	Prairie Ave to Crenshaw Blvd	21,543	23,600	24,000	35	CLASS14
Crenshaw Blvd	Marine Ave to Manhattan Beach Blvd	27,196	32,900	33,200	35	CLASS14
San Diego Freeway	West of Hawthorne Blvd	30,382	29,900	30,400	65	CLASS8
San Diego Freeway	East of Hawthorne Blvd	46,980	47,100	47,200	65	CLASS8

Notes:
1) Kittelson Associates, May 2023.
2) Speed was modeled as posted.
3) See Table 9

Table 9: Vehicle Mix Data

Motor-Vehicle Type[1,2]	Daytime % (7AM to 7 PM)	Evening % (7 PM to 10 PM)	Night % (10 PM to 7 AM)	Total % of Traffic Flow
CLASS6				
Automobiles	77.8%	12.8%	9.4%	87.5%
Medium Trucks	80.5%	8.7%	10.8%	11.5%
Heavy Trucks	75.8%	8.9%	15.3%	1.1%
CLASS8				
Automobiles	76.1%	12.7%	11.2%	87.0%
Medium Trucks	80.6%	7.5%	11.9%	11.8%
Heavy Trucks	71.2%	8.4%	20.4%	1.3%
CLASS14				
Automobiles	81.8%	11.5%	6.7%	88.3%
Medium Trucks	84.6%	6.6%	8.8%	11.1%
Heavy Trucks	81.5%	4.6%	13.9%	0.6%

Notes:
[1] Lawndale 24hr traffic counts, Kittelson & Associates, Inc. 2023.
[2] Project Trip Gen and Fleet Mix Info, Kittelson & Associates, Inc. 2023.

6.0 Existing Noise Environment

6.1 General Land Use Noise

Existing land uses within the Project Area include single and multiple-family residential development, commercial, industrial, open space, and public facility land uses. Noise sources associated with existing land uses include residential maintenance, parking lot noise, heating, and cooling system (HVAC) noise, property maintenance noise, trash truck noise, loading and unloading noise, and recreational noise.

6.2 Noise Measurements

Three (3) long-term 24-hour noise measurements and ten (10) short-term 15-minute noise measurements were conducted throughout the Project Area to document the existing noise environment. Noise measurement locations are shown in Exhibit H.

6.2.1 Short-Term Noise Measurements

Ten short-term noise measurements (15-minute) were taken on May 24th, 2023, and May 26th, 2023, in order to document the daytime Leq level at different locations throughout the Project Area. Measured noise levels ranged between 57.4 and 72.3 dBA Leq. Vehicle noise associated with Hawthorne Blvd., Marine Ave., and Rosecrans Ave. noise were the primary sources of ambient noise. Noise measurement results are presented in Table 10. Field notes and meter output are provided in Appendix B.

Table 10: Short-Term Noise Measurement Summary

Noise Measurement Location	Approximate Location	Start Time	A-Weighted Sound Level (dBA)							
			Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)	L(90)
ST1	4317 Rosecrans Ave	5:37 PM	72.3	80.4	54.4	77.9	76.3	73.9	70.7	63.4
ST2	4221 Marine Ave	4:25 PM	69.7	82.7	53.7	74.9	73.1	70.9	68.3	61.8
ST3	15300 Hawthorne Blvd	4:03 PM	67.6	75.9	55.0	73.6	72.2	70.1	63.9	57.1
ST4	4241 Redondo Beach Blvd	2:48 PM	64.9	78.5	49.0	71.0	69.0	66.2	62.8	55.0
ST5	16607 Hawthorne Blvd	12:43 PM	66.4	79.4	51.1	72.2	70.6	67.9	64.4	55.7
ST6	16605 Osage Ave	3:15 PM	60.4	66.5	57.0	63.5	61.9	60.8	60.1	58.9
ST7	4521 W 147th St	5:14 PM	57.8	75.7	47.5	66.0	60.7	56.1	52.9	49.3
ST8	4604 Marine Ave	4:50 PM	66.0	82.7	50.6	71.8	70.1	66.8	62.8	56.3
ST9	16725 Firmona Ave	1:27 PM	57.4	72.8	42.4	64.3	61.3	57.9	54.0	45.7
ST10	4130 154th St	3:42 PM	59.9	78.2	47.2	68.8	63.0	57.5	53.2	48.9

6.2.2 Long-Term Noise Measurements

Three (3) long-term noise measurements (24 consecutive hours) were taken in order to document the Community Noise Equivalent Level (CNEL) at different locations throughout the Project Area. As shown in Table 11, the measured CNEL was 77.7 dBA CNEL at 55 feet from the centerline of Manhattan Beach

Blvd. and 120 feet from the centerline of San Diego Freeway, 74.8 dBA CNEL at 20 feet from the centerline of Freeman Ave and 170 feet from the centerline of San Diego Freeway, and 61.6 dBA CNEL at 50 feet from the railroad and 160 feet from the centerline of Artesia Blvd. The primary noise source was vehicle traffic. Table 11 also outlines the daytime (7 AM to 7 PM), evening (7 PM to 10 PM), and nighttime (10 PM to 7 AM) Leq levels at each location. These represent the average level over each time period (day/evening/night). Field notes and meter output are provided in Appendix B.

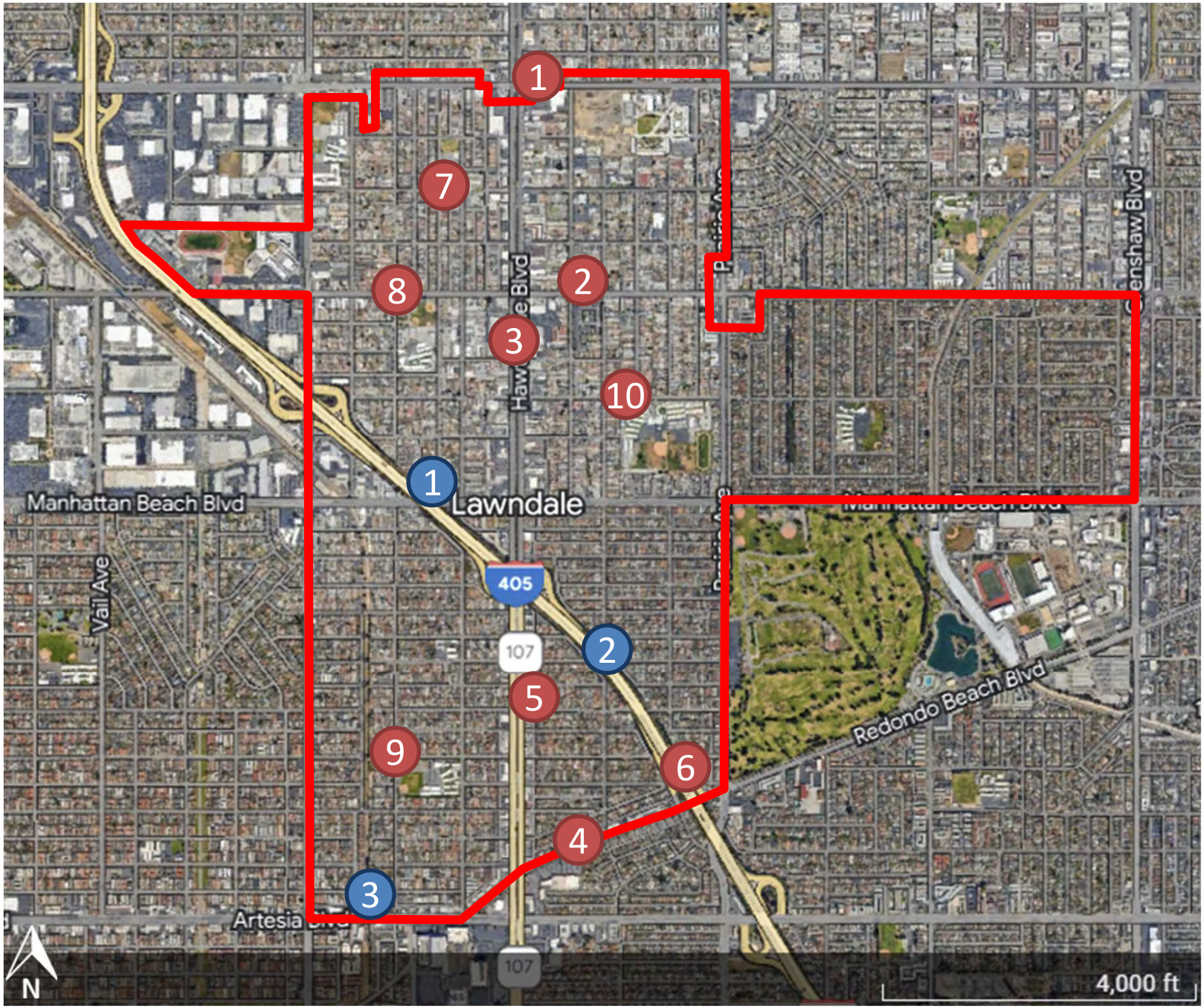
Table 11: Long-Term Noise Measurement Summary

Noise Measurement Location	Approximate Location	Date	Description	A-Weighted Sound Level (dBA)			
				Daytime Leq	Evening Leq	Nighttime Leq	CNEL
LT1	4538 Manhattan Beach Blvd	05/24/23-05/25/23	I-405 & Manhattan Beach Blvd traffic noise	72.8	72.8	70.4	77.7
LT2	16310 Freeman Ave	05/24/23-05/25/23	I-405 traffic noise	72.4	70.2	66.7	74.8
LT3	4626 W 173rd St	05/31/23-06/01/23	Artesia Blvd traffic noise	62.9	51.5	50.2	61.6

Notes:
dBA = A-weighted decibels
Leq = equivalent noise level
Lmax = maximum noise level
Lmin = minimum noise level
Ln = noise level exceeded n percent of the measurement period
24-hour duration

Exhibit H

Measurement Location Map



= Short-Term Monitoring Location

= Long-Term Monitoring Location

6.3 Existing Noise Modeling

The primary sources of noise in Lawndale are transportation-related noises. Major roadways create ambient noise levels that affect the overall quality of life in the community. Modeled existing noise levels provided in Table 12 and on Exhibit I confirm that there are currently sensitive land uses in the project area that are exposed to noise levels above 65 dBA CNEL.

It should be noted that the modeled noise contours do not take into account factors such as existing buildings, walls, etc., that may reduce or, in some cases, amplify or reduce noise sources. The model also assumes hard site, when in reality, some of the City has soft site ground such as grass or dirt, which will reduce the noise levels. Measured noise levels provided in Tables 12 and 13 do take into account existing structures as well as other noise sources.

Those areas in the City that currently experience sound levels greater than 65 dBA CNEL are typically near major vehicular traffic corridors. Traffic noise levels typically depend on three factors: (1) the volume of traffic, (2) the average speed of traffic, and (3) the vehicle mix (i.e., the percentage of trucks versus automobiles in the traffic flow). Vehicle noise includes noises produced by the engine, exhaust, tires, and wind generated by taller vehicles. Other factors that affect the perception of traffic noise include the distance from the highway, terrain, heavy vegetation, and natural and structural obstacles. While tire noise from automobiles is generally located at ground level, some truck noise sources may emanate from 12 feet or more above the ground.

Table 12: Existing Exterior Noise Levels Along Roadways

Roadway	Segment Limits	CNEL, dBA @50 ft[4]	Distance to Contour (feet)			
			70 dBA	65 dBA	60 dBA	55 dBA
Inglewood Ave	Marine Ave to 153rd Pl	73.3	107	338	1,068	3,378
Inglewood Ave	I-405 S Entrance to Manhattan Beach Blvd	75.4	172	544	1,720	5,439
Inglewood Ave	Manhattan Beach Blvd to Artesia Blvd	75.5	178	562	1,777	5,619
Manhattan Beach Blvd	Inglewood Ave to Hawthorne Blvd	73.0	99	313	989	3,127
Artesia Blvd	Inglewood Ave to Grevillea Ave	73.9	123	390	1,234	3,901
Hawthorne Blvd	Marine Ave to Manhattan Beach Blvd	71.3	136	430	1,361	4,303
Hawthorne Blvd	Manhattan Beach Blvd to 160th St	71.6	145	460	1,455	4,600
Hawthorne Blvd	162nd St to 166th St	72.6	184	582	1,839	5,816
Hawthorne Blvd	169th St to Redondo Beach Blvd	72.3	170	538	1,703	5,384
Rosecrans Ave	Hawthorne Blvd to Prairie Ave	75.3	168	531	1,678	5,308
Redondo Beach Blvd	Hawthorne Blvd to Prairie Ave	71.8	75	237	749	2,369
Manhattan Beach Blvd	Freeman Ave to Prairie Ave	72.0	78	248	784	2,480
Prairie Ave	Marine Ave to Manhattan Beach Blvd	73.0	100	316	999	3,160
Manhattan Beach Blvd	Prairie Ave to Crenshaw Blvd	70.7	59	187	591	1,867
Crenshaw Blvd	Marine Ave to Manhattan Beach Blvd	71.9	78	246	778	2,461
San Diego Freeway	West of Hawthorne Blvd	85.4	3,480	11,003	34,795	110,033
San Diego Freeway	East of Hawthorne Blvd	85.2	3,315	10,483	33,152	104,835
Notes:						

Roadway	Segment Limits	CNEL, dBA @50 ft[4]	Distance to Contour (feet)			
			70 dBA	65 dBA	60 dBA	55 dBA

1) Exterior noise levels calculated at 5-feet above ground.
2) Noise levels calculated from centerline of subject roadway.
3) Contour distances do not take into account potential noise reduction from existing barriers such as buildings, walls or berms as a worst-case scenario for planning screening purposes. Overall levels are likely lower at sensitive receptors.
4) Hawthorne Blvd & San Diego Freeway were calculated at 100 ft away.

Exhibit I

Existing Roadway Noise Level Contours (CNEL)



6.3 Existing Airport/Aircraft Noise

There are no airports located within the Project Area, and the Project Area is not located within any airport noise contours. The closest airport to the Project Area is the Hawthorne Municipal Airport located approximately 1.4 miles northeast of the Project Area. The Los Angeles International Airport is 2.5 miles from the Project Are. The noise contours associated with these airports do not encroach into the Project Area.

6.4 Existing Vibration Sources in the Project Area

The main sources of vibration in the project area are related to vehicles, construction, and railway. Typical roadway traffic, including heavy trucks, rarely generates vibration amplitudes high enough to cause structural or cosmetic damage. However, there have been cases in which heavy trucks traveling over potholes or other discontinuities in the pavement have caused vibration high enough to result in complaints from nearby residents. These types of issues typically can be resolved by smoothing the roadway surface (Caltrans 2020).

Construction activities that produce vibration that can be felt by adjacent land uses include the use of vibratory equipment, large bulldozers, and pile drivers. The primary source of vibration during construction is usually from a bulldozer. A large bulldozer has a peak particle velocity of 0.089 inches per second (87 VdB) at 25 feet.

One freight rail line runs through the City of Lawndale. According to the Federal Railroad Administration Crossing Inventory Forms, there are 2 daytime and 2 nighttime freight trains that pass through the city each day at a maximum of 20 MPH. Existing buildings are about 50 feet from the centerline of the railway. Therefore, the expected maximum vibration at these buildings is 76 VdB (0.025 inches per second).

7.0 Future Noise Environment, Impacts, and Mitigation

This assessment analyzes future noise impacts to and from the proposed Project and compares the results to the City of Lawndale General Plan Policies and Noise Standards. The analysis details the estimated noise levels associated with traffic from adjacent roadways and on-site stationary noise sources. Each future noise source related to the Project was evaluated in light of applicable City of Lawndale General Plan policies and ordinances, and programmatic mitigation measures are provided as applicable.

7.1 Transportation Noise and Vibration

Transportation noise includes noise from aircraft, railways, and roadways. The Project Area is outside of any airport 65 dBA CNEL contours and therefore, there is no aircraft impact.

7.1.1 Railway Vibration

One rail line runs through the City of Lawndale. The proposed Project could facilitate the construction of low-density residential projects adjacent to the existing railroad. With regards to vibration impacts on new development near railroads, human disturbance is the primary concern. It is extremely rare for vibration levels from trains passing to result in structural damage to buildings. In addition, buses and other transit vehicles are not anticipated to generate excessive vibration levels that would disturb sensitive receptors because these vehicles are traveling at lower speeds and do not generate substantial vibrations.

The FTA's *Transit Noise and Vibration Impact Assessment* document provides recommended ground-borne vibration criteria for general environmental assessments. The vibration criteria vary according to the sensitivity of the land use and the frequency of vibration events (i.e., number of trains passing by the sensitive land use), as shown in Table 13.

Table 13: FTA Ground-Borne Vibration Impact Criteria for General Assessment

Land Use Category/Type	Impact Level (Velocity Decibels)		
	Frequent Events	Occasional Events	Infrequent Events
Category 1 – Buildings with sensitive equipment	65 VdB	65 VdB	65 VdB
Category 2 – Buildings where people sleep	72 VdB	75 VdB	80 VdB
Category 3 – Institutional buildings	75 VdB	78 VdB	83 VdB
Source: FTA 2018			

There are an estimated 4 trains passing per day, according to the 2021 U.S. Dot Crossing Inventory Form. For infrequent events (i.e., less than 30 trains passing by in one day), the criteria generally vary between 65 VdB for buildings where vibration would interfere with interior operations (e.g., highly sensitive research facilities, hospitals) to 80 VdB for residences and buildings where people normally sleep, to 83 VdB for land uses with primarily daytime use. Highly sensitive research facilities and hospitals are not

anticipated under the proposed Project, and therefore, the 65 VdB threshold is not considered further in this analysis. The FTA's guidance document contains generalized ground surface vibration curves derived from vibration measurements of transit systems in North America (FTA 2018, Figure 6-4). The freight curve assumes the freight is traveling at 50 mph. However, the U.S. Dot Crossing Inventory Form states that the train's maximum timetable speed is 20 mph. According to Table 6-11 in the FTA manual, there is an 8 VdB decrease for a vehicle moving 20 mph compared to 50 mph. Based on these vibration prediction curves and the speed adjustment, the vibration levels will be 80 VdB at residential developments approximately 30 feet away from the passenger rail line centerline and will not exceed the FTA's recommended threshold of 80 VdB for residences. Therefore, future residential developments along the railway will not be exposed to excessive transit train vibration levels that exceed FTA-recommended vibration criteria of 80 VdB if the development is a minimum of 30 feet away from the railroad centerline and the impact is less than significant in accordance with proposed action PS-6h.

7.1.2 Vehicle Traffic Noise

The primary noise source in the Project Area will continue to be vehicle traffic. Future traffic noise level contours are presented in Exhibits I and J. Tables 14 and 15 show the future noise levels at a distance of 50 feet from the centerline of studied roadways by the year 2045 for No Project and With Project. The distances to the 55, 60, 65, and 70 dBA CNEL noise contours are also provided.

Table 14: 2045 No Project Traffic Noise Levels (dBA, CNEL)

Roadway	Segment Limits	CNEL, dBA @50 ft[4]	Distance to Contour (feet)			
			70 dBA	65 dBA	60 dBA	55 dBA
Inglewood Ave	Marine Ave to 153rd Pl	73.2	105	332	1051	3325
Inglewood Ave	I-405 S Entrance to Manhattan Beach Blvd	75.4	172	545	1724	5453
Inglewood Ave	Manhattan Beach Blvd to Artesia Blvd	75.4	172	545	1722	5446
Manhattan Beach Blvd	Inglewood Ave to Hawthorne Blvd	73.6	115	365	1155	3652
Artesia Blvd	Inglewood Ave to Grevillea Ave	73.9	124	392	1240	3921
Hawthorne Blvd	Marine Ave to Manhattan Beach Blvd	71.1	128	405	1282	4055
Hawthorne Blvd	Manhattan Beach Blvd to 160th St	71.6	145	457	1445	4571
Hawthorne Blvd	162nd St to 166th St	72.6	180	571	1804	5706
Hawthorne Blvd	169th St to Redondo Beach Blvd	72.3	168	531	1679	5309
Rosecrans Ave	Hawthorne Blvd to Prairie Ave	75.7	187	590	1866	5900
Redondo Beach Blvd	Hawthorne Blvd to Prairie Ave	72.5	88	279	883	2794
Manhattan Beach Blvd	Freeman Ave to Prairie Ave	72.8	94	298	943	2981
Prairie Ave	Marine Ave to Manhattan Beach Blvd	73.5	112	355	1121	3545
Manhattan Beach Blvd	Prairie Ave to Crenshaw Blvd	71.1	65	205	647	2046
Crenshaw Blvd	Marine Ave to Manhattan Beach Blvd	72.7	94	298	941	2977
San Diego Freeway	West of Hawthorne Blvd	85.4	3466	10960	34658	109600
San Diego Freeway	East of Hawthorne Blvd	85.2	3301	10440	33015	104401

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

Roadway	Segment Limits	CNEL, dBA @50 ft[4]	Distance to Contour (feet)			
			70 dBA	65 dBA	60 dBA	55 dBA
3) Contour Distances do not take into account potential noise reduction from existing barriers such as buildings, walls, or berms as a worst-case scenario for planning screening purposes. Overall levels are likely lower at sensitive receptors. 4) Hawthorne Blvd & San Diego Freeway were calculated at 100 ft away.						

Table 15: 2045 Plus Project Traffic Noise Levels (dBA, CNEL)

Roadway	Segment Limits	CNEL, dBA @50 ft[4]	Distance to Contour (feet)			
			70 dBA	65 dBA	60 dBA	55 dBA
Inglewood Ave	Marine Ave to 153rd Pl	73.3	107	338	1069	3380
Inglewood Ave	I-405 S Entrance to Manhattan Beach Blvd	75.4	173	546	1728	5465
Inglewood Ave	Manhattan Beach Blvd to Artesia Blvd	75.4	173	491	1553	4911
Manhattan Beach Blvd	Inglewood Ave to Hawthorne Blvd	73.7	116	366	1159	3665
Artesia Blvd	Inglewood Ave to Grevillea Ave	73.9	124	392	1240	3921
Hawthorne Blvd	Marine Ave to Manhattan Beach Blvd	71.2	133	421	1330	4207
Hawthorne Blvd	Manhattan Beach Blvd to 160th St	71.7	149	472	1494	4723
Hawthorne Blvd	162nd St to 166th St	72.7	188	593	1875	5930
Hawthorne Blvd	169th St to Redondo Beach Blvd	72.3	168	532	1683	5323
Rosecrans Ave	Hawthorne Blvd to Prairie Ave	75.7	186	588	1861	5884
Redondo Beach Blvd	Hawthorne Blvd to Prairie Ave	72.5	88	279	883	2794
Manhattan Beach Blvd	Freeman Ave to Prairie Ave	72.8	95	302	955	3019
Prairie Ave	Marine Ave to Manhattan Beach Blvd	73.6	114	362	1145	3620
Manhattan Beach Blvd	Prairie Ave to Crenshaw Blvd	71.2	66	208	658	2080
Crenshaw Blvd	Marine Ave to Manhattan Beach Blvd	72.8	95	300	950	3004
San Diego Freeway	West of Hawthorne Blvd	85.7	3712	11740	37124	117397
San Diego Freeway	East of Hawthorne Blvd	85.5	3197	10111	31973	101107
Notes: 1) Exterior noise levels calculated at 5 feet above ground. 2) Noise levels calculated from centerline of subject roadway. 3) Contour Distances do not take into account potential noise reduction from existing barriers such as buildings, walls, or berms as a worst-case scenario for planning screening purposes. Overall levels are likely lower at sensitive receptors. 4) Hawthorne Blvd & San Diego Freeway were calculated at 100 ft away.						

As shown in Tables 14 and 15 and Exhibit I, J, and K, by the year 2045, existing land uses adjacent to the studied roadways will be exposed to noise levels that exceed the City's exterior standards of 65 dBA CNEL for sensitive uses. A significant impact would occur if the Project resulted in levels higher than 65 dBA CNEL and increased the overall roadway noise level by 3 dBA CNEL, which is a noticeable change in noise level.

Compared to existing traffic noise levels, 2045 without Project traffic volumes are expected to be up to 0.8 dBA CNEL louder than existing ambient noise levels at existing land uses and will result in inaudible increases in ambient noise along the analyzed roadways (see Table 16).

Compared to existing traffic noise levels, 2045 with Project traffic volumes are expected to be up to 0.9 dBA CNEL louder than existing ambient noise levels at existing land uses and will result in inaudible increases in ambient noise. Implementation of the Project will therefore result in a less than significant impact to roadway noise levels.

Table 16: Change in Noise Along Roadways (dBA, CNEL @ 50')

Roadway	Segment	Existing	2045 No Project		2045 With Project	
		CNEL @ 50' dBA[3]	CNEL @ 50' dBA	Change in Noise Level	CNEL @ 50' dBA	Change in Noise Level
Inglewood Ave	Marine Ave to 153rd Pl	73.3	73.2	-0.1	73.3	0.0
Inglewood Ave	I-405 S Entrance to Manhattan Beach Blvd	75.4	75.4	0.0	75.4	0.0
Inglewood Ave	Manhattan Beach Blvd to Artesia Blvd	75.5	75.4	-0.1	75.4	-0.1
Manhattan Beach Blvd	Inglewood Ave to Hawthorne Blvd	73.0	73.6	0.6	73.7	0.7
Artesia Blvd	Inglewood Ave to Grevillea Ave	73.9	73.9	0.0	73.9	0.0
Hawthorne Blvd	Marine Ave to Manhattan Beach Blvd	71.3	71.1	-0.2	71.2	-0.1
Hawthorne Blvd	Manhattan Beach Blvd to 160th St	71.6	71.6	0.0	71.7	0.1
Hawthorne Blvd	162nd St to 166th St	72.6	72.6	0.0	72.7	0.1
Hawthorne Blvd	169th St to Redondo Beach Blvd	72.3	72.3	0.0	72.3	0.0
Rosecrans Ave	Hawthorne Blvd to Prairie Ave	75.3	75.7	0.4	75.7	0.4
Redondo Beach Blvd	Hawthorne Blvd to Prairie Ave	71.8	72.5	0.7	72.5	0.7
Manhattan Beach Blvd	Freeman Ave to Prairie Ave	72.0	72.8	0.8	72.8	0.8
Prairie Ave	Marine Ave to Manhattan Beach Blvd	73.0	73.5	0.5	73.6	0.6
Manhattan Beach Blvd	Prairie Ave to Crenshaw Blvd	70.7	71.1	0.4	71.2	0.5
Crenshaw Blvd	Marine Ave to Manhattan Beach Blvd	71.9	72.7	0.8	72.8	0.9
San Diego Freeway	West of Hawthorne Blvd	85.4	85.4	0.0	85.7	0.3
San Diego Freeway	East of Hawthorne Blvd	85.2	85.2	0.0	85.5	0.3

Notes:
1) Existing and Future traffic volumes compiled by Kittelson & Associates, Inc. 2023.
2) An impact would occur if the Project increased the roadway segment level by 3 dB or more (an audible difference) and resulting in a future level above 65 dBA CNEL.
3) Hawthorne Blvd & San Diego Freeway were calculated at 100 ft away.

Exhibit J

2045 No Project Noise Contours (CNEL)



Exhibit K

2045 With Project Noise Contours (CNEL)



Where proposed land uses are expected to be exposed to noise levels that exceed the land use compatibility criteria in Exhibit F, impacts can be mitigated to a level that is less than significant with the implementation of noise control measures, such as relocating residential outdoor recreational areas away from 60 dBA CNEL or greater areas or shielding outdoor areas using noise barriers. Per the General Plan, future development associated with implementation of the proposed Project requires a noise study prior to issuance of a grading permit and mitigation implemented if noise levels exceed normally acceptable levels as outlined in Exhibit F. For residential developments, the study must ensure that interior levels in livable areas do not exceed 45 dBA CNEL. The impact is less than significant with proposed policies PS-6.1, PS-6.2, PS-6.3, PS-6.4, and proposed action PS-6c.

7.2 Stationary Noise

Implementation of the Project could result in the future development of land uses that generate noise levels in excess of applicable City noise standards for non-transportation noise sources as outlined in Section 4.3.3. While the Project does not explicitly propose any new noise-generating uses, Project implementation would allow for the development of mixed-uses, increased residential development at higher densities, and new commercial development, which may result in new noise sources. Specific development projects and the details of future noise-generating land uses that may be located in the Project Area in the future are not known at this time. Additionally, noise from existing stationary sources, as identified in the Existing Settings Section, would continue to impact noise-sensitive land uses in the vicinity of the noise sources.

While no specific projects are proposed under the Project, changes in land use may allow for more intensive noise-generating uses in closer proximity to noise-sensitive uses. Where this occurs, detailed noise studies would be required to ensure that noise control measures are implemented into the project design. Such measures could include the redesign of stationary noise sources away from sensitive uses, construction of sound walls or berms between noise generating uses and sensitive uses, using buildings to create additional buffer distance and screening, or other site design measures to ensure that non-transportation (stationary) noise sources do not cause exterior and interior noise levels to exceed allowable standards at sensitive receptors.

The impact is less than significant with the implementation of the Municipal Code and proposed policies PS-6.3, PS-6.4, PS-6.8, and proposed actions PS-6c, PS-6d, and PS-6e.

7.3 Construction Noise

The degree of construction noise may vary for different projects within the scope of the proposed Project and also vary depending on the construction activities. Noise levels associated with the construction will vary with the different phases of construction. Construction must not occur 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 any time on Sunday or a Federal holiday per Section 8.20.070(A) of the Lawndale Municipal Code. Construction noise is exempt from the noise ordinance outside of those times.

The Environmental Protection Agency (EPA) has compiled data regarding the noise-generated characteristics of typical construction activities. The data is presented in Table 17. These noise levels

would diminish rapidly with distance from the construction site at a rate of 6 dBA per doubling of distance. For example, a noise level of 86 dBA measured 50 feet from the noise source would reduce to 80 dBA at 100 feet. At 200 feet from the noise source, the noise level would reduce to 74 dBA. At 400 feet, the noise source would reduce by another 6 dBA to 68 dBA.

Table 17: Typical Construction Noise Levels

Equipment Powered by Internal Combustion Engines	
Type	**Noise Levels (dBA) at 50 Feet**
Earth Moving	
Compactors (Rollers)	73 - 76
Front Loaders	73 - 84
Backhoes	73 - 92
Tractors	75 - 95
Scrapers, Graders	78 - 92
Pavers	85 - 87
Trucks	81 - 94
Materials Handling	
Concrete Mixers	72 - 87
Concrete Pumps	81 - 83
Cranes (Movable)	72 - 86
Cranes (Derrick)	85 - 87
Stationary	
Pumps	68 - 71
Generators	71 - 83
Compressors	75 - 86
Impact Equipment	
Saws	71 - 82
Vibrators	68 - 82
Notes: Source: Reference Noise Levels from the Environmental Protection Agency (EPA)	

7.3.1 Construction Related Traffic

Individual projects within the scope of the Project would result in short-term noise impacts associated with construction activities. Two types of short-term noise impacts could occur during construction activities. First, construction crew commute and the transport of construction equipment and materials to the site for the proposed Project would incrementally increase noise levels on access roads leading to the site. Truck traffic associated with project construction should be limited to within the permitted construction hours, as listed in the City's Municipal Code Section 8.20.070(A). Although there would be a relatively high single-event noise exposure potential at a maximum of 87 dBA Lmax at 50 ft from passing trucks, causing possible short-term intermittent annoyances, the effect on ambient noise levels would be less than 1 dBA when averaged over one hour or 24 hours. In other words, the changes in noise levels over 1 hour or 24 hours attributable to passing trucks would not be perceptible to the normal human ear. The impact is less than significant with the implementation of section 8.20.070(A) of the Municipal Code, proposed policy PS-6.9, and proposed action PS-6f.

7.3.2 On-Site Construction Activities

Site preparation phase, which includes grading and paving, tends to generate the highest noise levels since the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backhoes, bulldozers, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings. Site-specific construction activities associated with future development is expected to require the use of scrapers, bulldozers, motor graders, and water and pickup trucks. The maximum noise level generated by each scraper is assumed to be approximately 87 dBA Lmax at 50 ft from the scraper in operation. Each bulldozer would also generate approximately 85 dBA Lmax at 50 ft. The maximum noise level generated by the sound sources with equal strength increases the noise level by 3 dBA. Noise reduction potential will be project and site-specific. Construction noise would be an impact if construction occurred outside of the hours outlined in Section 8.20.070(A) of the Lawndale Municipal Code. Potential impacts would be site-specific, depending on the equipment used and distances to sensitive receptors. The impact is less than significant with the implementation of section 8.20.070(A) of the Municipal Code, proposed policy PS-6.9, and proposed action PS-6f.

7.4 Groundborne Vibration

The main sources of vibration in the project area are related to vehicles and construction. Typical roadway traffic, including heavy trucks, rarely generates vibration amplitudes high enough to cause structural or cosmetic damage. However, there have been cases in which heavy trucks traveling over potholes or other discontinuities in the pavement have caused vibration high enough to result in complaints from nearby residents. These types of issues typically can be resolved by smoothing the roadway surface (Caltrans 2020).

7.4.1 On-Site Construction Activities

Construction activities that produce vibration that can be felt by adjacent land uses include the use of vibratory equipment, large bulldozers, and pile drivers. The primary sources of vibration during construction are usually vibratory rollers and large bulldozers. As shown in Table 18, a vibratory roller has a peak particle velocity (inches/second) of 0.21 and a large bulldozer has a peak particle velocity of 0.089 (inches per second) at 25 feet. The use of pile driving equipment can generate a peak particle velocity of 1.5 (inches per second) depending on the size and model.

Table 18: Vibration Source Levels for Construction Equipment

Equipment	Peak Particle Velocity (inches/second) at 25 feet	Approximate Vibration Level LV (VdB) at 25 feet
Pile driver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Pile driver (sonic)	0.734 upper range	105
	0.170 typical	93

Table 18: Vibration Source Levels for Construction Equipment

Equipment	Peak Particle Velocity (inches/second) at 25 feet	Approximate Vibration Level LV (VdB) at 25 feet
Clam shovel drop (slurry wall)	0.202	94
Hydromill	0.008 in soil	66
(slurry wall)	0.017 in rock	75
Vibratory Roller	0.21	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

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

The California Department of Transportation has published one of the seminal works for the analysis of ground-borne noise and vibration relating to transportation- and construction-induced vibrations and, although the Project is not subject to these regulations, it serves as a useful tool to evaluate vibration impacts (California Department of Transportation, 2013). Table 19 provides maximum PPV levels (inches/second) to be used to determine if groundborne vibration may result in damage, depending on the type of structure. When evaluated in light of the estimated groundborne vibration levels presented in Table 18, it can be determined that construction activities in the project area have the potential to result in significant impacts related to groundborne vibration associated with construction activities. These impacts can be avoided by requiring vibration impact studies when construction utilizes pile drivers within 200 feet of existing buildings or vibratory rollers within 50 feet of existing buildings as required in proposed policy PS-6.14 and proposed action PS-6k.

Table 19: Guideline Vibration Damage Potential Threshold Criteria

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

Source: California Department of Transportation and Construction Vibration Guidance Manual. April 2020.

Note: transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

8.0 CEQA Analysis

The California Environmental Quality Act Guidelines (Appendix G) establishes thresholds for noise impact analysis as presented below:

(a) Would the project result in the 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 Code, or applicable standards of other agencies?

Transportation Noise Impacts

Traffic noise will be significant if levels are increased by more than 3 dBA to levels above 65 dBA CNEL in areas with sensitive uses. Compared to existing traffic noise levels, 2045 plus Project traffic volumes are expected to be up to 0.9 dBA CNEL louder than existing ambient noise levels at existing land uses and will not result in substantial increases in ambient noise along the analyzed roadways (see Table 16).

Implementation of the proposed Project will result in less than significant impacts related to exceedances of the land use compatibility criteria. ***Where existing land uses will be impacted, the impact would be less than significant. Where proposed land uses are expected to be exposed to noise levels that exceed the 65 dBA CNEL land use compatibility criteria, impacts can be mitigated to "less than significant" with implementation of proposed policies PS-6.1, PS-6.2, PS-6.3, PS-6.4, and proposed action PS-6c.***

Stationary Noise Sources

Stationary noise will be significant if it exceeds the levels outlined in the Lawndale Municipal Code as outlined in Section 4.3.3. Implementation of the Project may result in stationary noise impacts from future uses. Implementation of good land use planning and policies and actions can minimize noise impacts related to these sources by avoiding the placement of noise generating equipment near noise-sensitive land uses and where unavoidable, include design measures to the degree practical to avoid violating the noise criteria presented in Section 4.3.3. ***Stationary noise impacts can be mitigated to "less than significant" with implementation of Lawndale Noise Ordinance, proposed policies PS-6.3, PS-6.4, PS-6.8, and proposed actions PS-6c, PS-6d, and PS-6e.***

Construction Noise and Vibration

Construction noise will be significant if construction occurs outside of the hours specified in Section 8.20.070(A) of the Lawndale Municipal Code. The potential impact is site-specific and depends on the construction equipment used and distance to adjacent sensitive receptors. Implementation of the proposed Project could result in short-term noise impacts associated with construction activities. Two types of short-term noise impacts could occur during construction activities, on-site and off-site.

Construction crew commute and the transport of construction equipment and materials to the site for the proposed Project would incrementally increase noise levels on access roads leading to the site. Truck traffic associated with project construction should be limited to within the permitted construction hours,

as listed in the City's Municipal Code. Although there would be a relatively high single-event noise exposure potential at a maximum of 87 dBA Lmax at 50 ft from passing trucks, causing possible short-term intermittent annoyances, the effect on ambient noise levels would be less than 1 dBA when averaged over one hour or 24 hours. In other words, the changes in noise levels over 1 hour or 24 hours attributable to passing trucks would not be perceptible to the normal human ear. ***Therefore, short-term construction-related impacts associated with worker commute and equipment transport on local streets leading to the project site would result in a less than significant impact on noise-sensitive receptors along the access routes. No mitigation is required.***

The site preparation phase of on-site construction activities, which includes grading and paving, tends to generate the highest noise levels since the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backhoes, bulldozers, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings. Site-specific construction activities associated with future development are expected to require the use of scrapers, bulldozers, motor graders, and water and pickup trucks. The maximum noise level generated by each scraper is assumed to be approximately 87 dBA Lmax at 50 ft from the scraper in operation. Each bulldozer would also generate approximately 85 dBA Lmax at 50 ft. The maximum noise level generated by the sound sources with equal strength increases the noise level by 3 dBA. Noise reduction potential will be Project and site-specific. ***Implementation of Section 8.20.070(A) of the Municipal Code, proposed policy PS-6.9, and proposed action PS-6f during site-specific projects will reduce the impact to less than significant.***

b) Generate excessive ground-borne vibration or ground-borne noise levels?
Construction vibration within the Project Area is not anticipated to be significant unless an individual development uses pile driving or vibratory rollers. These impacts can be avoided by requiring vibration impact studies when construction utilizes pile drivers within 200 feet of existing buildings or vibratory rollers within 50 feet of existing buildings. ***This impact would be less than significant with the implementation of proposed policy PS-6.14 and action PS-6k.***

9.0 References

American National Standards Institute (ANSI)

Specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA).

California, State of, Building Standards Commission

2019 California Uniform Building Code (UBC), Title 24.
2019 Green Code Section 5.507.4.3 (2019)

California Department of Transportation (Caltrans)

2013 Technical Noise Supplement to the Traffic Noise Analysis Protocol.
2020 Transportation and Construction Vibration Guidance Manual. April.
2021 Caltrans Traffic Counts https://dot.ca.gov/programs/traffic-operations/census

California Office of Noise Control

2017 Guidelines for the Preparation and Content of Noise Elements of the General Plan. February.

Environmental Protection Agency (EPA)

1974 Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. Prepared by the EPA, Office of Noise Abatement and Control.

Federal Interagency Committee on Noise

1992 Federal Agency Review of Selected Airport Noise Analysis Issues. August.

Federal Transit Administration

2006 Transit Noise and Vibration Impact Assessment. Typical Construction Equipment Vibration Emissions. FTAVA-90-1003-06.

Lawndale, City of

1992 General Plan.
City of Lawndale Municipal Code.

Office of Planning and Research, State of California

2017 Office of Planning and Research, General Plan Guidelines.

Appendix A:
SoundPLAN Data

MPH	KMH	Road width	Lane width	SP9 Lane	Name
35	56.32704	70	35	10.668	1. Inglewood Ave between Marine Ave & 153rd Pl
35	56.32704	60	30	9.144	2. Inglewood Ave between I-405 S Entrance & Manhattan Beach Blvd
40	64.37376	80	40	12.192	3. Inglewood Ave between Manhattan Blvd & Artesia Blvd
40	64.37376	80	40	12.192	4. Manhattan Beach Blvd between Inglewood Ave & Hawthorne Blvd
35	56.32704	75	37.5	11.43	5. Artesia Blvd between Inglewood Ave & Grevillea Ave
35	56.32704	140	70	21.336	6. Hawthorne Blvd between Marine Ave & Manhattan Beach Blvd
35	56.32704	140	70	21.336	7. Hawthorne Blvd between Manhattan Beach Blvd & 160th St
35	56.32704	140	70	21.336	8. Hawthorne Blvd between 162nd St & 166th St
35	56.32704	140	70	21.336	9. Hawthorne Blvd between 169th St & Redondo Beach Blvd
40	64.37376	80	40	12.192	10. Rosecrans Ave between Hawthorne Blvd & Prairie Ave
40	64.37376	75	37.5	11.43	11. Redondo Beach Blvd between Hawthorne Blvd & Prairie Ave
40	64.37376	75	37.5	11.43	12. Manhattan Beach Blvd between Freeman Ave & Prairie Ave
40	64.37376	75	37.5	11.43	13. Prairie Ave between Marine Ave & Manhattan Beach Blvd
35	56.32704	65	32.5	9.906	14. Manhattan Beach Blvd between Prairie Ave & Crenshaw Blvd
35	56.32704	70	35	10.668	15. Crenshaw Blvd between Marine Ave & Manhattan Beach Blvd
65	104.6074	120	60	18.288	16. San Diego Freeway West of Hawthorne Blvd
65	104.6074	120	60	18.288	17. San Diego Freeway East of Hawthorne Blvd

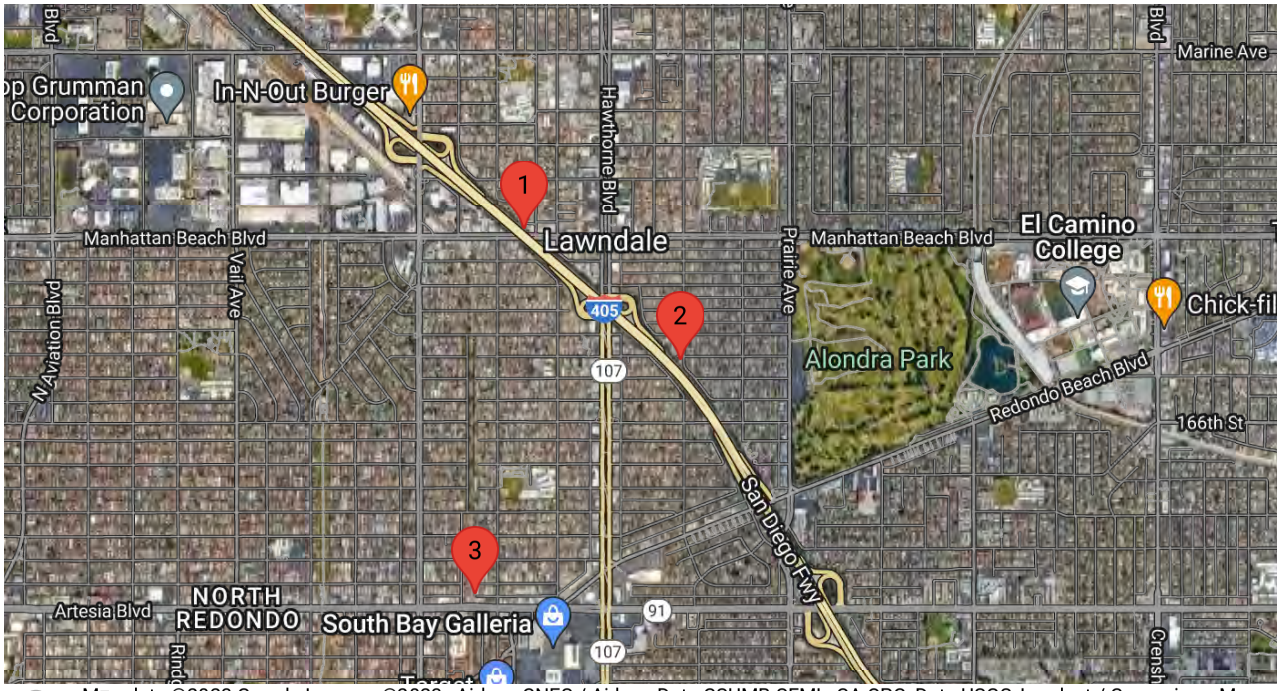
MPH	KMH	Road width	Lane width	SP9 Lane	Name
35	56.32704	150	75	22.86	Hawthorne North Rosecrans to Marine
35	56.32704	55	27.5	8.382	Redondo Beach Artesia to Hawthorne
40	64.37376	60	30	9.144	Marine Ave I405 to Crenshaw Blvd
40	64.37376	75	37.5	11.43	Prarie Ave Rosecrans to Marine
40	64.37376	75	37.5	11.43	Prarie Ave Manhattan Beach to Redondo Beach
40	64.37376	75	37.5	11.43	Rosecrans Inglewood to Hawthorne
25	40.2336	55	27.5	8.382	Inglewood Rosecrans to Marine

Appendix B:

Noise Measurement Data and Field Sheets

24-Hour Continuous Noise Measurement Datasheet

Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Observations:**	
Project: #/Name:	0462-2019-010	Temps in the Mid 60°F during the day, Overcast winds 1-3 MPH.	
Site Address/Location:	Manhattan Beach Blvd & I405		
Date:	05/25/2023		
Field Tech/Engineer:	Jason Schuyler/ Claire Pincock		
Sound Meter:	Piccolo 2, Soft dB	**SN:** P0222022803	
Settings:	A-weighted, slow, 1-min, 24-hour duration		
Site Id:	LT1, LT2, LT3		



MD ACOUSTICS

24-Hour Continuous Noise Measurement Datasheet - Cont.

Project Name: Lawndale Hawthorne GP & Specific Plan Update

Site Address/Location: Manhattan Beach Blvd & I405

Site Id: LT1, LT2, LT3

Figure 1: LT1



Figure 2: LT2

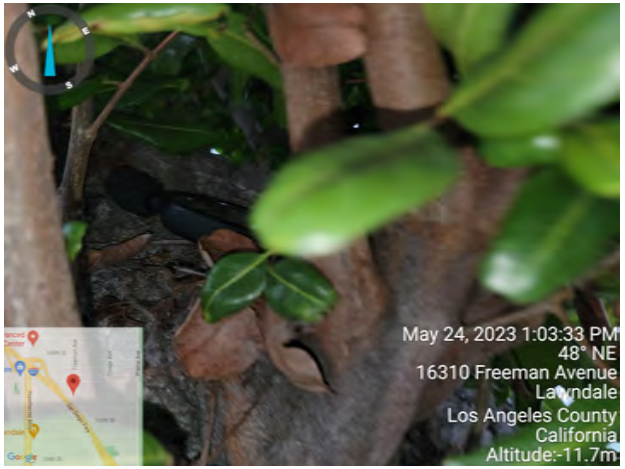
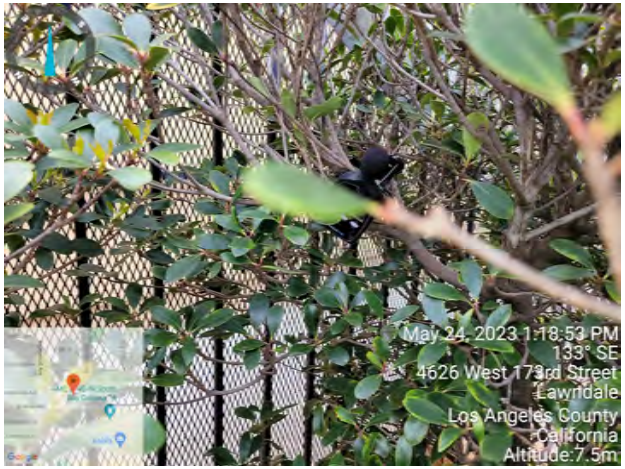


Figure 3: LT3



24-Hour Continuous Noise Measurement Datasheet - Cont.

Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	Hill	**Day:** 1 of 3	
Site Address/Location:	Manhattan Beach Blvd & I405	**Meteorological Cond.:**	Temps in the Mid	**Noise Source(s) w/ Distance:**	
Site Id:	LT1	60°F during the day, Overcast winds 1-3 MPH		Road and commercial noise	
		Ground Type:	Grass		

Table 1: Baseline Noise Measurement Summary

Date	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
5/24/2023	1:00 PM	2:00 PM	73.9	84.7	69.2	75.6	74.7	74.1	73.8	73.2
5/24/2023	2:00 PM	3:00 PM	73.4	81.5	68.4	74.4	74	73.7	73.4	72.7
5/24/2023	3:00 PM	4:00 PM	73.2	80.9	67.5	74.3	73.9	73.5	73.2	72.5
5/24/2023	4:00 PM	5:00 PM	72.7	85.9	64.2	75.4	73.9	73	72.7	70.9
5/24/2023	5:00 PM	6:00 PM	72.5	81.9	68	73.6	73.5	72.9	72.6	71.6
5/24/2023	6:00 PM	7:00 PM	73.3	85.1	66.4	74.7	74	73.5	73.2	72.7
5/24/2023	7:00 PM	8:00 PM	73.5	86.1	68.2	75.4	74.3	73.7	73.4	72.4
5/24/2023	8:00 PM	9:00 PM	72.7	83	66.6	73.9	73.7	73.1	72.7	71.6
5/24/2023	9:00 PM	10:00 PM	72.3	83.4	66.2	73.9	73.5	72.6	72.1	71.4
5/24/2023	10:00 PM	11:00 PM	71.1	81	63	72.6	72.3	71.6	71	69.9
5/24/2023	11:00 PM	12:00 AM	69.5	78.7	61.4	71.2	70.8	70	69.5	68.2
5/25/2023	12:00 AM	1:00 AM	68.2	83	55.3	70.5	69.8	69	68.1	65.9
5/25/2023	1:00 AM	2:00 AM	66.7	82.2	53.8	69.8	68.5	67.6	66.3	64.3
5/25/2023	2:00 AM	3:00 AM	66.6	78.5	52.1	69.3	68.6	67.3	66.4	64.6
5/25/2023	3:00 AM	4:00 AM	68.9	79.9	52.3	71.2	71	69.9	68.8	65.4
5/25/2023	4:00 AM	5:00 AM	72.4	80.6	59.5	74.6	74.3	73.3	72.5	69.7
5/25/2023	5:00 AM	6:00 AM	73.9	81.2	65.3	75.2	74.8	74.5	74	72.4
5/25/2023	6:00 AM	7:00 AM	70.6	86.1	63.2	72.6	72	71.5	70.7	68.1
5/25/2023	7:00 AM	8:00 AM	70.2	83.1	63.9	71.8	71.2	70.9	70.2	68.3
5/25/2023	8:00 AM	9:00 AM	69.6	77.7	63.9	71.7	71.4	70.5	69.4	67.6
5/25/2023	9:00 AM	10:00 AM	70.3	77.6	63.5	72.7	72.1	70.9	70.2	68.6
5/25/2023	10:00 AM	11:00 AM	73.8	79.4	62.9	74.7	74.5	74.3	74	72
5/25/2023	11:00 AM	12:00 PM	74	81.3	69.9	75	74.6	74.3	74	73.4
5/25/2023	12:00 PM	1:00 PM	73.7	80.7	69.7	74.6	74.3	74	73.8	73

	DNL	77.3

24-Hour Continuous Noise Measurement Datasheet - Cont.

Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	Buildings 1-2 stories	**Day:** 2 of 3	
Site Address/Location:	Manhattan Beach Blvd & I405	**Meteorological Cond.:**	Temps in the Mid	**Noise Source(s) w/ Distance:**	
Site Id:	LT2	60°F during the day, Overcast winds 1-3 MPH		road noise and residential noise	
		Ground Type:	Buildings and asphalt		

Table 2: Baseline Noise Measurement Summary

Date	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
5/24/2023	1:00 PM	2:00 PM	72.1	83.5	63.1	73.2	73	72.4	72.2	71.5
5/24/2023	2:00 PM	3:00 PM	71.6	81.4	67.4	72.5	72.2	72	71.5	70.7
5/24/2023	3:00 PM	4:00 PM	71.5	87.2	66.6	74.3	72.4	71.7	71.3	70.4
5/24/2023	4:00 PM	5:00 PM	70.5	85.6	62.2	72.5	71.8	71.1	70.6	68.6
5/24/2023	5:00 PM	6:00 PM	70	80.3	65.8	71.3	71	70.5	70	69.2
5/24/2023	6:00 PM	7:00 PM	70.7	79	66.8	72.1	71.5	70.9	70.6	69.8
5/24/2023	7:00 PM	8:00 PM	71.2	82.7	67.3	73	71.7	71.5	71.1	70.3
5/24/2023	8:00 PM	9:00 PM	70.2	84.1	66.5	71.4	70.8	70.4	70.1	69.2
5/24/2023	9:00 PM	10:00 PM	68.7	79.3	64.4	70.8	69.8	69	68.6	67.9
5/24/2023	10:00 PM	11:00 PM	67.7	72.9	62.3	69.2	68.5	68.1	67.7	66.7
5/24/2023	11:00 PM	12:00 AM	65.9	79.1	60	67.7	67	66.4	65.8	64.4
5/25/2023	12:00 AM	1:00 AM	64.4	74.6	57.8	66.3	65.5	65	64.3	62.8
5/25/2023	1:00 AM	2:00 AM	62.8	72.3	54.7	64.8	64.2	63.1	62.7	61.4
5/25/2023	2:00 AM	3:00 AM	62.3	69.9	53.2	64.1	63.7	63	62.4	60.6
5/25/2023	3:00 AM	4:00 AM	65	79.1	54.2	67	66.7	66.2	65	61.9
5/25/2023	4:00 AM	5:00 AM	69.1	80.9	59.7	71.4	70.7	70	69.1	66
5/25/2023	5:00 AM	6:00 AM	70.8	75	64.2	72.1	71.7	71.4	70.8	69.5
5/25/2023	6:00 AM	7:00 AM	64.9	79.5	58.3	67.3	66.9	65.3	64.4	63.2
5/25/2023	7:00 AM	8:00 AM	76.2	92	61.3	84.1	82.3	72.2	66.7	64.6
5/25/2023	8:00 AM	9:00 AM	75.2	89.1	61.7	82.1	81.4	73.2	66.5	64.8
5/25/2023	9:00 AM	10:00 AM	69.4	86.4	60.6	74.4	73.6	70.9	66.3	64.6
5/25/2023	10:00 AM	11:00 AM	72.6	88.3	68.4	76.7	73	72.7	72.3	71.5
5/25/2023	11:00 AM	12:00 PM	71.9	77.7	69	72.9	72.6	72.3	71.9	71.2
5/25/2023	12:00 PM	1:00 PM	71.6	81	67.8	73.7	72.7	71.7	71.4	70.7

	DNL	74.4

24-Hour Continuous Noise Measurement Datasheet - Cont.

Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	plateau on a hill top	**Day:**	3 of 3
Site Address/Location:	Manhattan Beach Blvd & I405	**Meteorological Cond.:**	Temps in the Mid	**Noise Source(s) w/ Distance:**	
Site Id:	LT3		60°F during the day, Overcast winds 1-3 MPH		Light rail and residential noise
		Ground Type:	buildings 1-2 story		

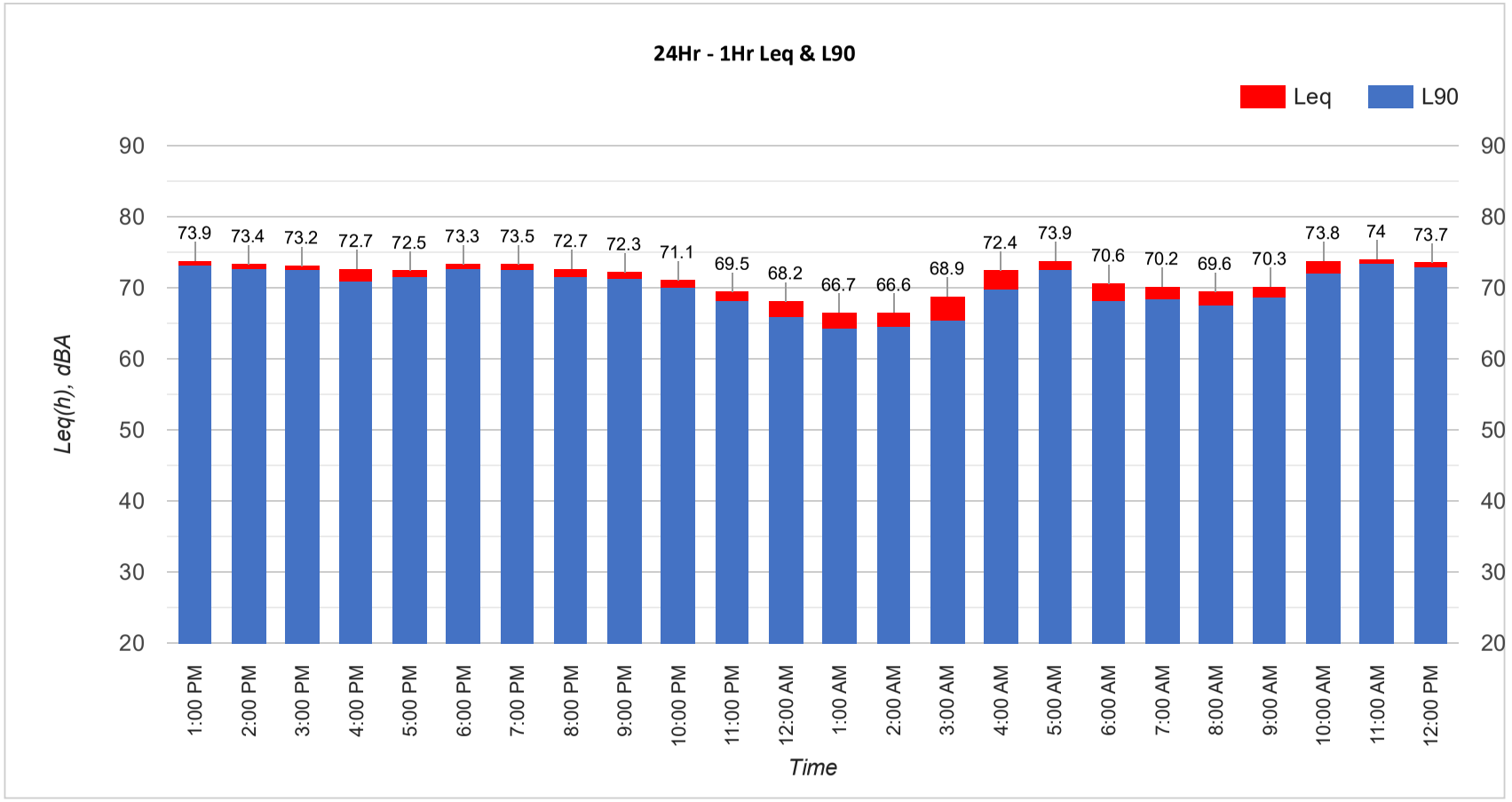
Table 3: Baseline Noise Measurement Summary

Date	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
5/31/2023	10:30 AM	11:30 AM	69.5	94.5	45.9	78.1	56.4	55	53.9	51.6
5/31/2023	11:30 AM	12:30 PM	58	79.1	47.7	63.6	62	58.8	56.3	52.5
5/31/2023	12:30 PM	1:30 PM	54.9	73	47.1	58.2	56.3	55.2	54.2	51.6
5/31/2023	1:30 PM	2:30 PM	55.2	77	47	59.6	57.7	56	54.1	52
5/31/2023	2:30 PM	3:30 PM	68.8	98.3	48.1	76.1	62.8	56.3	54.6	52.9
5/31/2023	3:30 PM	4:30 PM	55.7	69.5	47.4	57.8	57	56.1	55.3	53.2
5/31/2023	4:30 PM	5:30 PM	59.9	89.3	48.8	69.4	61.5	57.2	55.1	53.2
5/31/2023	5:30 PM	6:30 PM	56.5	75.6	47.4	60.7	58.3	56.4	54.8	51.8
5/31/2023	6:30 PM	7:30 PM	65.2	91.3	45.5	75.6	64.4	55.9	53.7	50.9
5/31/2023	7:30 PM	8:30 PM	52.9	69.8	42.8	57.9	56.5	52.9	52.1	49.6
5/31/2023	8:30 PM	9:30 PM	51.2	70.4	41.6	55.8	53.3	51.5	50.4	48.2
5/31/2023	9:30 PM	10:30 PM	50	69.8	38.1	55.3	52.8	49.5	48.5	46.4
5/31/2023	10:30 PM	11:30 PM	47.7	67	37.2	50.2	49.1	48.4	47.3	44
5/31/2023	11:30 PM	12:30 AM	46.7	67.6	35.3	52.7	50.7	47	44.9	42.6
6/1/2023	12:30 AM	1:30 AM	44.7	66.9	34	50.5	46.7	44.5	43	40.6
6/1/2023	1:30 AM	2:30 AM	43.1	64.2	32.5	48.8	45.2	42.9	41	34.8
6/1/2023	2:30 AM	3:30 AM	41.5	52.8	32.5	45.6	44.6	43.3	40.8	35.4
6/1/2023	3:30 AM	4:30 AM	42.1	58.3	33.4	47	44.7	43.1	41.6	36.4
6/1/2023	4:30 AM	5:30 AM	45.4	62	33.6	49	47.9	46.8	44.8	40.6
6/1/2023	5:30 AM	6:30 AM	57.4	80.5	36.8	67.2	57.8	51.7	49.7	45.8
6/1/2023	6:30 AM	7:30 AM	52.7	68	37.9	56.5	55.1	53.5	52.4	49.6
6/1/2023	7:30 AM	8:30 AM	52.6	69.3	44.2	56.7	55.3	53.4	52.2	49.1
6/1/2023	8:30 AM	9:30 AM	53.4	71.1	42.7	59	55.9	54	52.8	49.8
6/1/2023	9:30 AM	10:30 AM	53.1	72.1	45.5	57.5	54.9	53.9	52.6	50.1

	DNL	61.4

24-Hour Continuous Noise Measurement Datasheet - Cont.

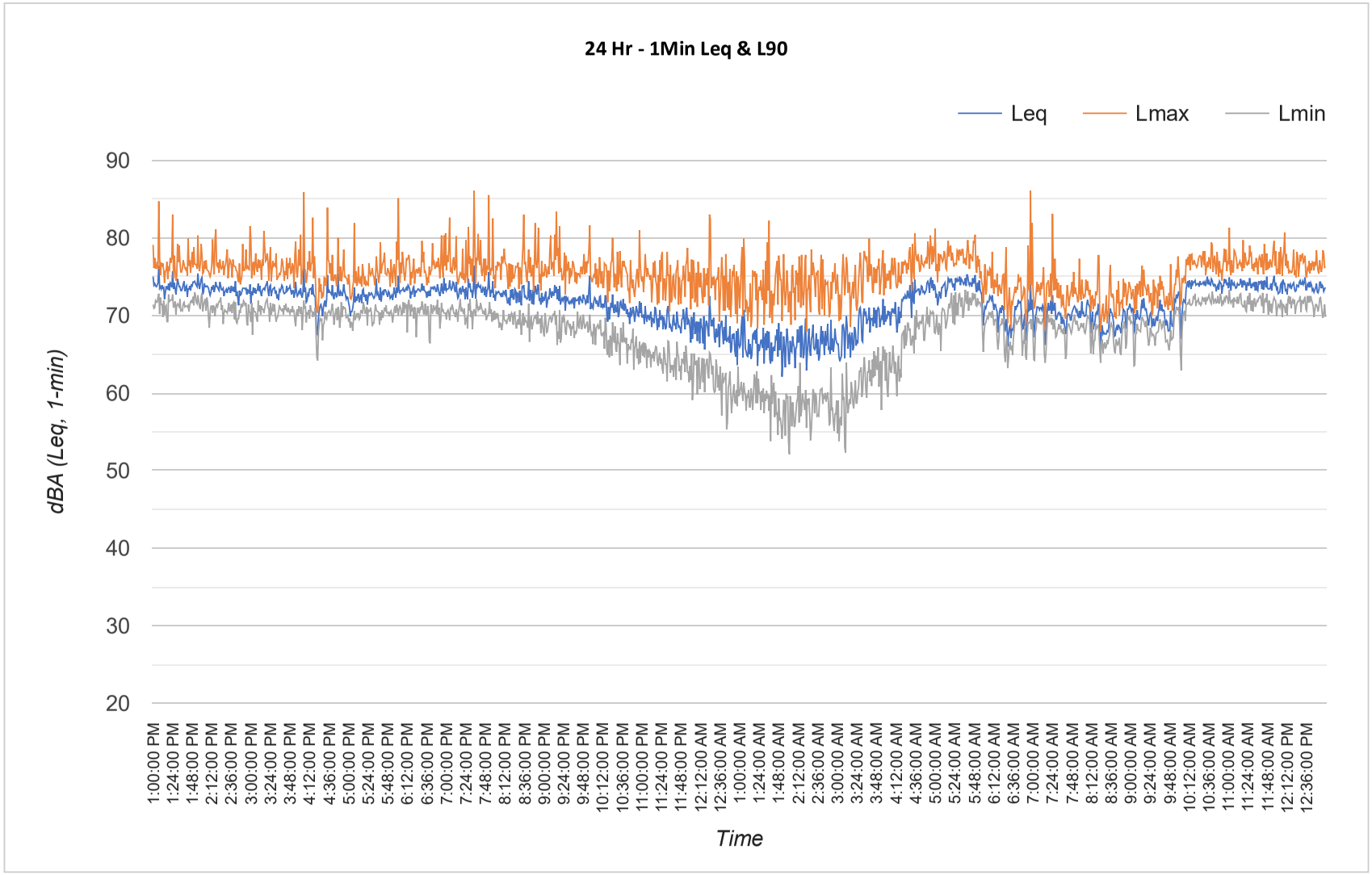
Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	Hill	**Day:** 1 of 3	
Site Address/Location:	Manhattan Beach Blvd & I405	**Meteorological Cond.:**	Temps in the Mid	**Noise Source(s) w/ Distance:**	
Site Id:	LT1	60°F during the day, Overcast winds 1-3 MPH		Road and commercial noise	
		Ground Type:	Grass		



MD ACOUSTICS

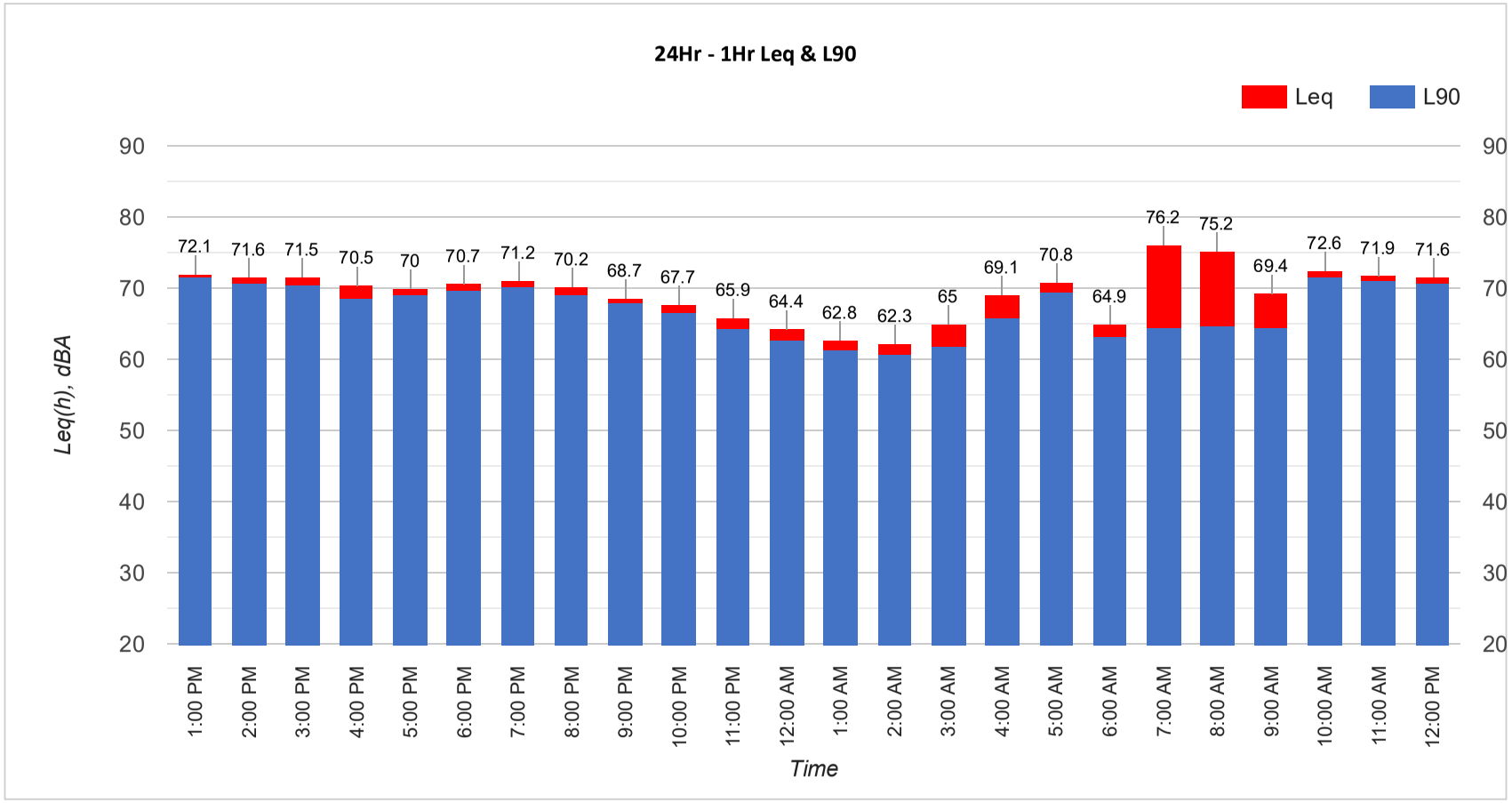
24-Hour Continuous Noise Measurement Datasheet - Cont.

Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	Hill	**Day:** 1 of 3	
Site Address/Location:	Manhattan Beach Blvd & I405	**Meteorological Cond.:**	Temps in the Mid	**Noise Source(s) w/ Distance:**	
Site Id:	LT1	60°F during the day, Overcast winds 1-3 MPH		Road and commercial noise	
		Ground Type:	Grass		



24-Hour Continuous Noise Measurement Datasheet - Cont.

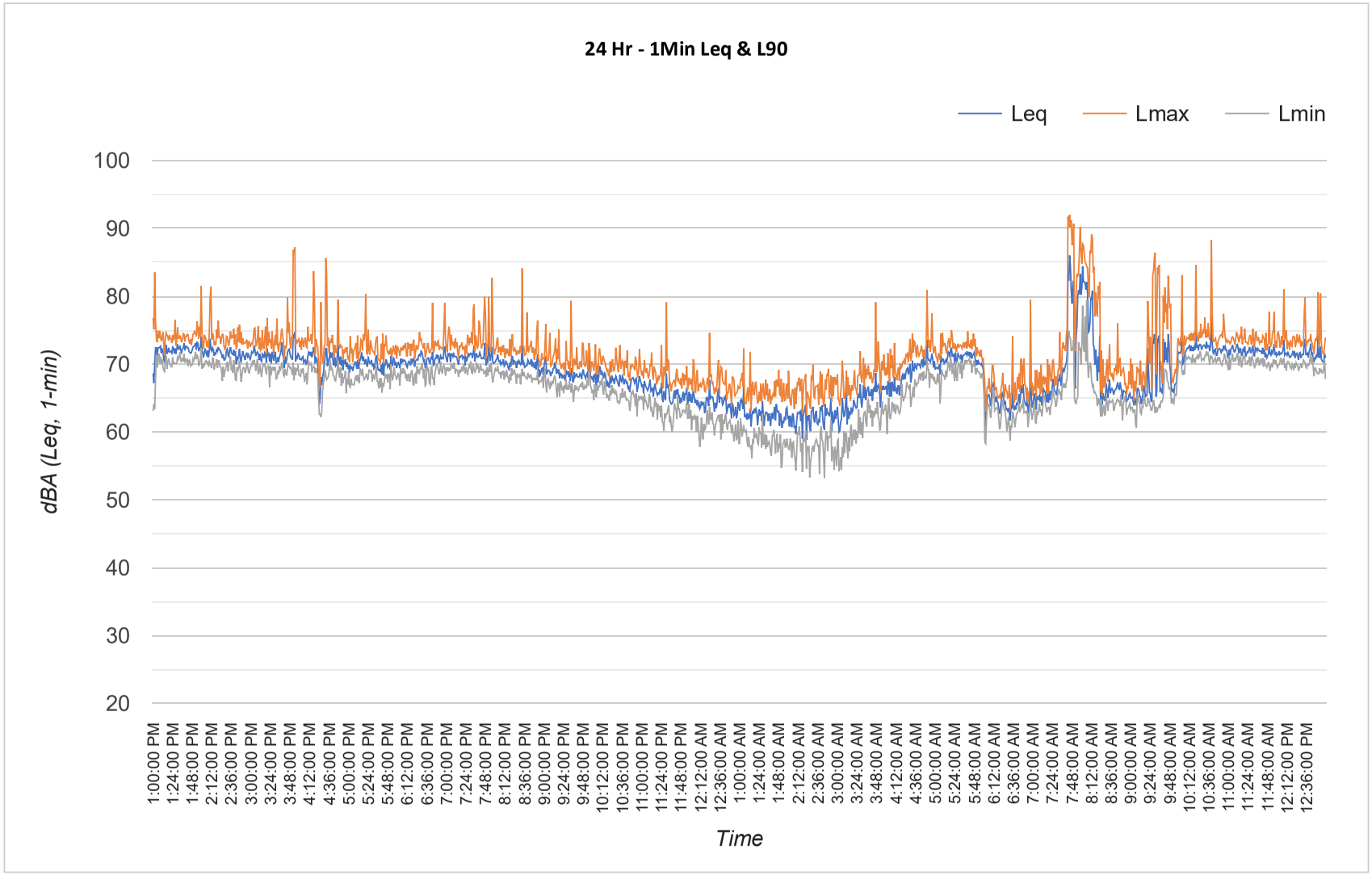
Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	Buildings 1-2 stories	**Day:** 1 of 3	
Site Address/Location:	Manhattan Beach Blvd & I405	**Meteorological Cond.:**	Temps in the Mid	**Noise Source(s) w/ Distance:**	
Site Id:	LT2	60°F during the day, Overcast winds 1-3 MPH		road noise and residential noise	
		Ground Type:	Buildings and asphalt		



MD ACOUSTICS

24-Hour Continuous Noise Measurement Datasheet - Cont.

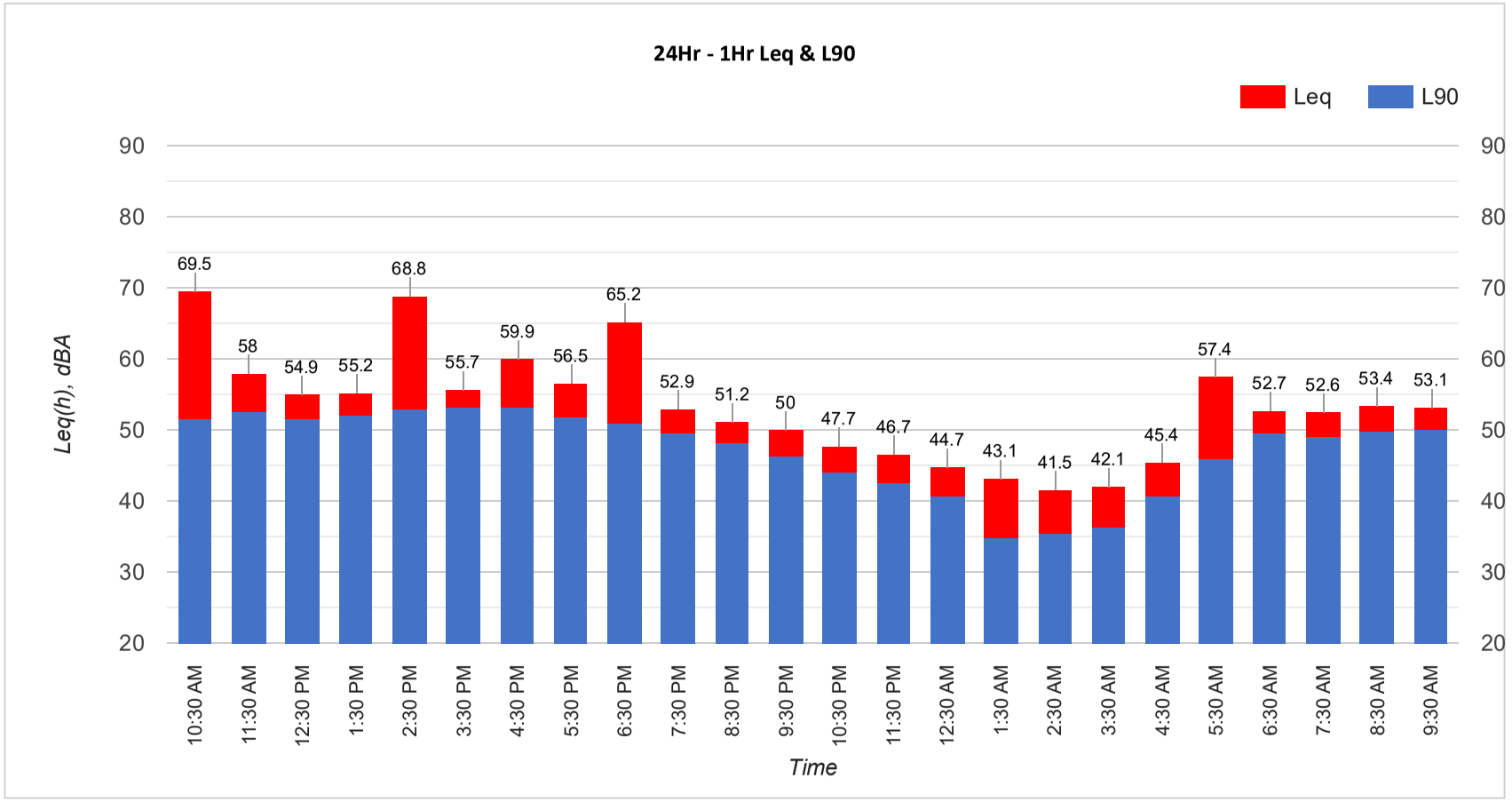
Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	Buildings 1-2 stories	**Day:** 1 of 3	
Site Address/Location:	Manhattan Beach Blvd & I405	**Meteorological Cond.:**	Temps in the Mid	**Noise Source(s) w/ Distance:**	
Site Id:	LT2	60°F during the day, Overcast winds 1-3 MPH		road noise and residential noise	
		Ground Type:	Buildings and asphalt		



MD ACOUSTICS

24-Hour Continuous Noise Measurement Datasheet - Cont.

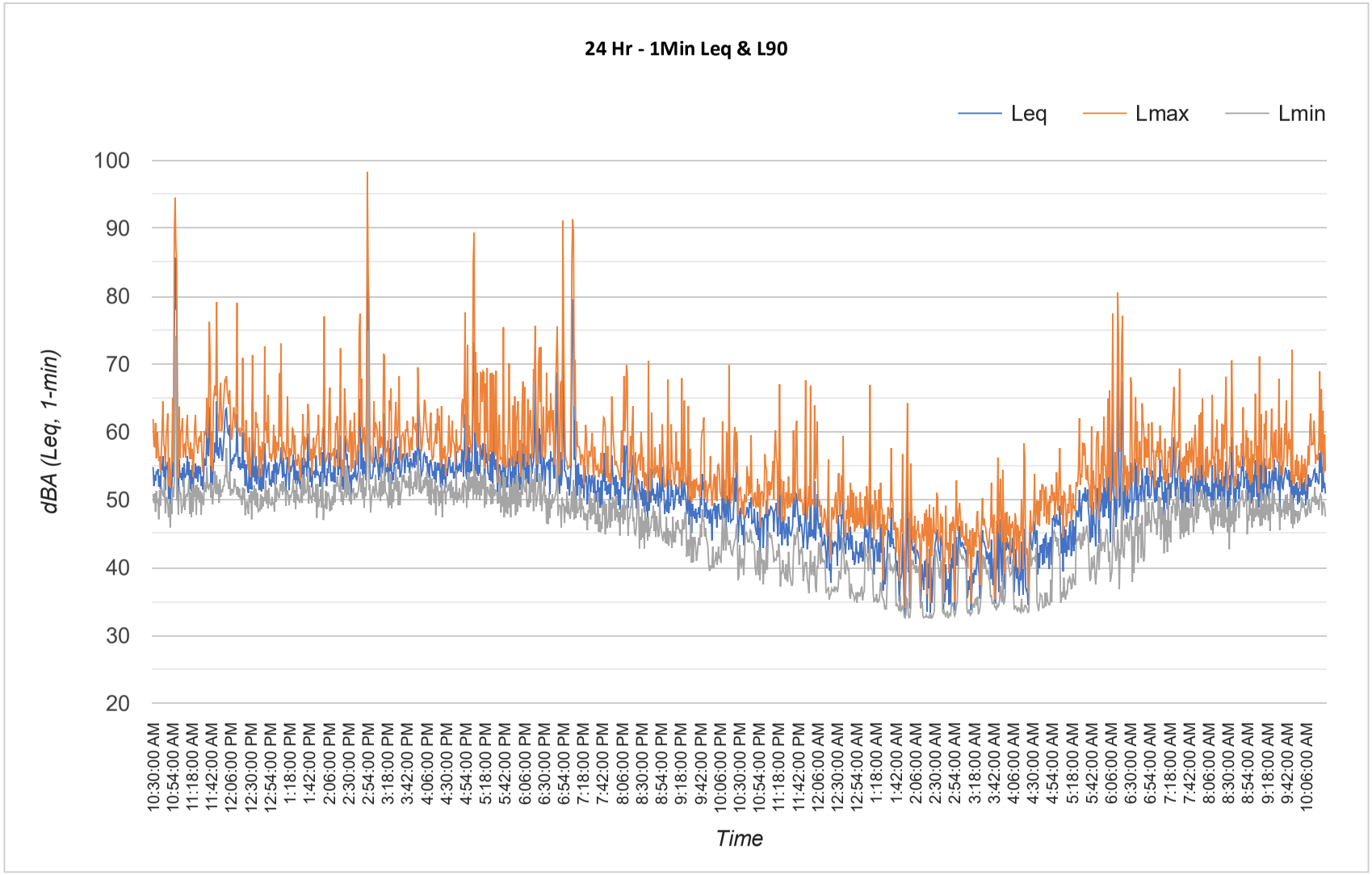
Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	plateau on a hill top	**Day:**	1 of 3
Site Address/Location:	Manhattan Beach Blvd & I405	**Meteorological Cond.:**	Temps in the Mid	**Noise Source(s) w/ Distance:**	
Site Id:	LT3		60°F during the day, Overcast winds 1-3 MPH		Light rail and residential noise
		Ground Type:	buildings 1-2 story		



MD ACOUSTICS

24-Hour Continuous Noise Measurement Datasheet - Cont.

Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	plateau on a hill top	**Day:**	1 of 3
Site Address/Location:	Manhattan Beach Blvd & I405	**Meteorological Cond.:**	Temps in the Mid	**Noise Source(s) w/ Distance:**	
Site Id:	LT3	60°F during the day, Overcast winds 1-3 MPH		Light rail and residential noise	
		Ground Type:	buildings 1-2 story		



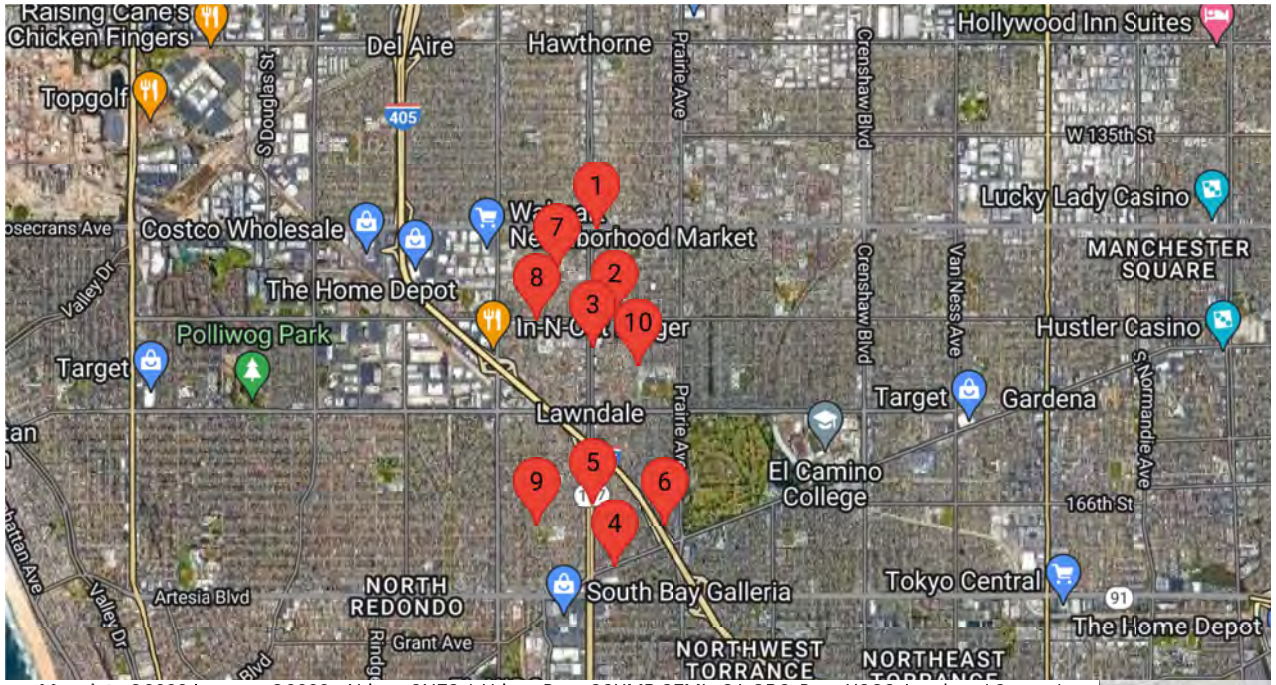
15-Minute Continuous Noise Measurement Datasheet

Project Name:	Lawndale Hawthorne GP & Specific Plan Update
Project: #/Name:	0462-2019-010
Site Address/Location:	LawnDale
Date:	11/30/-0001
Field Tech/Engineer:	Jason Schuyler/ Claire Pincock

Site Observations:

Calibrated first thing in the morning. Overcast ,64F° , winds 1-7MPH. The primary noise source is traffic.

Sound Meter:	XL2, NTI	**SN:**	A2A-08562-E0
Settings:	A-weighted, slow, 1-sec, 15-minute interval		
Site Id:	ST1, ST10, ST2, ST3, ST4, ST5, ST6, ST7, ST8, ST9		



MD ACOUSTICS

15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name: Lawndale Hawthorne GP & Specific Plan Update

Site Address/Location: LawnDale

Site Id: ST1, ST10, ST2, ST3, ST4, ST5, ST6, ST7, ST8, ST9

Figure 1: ST1



Figure 2: ST2

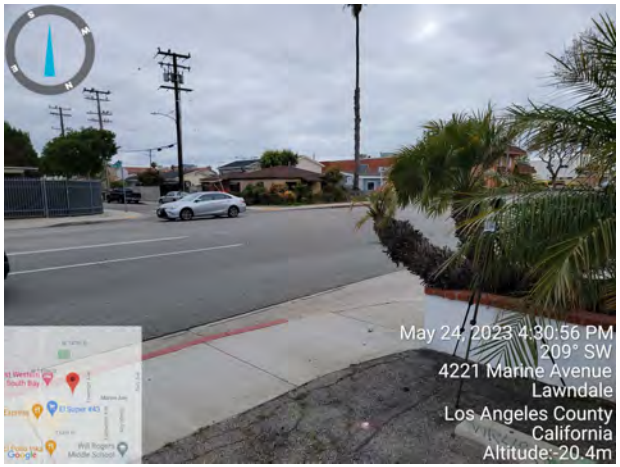


Figure 3: ST3



15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name: Lawndale Hawthorne GP & Specific Plan Update

Site Address/Location: LawnDale

Site Id: ST1, ST10, ST2, ST3, ST4, ST5, ST6, ST7, ST8, ST9

Figure 4: ST4

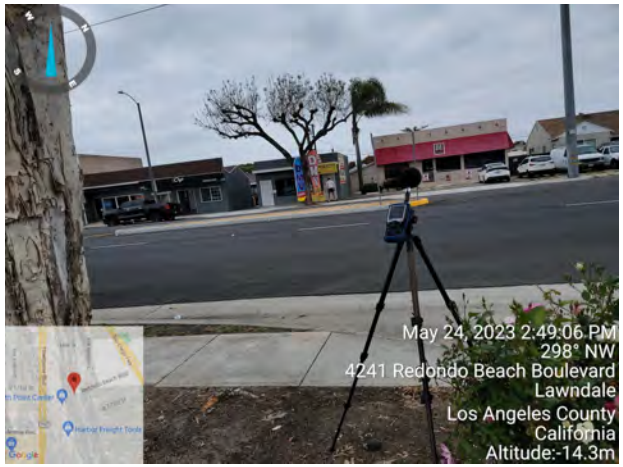


Figure 5: ST5

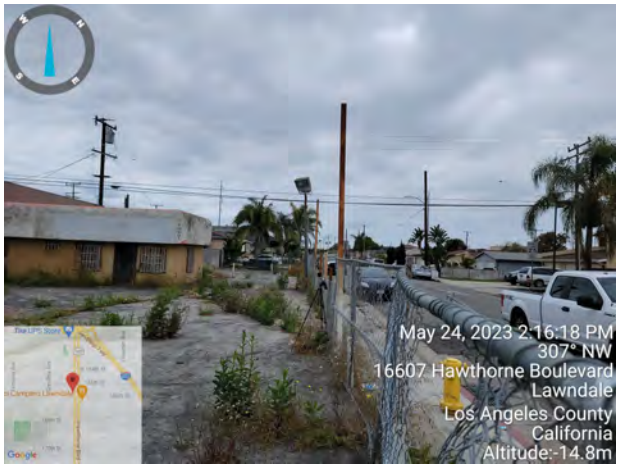


Figure 6: ST6



15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name: Lawndale Hawthorne GP & Specific Plan Update

Site Address/Location: LawnDale

Site Id: ST1, ST10, ST2, ST3, ST4, ST5, ST6, ST7, ST8, ST9

Figure 7: ST7

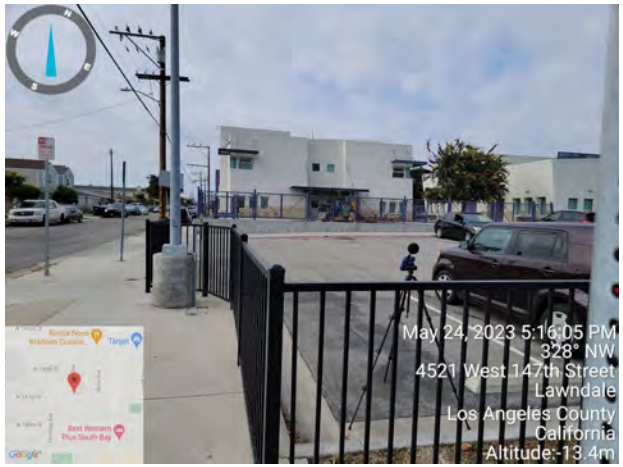


Figure 8: ST8



Figure 9: ST9



15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name: Lawndale Hawthorne GP & Specific Plan Update

Site Address/Location: LawnDale

Site Id: ST1, ST10, ST2, ST3, ST4, ST5, ST6, ST7, ST8, ST9

Figure 10: ST10



15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name: Lawndale Hawthorne GP & Specific Plan Update

Site Address/Location: LawnDale

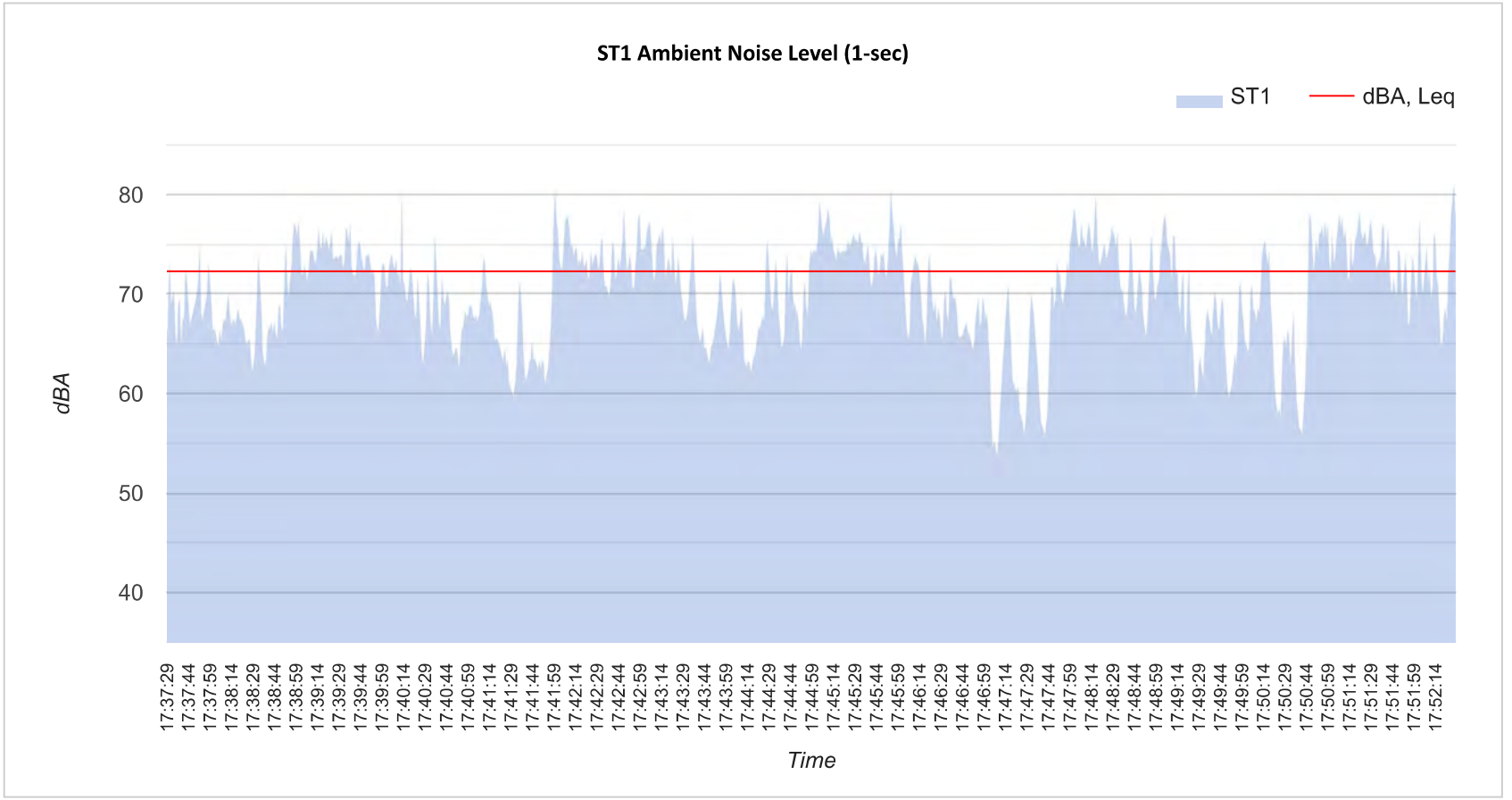
Site Id: ST1, ST10, ST2, ST3, ST4, ST5, ST6, ST7, ST8, ST9

Table 1: Baseline Noise Measurement Summary

Location	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
ST1	5:37 PM	5:52 PM	72.3	80.4	54.4	77.9	76.3	73.9	70.7	63.4
ST10	3:42 PM	3:57 PM	59.9	78.2	47.2	68.8	63	57.5	53.2	48.9
ST2	4:25 PM	4:40 PM	69.7	82.7	53.7	74.9	73.1	70.9	68.3	61.8
ST3	4:03 PM	4:18 PM	67.6	75.9	55.0	73.6	72.2	70.1	63.9	57.1
ST4	2:48 PM	3:03 PM	64.9	78.5	49.0	71	69	66.2	62.8	55
ST5	12:43 PM	12:58 PM	66.4	79.4	51.1	72.2	70.6	67.9	64.4	55.7
ST6	3:15 PM	3:30 PM	60.4	66.5	57.0	63.5	61.9	60.8	60.1	58.9
ST7	5:14 PM	5:29 PM	57.8	75.7	47.5	66	60.7	56.1	52.9	49.3
ST8	4:50 PM	5:05 PM	66	82.7	50.6	71.8	70.1	66.8	62.8	56.3
ST9	1:27 PM	1:42 PM	57.4	72.8	42.4	64.3	61.3	57.9	54	45.7

15-Minute Continuous Noise Measurement Datasheet - Cont.

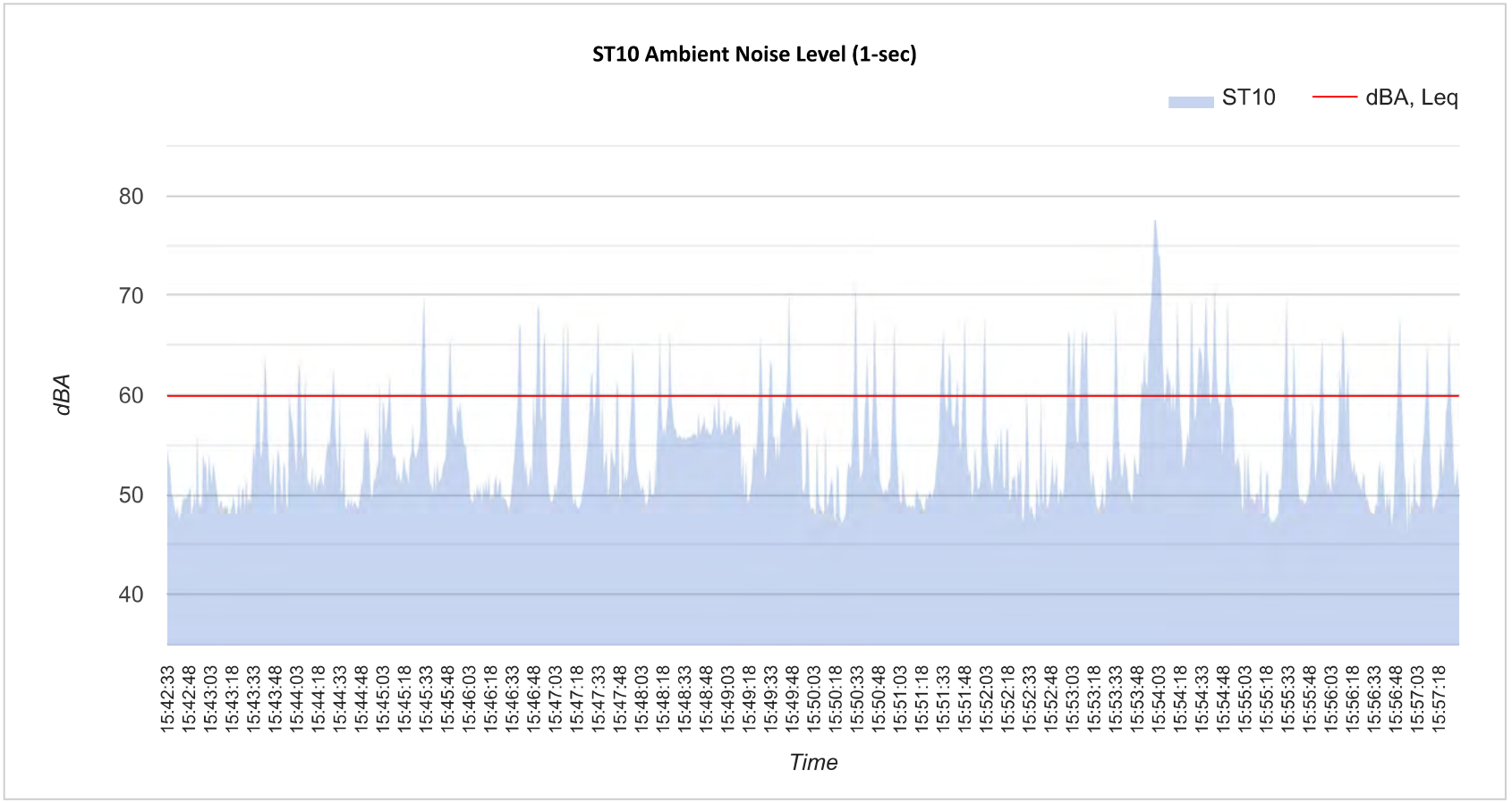
Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	Buildings 1-2 stories tall	**Noise Source(s) w/ Distance:**	
Site Address/Location:	LawnDale	**Meteorological Cond.:**	64F Winds 0-1MPH	Road and residential noise	
Site Id:	ST1	**Ground Type:**	buildings and asvault		



MD ACOUSTICS

15-Minute Continuous Noise Measurement Datasheet - Cont.

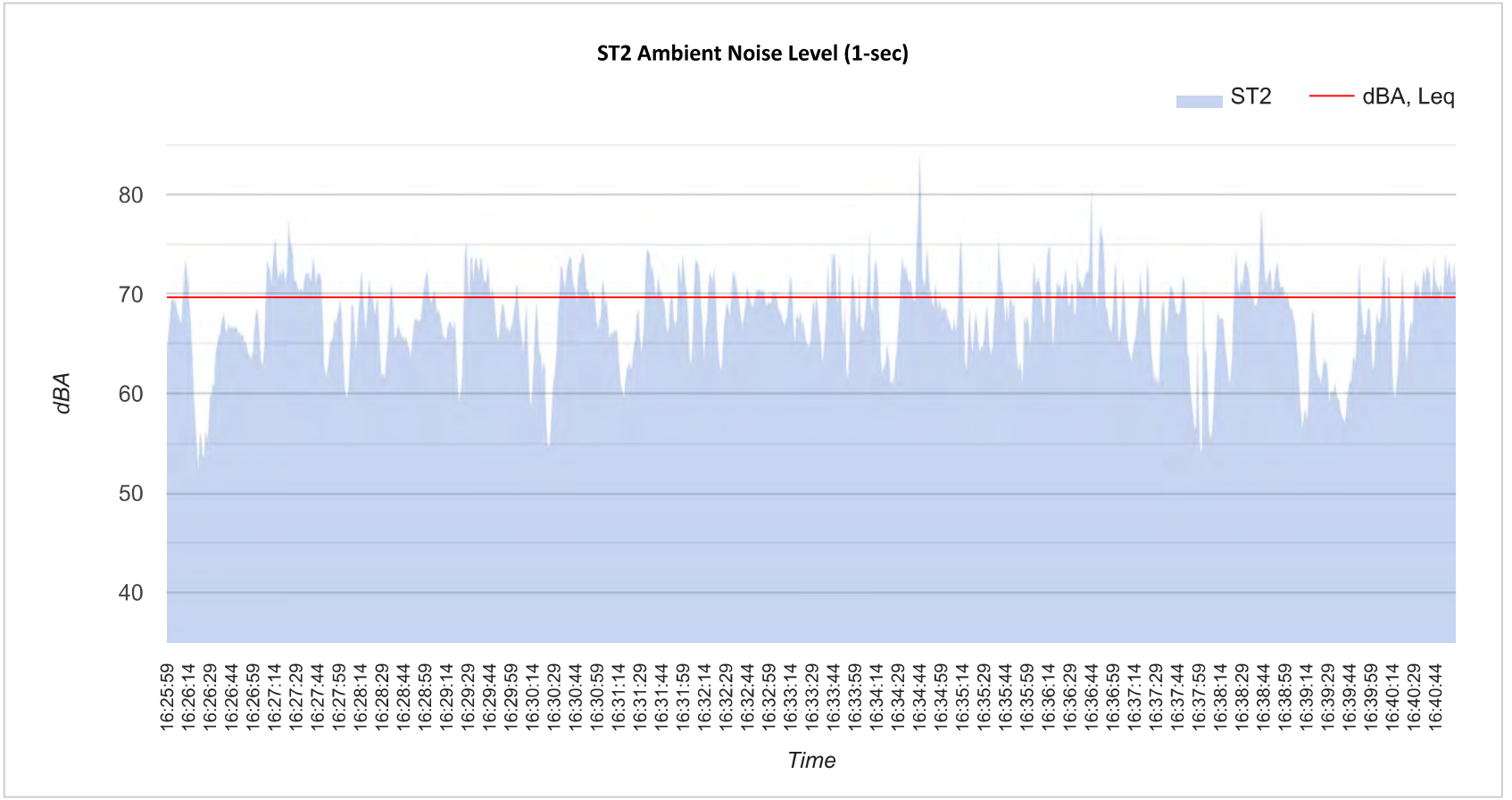
Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	Buildings 1-2 stories tall	**Noise Source(s) w/ Distance:**	Road Noise and School/ residential noise
Site Address/Location:	LawnDale	**Meteorological Cond.:**	64F Winds 0-1MPH		
Site Id:	ST10	**Ground Type:**	buildings and asphalt opening onto school		



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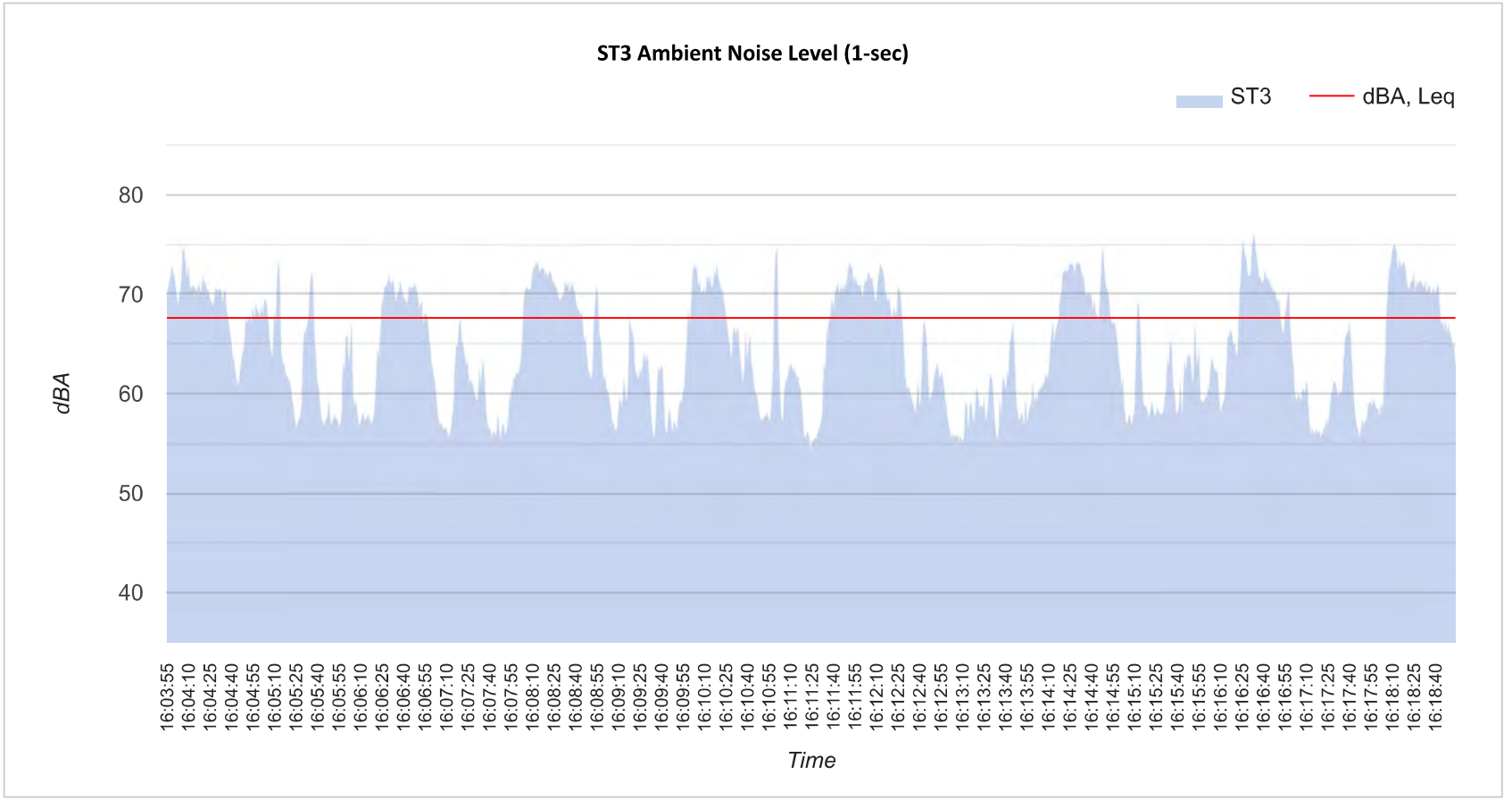
15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	Buildings 1-2 stories tall	**Noise Source(s) w/ Distance:**	
Site Address/Location:	LawnDale	**Meteorological Cond.:**	64F Winds 0-1MPH	road noise and residential noise	
Site Id:	ST2	**Ground Type:**	buildings and asphalt		



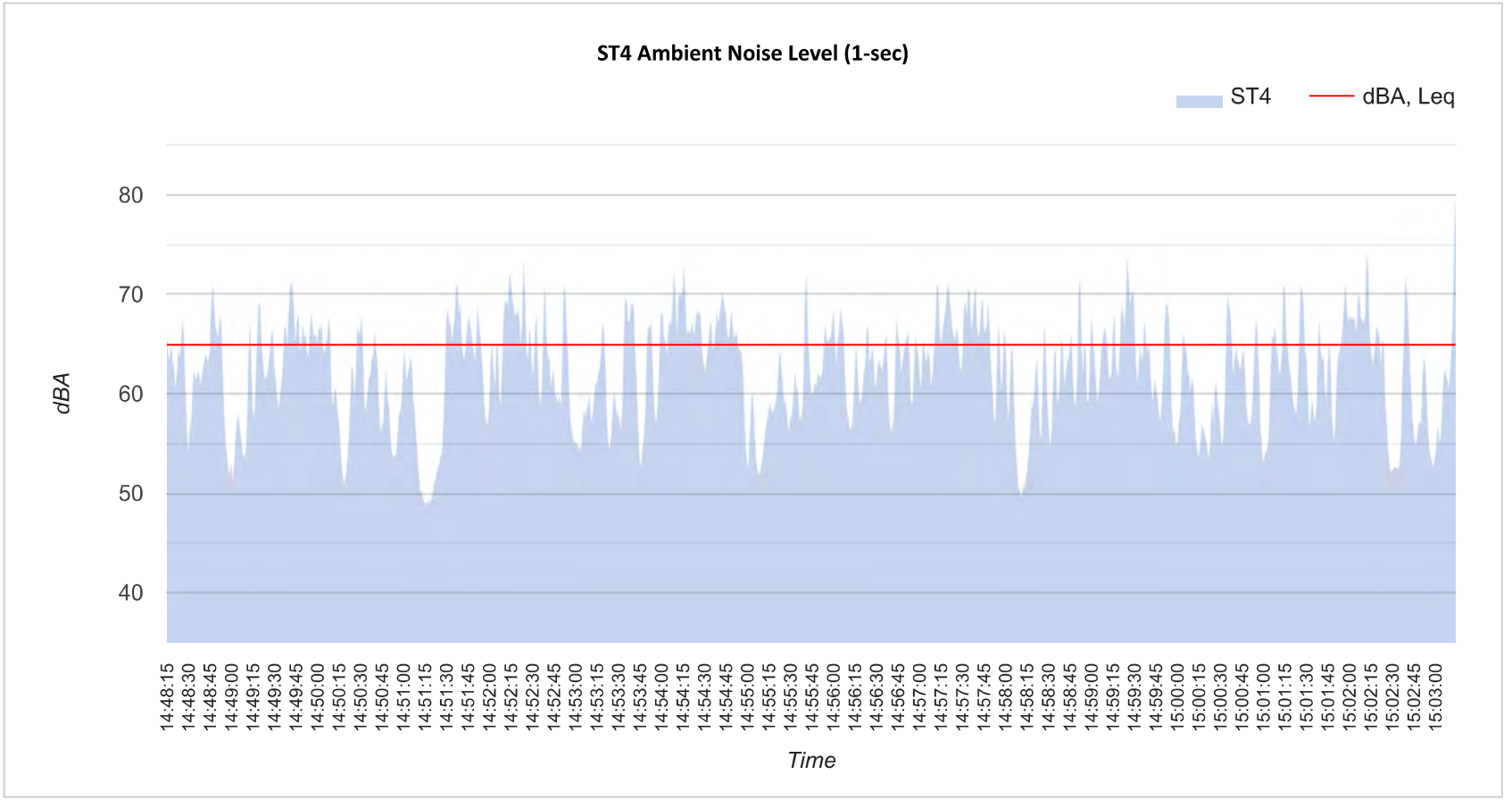
15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	Buildings 1-2 stories tall site	**Noise Source(s) w/ Distance:**	
Site Address/Location:	LawnDale	**Meteorological Cond.:**	64F Winds 0-1MPH	Road and commercial noise	
Site Id:	ST3	**Ground Type:**	buildings and asphalt		



15-Minute Continuous Noise Measurement Datasheet - Cont.

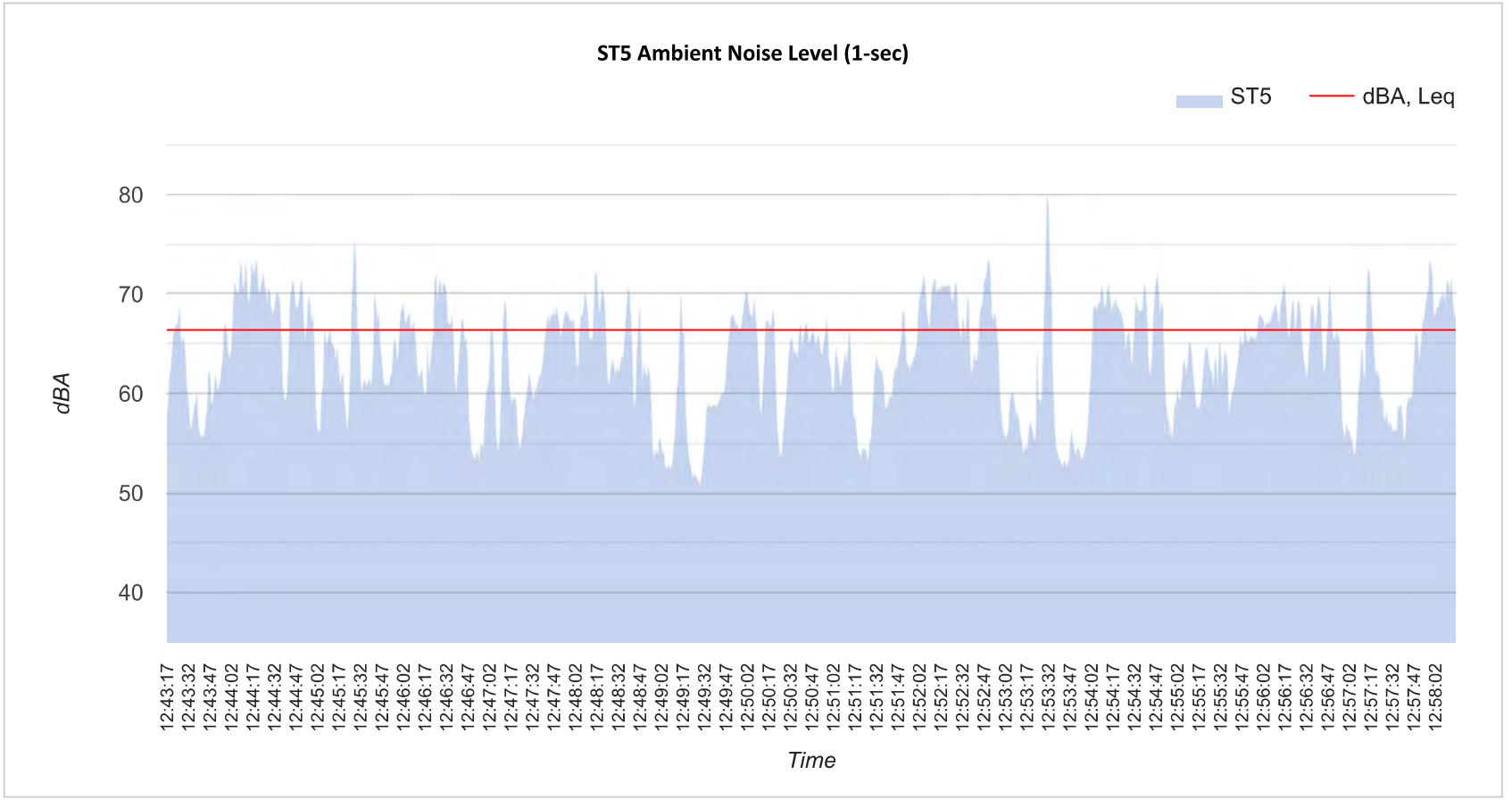
Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	Buildings 1-2 stories tall site	**Noise Source(s) w/ Distance:**	
Site Address/Location:	LawnDale	**Meteorological Cond.:**	64F Winds 0-1MPH	Road and commercial noise	
Site Id:	ST4	**Ground Type:**	buildings and asphalt		



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15-Minute Continuous Noise Measurement Datasheet - Cont.

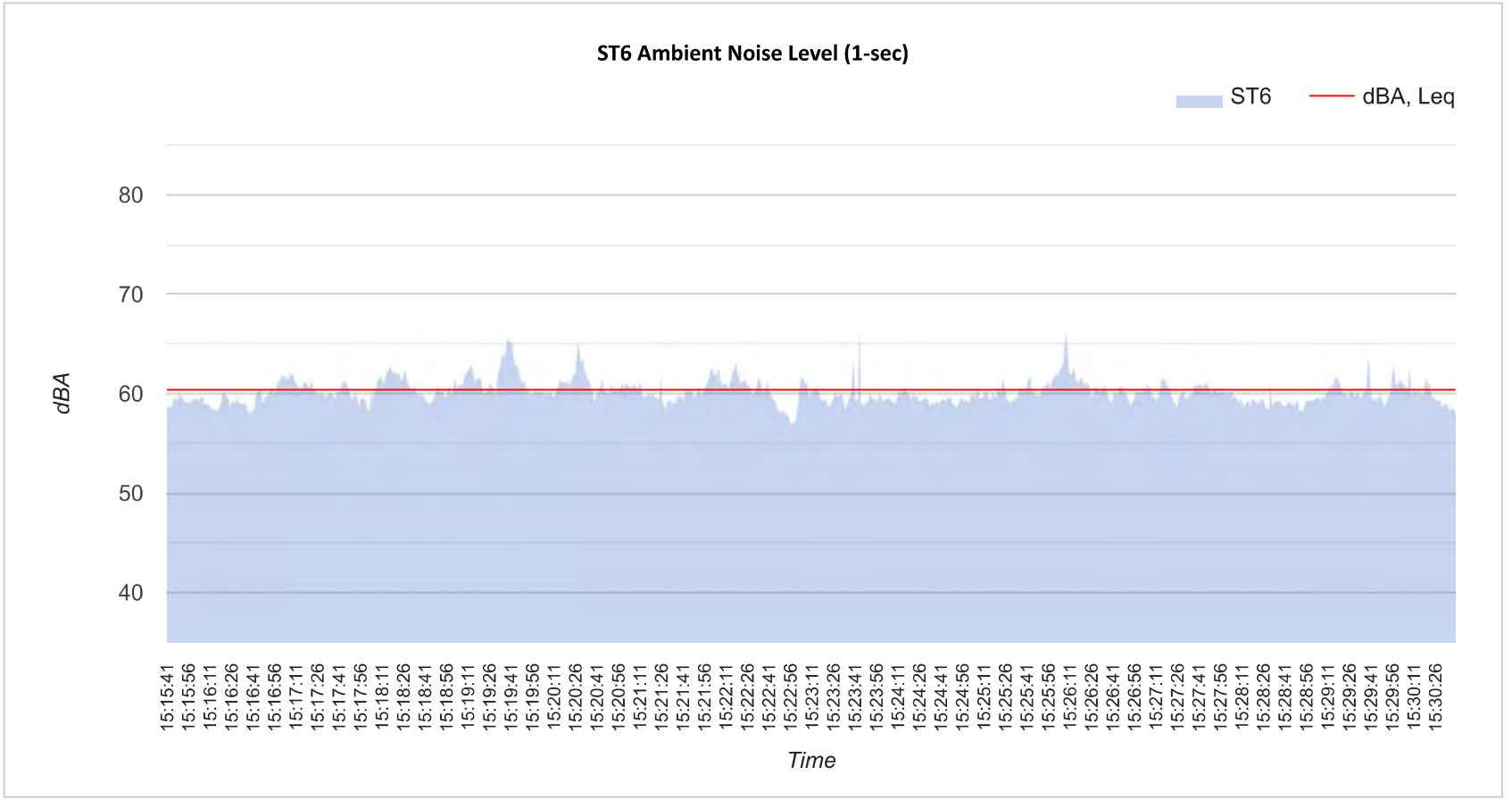
Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	Buildings 1-2 stories tall site	**Noise Source(s) w/ Distance:**	
Site Address/Location:	LawnDale	**Meteorological Cond.:**	64F Winds 0-1MPH	Road and commercial noise	
Site Id:	ST5	**Ground Type:**	buildings and asphalt		



MD ACOUSTICS

15-Minute Continuous Noise Measurement Datasheet - Cont.

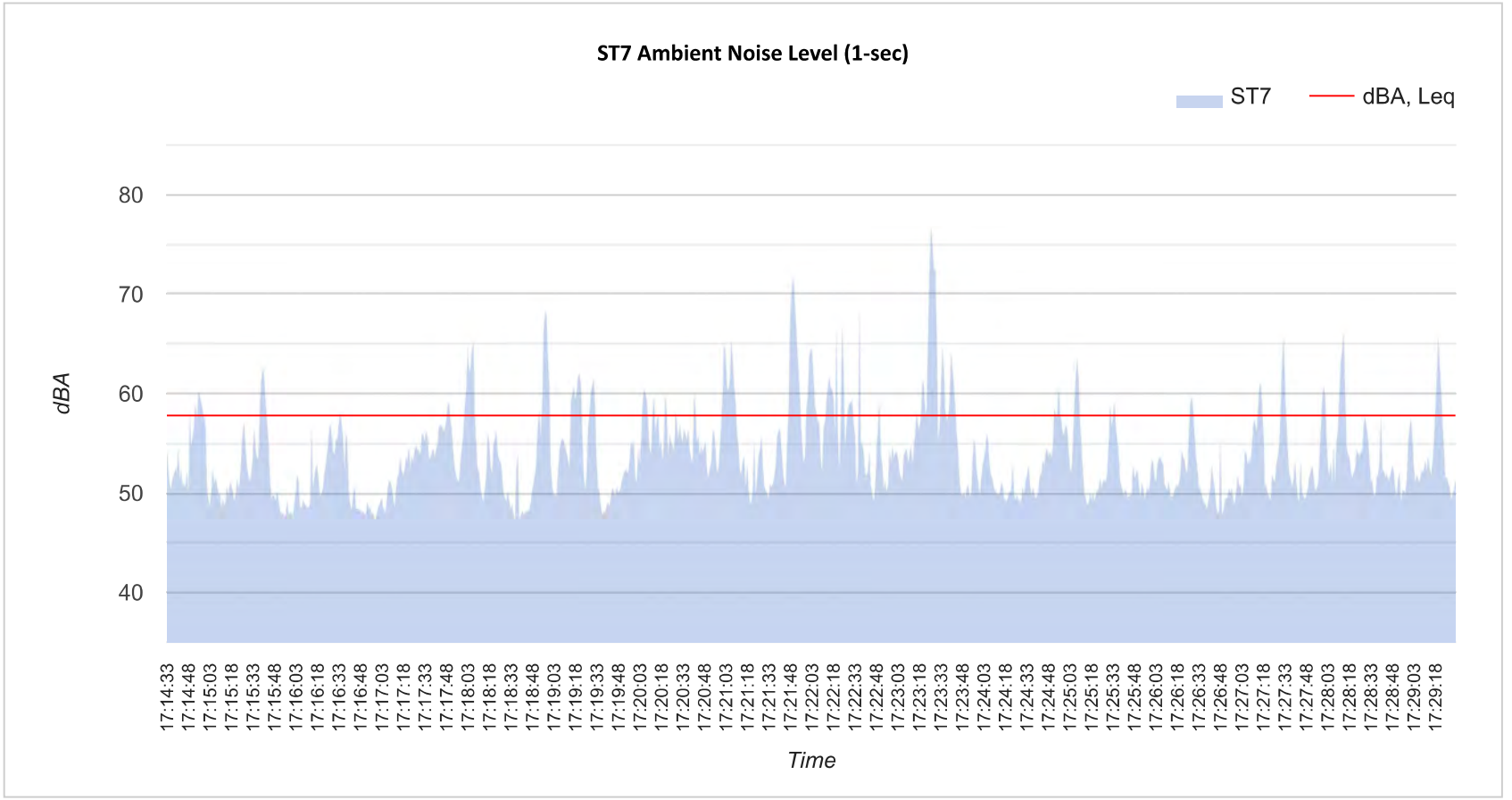
Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	Near 405 behind sound wall	**Noise Source(s) w/ Distance:**	
Site Address/Location:	LawnDale	**Meteorological Cond.:**	64F Winds 0-1MPH	Road noise from 405 even with a 15+ft wall	
Site Id:	ST6	**Ground Type:**	Homes Walls and asphalt		



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15-Minute Continuous Noise Measurement Datasheet - Cont.

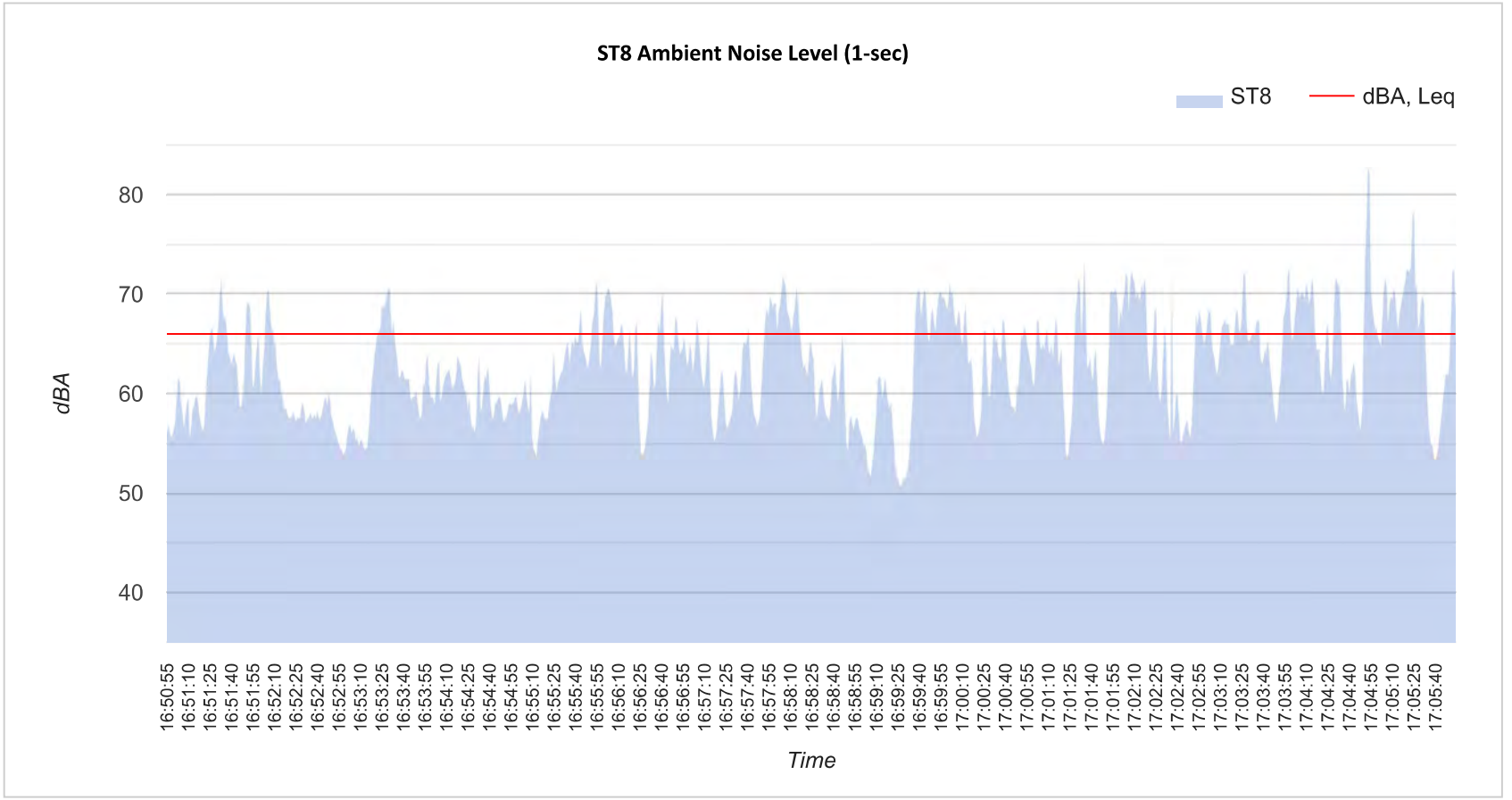
Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	Buildings 1-2 stories tall site	**Noise Source(s) w/ Distance:**	
Site Address/Location:	LawnDale	**Meteorological Cond.:**	64F Winds 0-1MPH	road noise and residential noise	
Site Id:	ST7	**Ground Type:**	buildings and asvault		



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15-Minute Continuous Noise Measurement Datasheet - Cont.

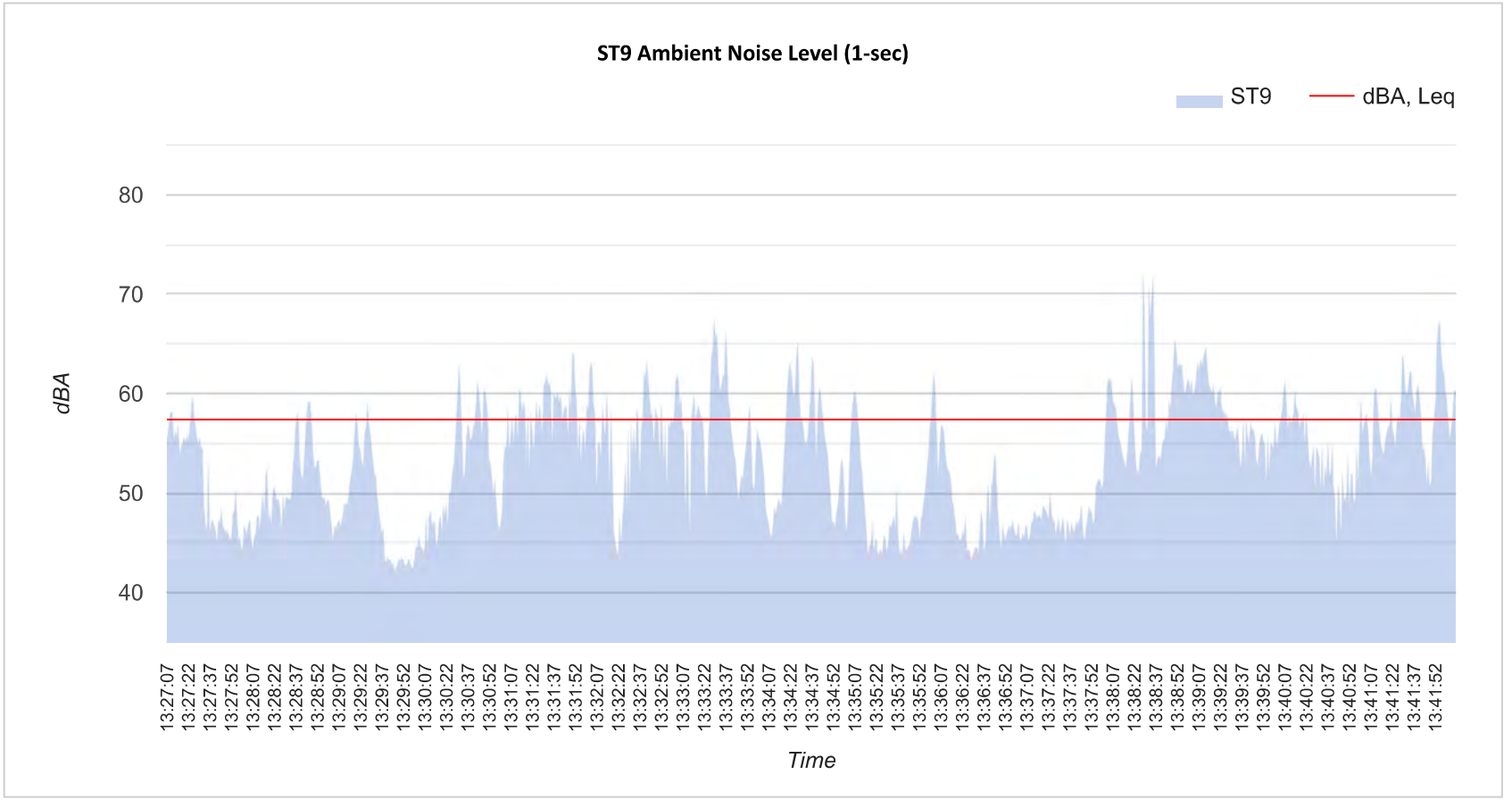
Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	Buildings 1-2 stories tall near	**Noise Source(s) w/ Distance:**	
Site Address/Location:	LawnDale	**Meteorological Cond.:**	64F Winds 0-1MPH		road noise and residential noise
Site Id:	ST8	**Ground Type:**	buildings and asphalt opening onto park		



MD ACOUSTICS

15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name:	Lawndale Hawthorne GP & Specific Plan Update	**Site Topo:**	Park surrounded by residential	**Noise Source(s) w/ Distance:**	
Site Address/Location:	LawnDale	**Meteorological Cond.:**	64F Winds 0-1MPH	road noise and residential noise	
Site Id:	ST9	**Ground Type:**	buildings and asphalt opening onto park		



MD ACOUSTICS

Appendix C:
FHWA Roadway Noise Worksheets

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Inglewood Ave.
SEGMENT Marine Ave. to 153rd Pl.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	30,382
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	60
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,038

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.778	0.128	0.094	0.875
MEDIUM TRUCKS	0.805	0.087	0.108	0.115
HEAVY TRUCKS	0.758	0.089	0.153	0.011

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	40.1	- -
MEDIUM TRUCKS=	4.00	40.0	- -
HEAVY TRUCKS =	8.01	40.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	69.5	67.6	65.8	59.7	68.3	69.0
MEDIUM TRUCKS	70.4	68.7	65.0	61.2	69.5	69.9
HEAVY TRUCKS	65.3	63.3	60.0	57.6	65.3	65.6
VEHICULAR NOISE	73.7	71.8	69.0	64.5	72.8	**73.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	107	338	1068	3378
LDN	96	304	960	3036

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Hawthorne Blvd.
SEGMENT 169th St. to Redondo Beach Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	40,769
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	130
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	4,077

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.761	0.127	0.112	0.869
MEDIUM TRUCKS	0.806	0.075	0.119	0.117
HEAVY TRUCKS	0.712	0.084	0.204	0.013

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	76.1	- -
MEDIUM TRUCKS=	4.00	76.0	- -
HEAVY TRUCKS =	8.01	76.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	68.0	66.0	64.2	58.9	67.2	67.8
MEDIUM TRUCKS	69.0	67.3	63.0	60.2	68.4	68.7
HEAVY TRUCKS	64.7	62.4	59.1	58.2	65.4	65.7
VEHICULAR NOISE	72.3	70.4	67.4	64.0	71.9	**72.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	170	538	1703	5384
LDN	156	492	1555	4918

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Hawthorne Blvd.
SEGMENT Manhattan Beach Blvd. to 160th St.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	39,254
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	130
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,925

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.778	0.128	0.094	0.875
MEDIUM TRUCKS	0.805	0.087	0.108	0.115
HEAVY TRUCKS	0.758	0.089	0.153	0.011

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	76.1	- -
MEDIUM TRUCKS=	4.00	76.0	- -
HEAVY TRUCKS =	8.01	76.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	67.8	66.0	64.1	58.0	66.7	67.3
MEDIUM TRUCKS	68.7	67.0	63.4	59.5	67.9	68.3
HEAVY TRUCKS	63.6	61.6	58.4	55.9	63.6	63.9
VEHICULAR NOISE	72.0	70.2	67.4	62.8	71.2	**71.6**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	145	460	1455	4600
LDN	131	413	1307	4135

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Artesia Blvd.
SEGMENT Inglewood Ave. to Grevillea Ave.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	33,333
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,333

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.778	0.128	0.094	0.875
MEDIUM TRUCKS	0.805	0.087	0.108	0.115
HEAVY TRUCKS	0.758	0.089	0.153	0.011

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	38.1	- -
MEDIUM TRUCKS=	4.00	38.0	- -
HEAVY TRUCKS =	8.01	38.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	70.1	68.2	66.4	60.3	69.0	69.6
MEDIUM TRUCKS	71.0	69.3	65.7	61.8	70.2	70.6
HEAVY TRUCKS	65.9	63.9	60.7	58.2	65.9	66.2
VEHICULAR NOISE	74.3	72.5	69.7	65.1	73.5	**73.9**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	123	390	1234	3901
LDN	111	351	1109	3506

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Inglewood Ave.
SEGMENT Manhattan Beach Blvd. to Artesia Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	34,669
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	70
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,467

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.778	0.128	0.094	0.875
MEDIUM TRUCKS	0.805	0.087	0.108	0.115
HEAVY TRUCKS	0.758	0.089	0.153	0.011

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	35.8	- -
MEDIUM TRUCKS=	4.00	35.7	- -
HEAVY TRUCKS =	8.01	35.8	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	72.2	70.3	68.5	62.4	71.1	71.7
MEDIUM TRUCKS	72.4	70.6	67.0	63.2	71.5	71.9
HEAVY TRUCKS	66.9	64.9	61.6	59.2	66.9	67.2
VEHICULAR NOISE	75.9	74.1	71.3	66.7	75.0	**75.5**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	178	562	1777	5619
LDN	159	504	1593	5037

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Inglewood Ave.
SEGMENT I-405 S Entrance to Manhattan Beach Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	46,980
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	4,698

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.761	0.127	0.112	0.869
MEDIUM TRUCKS	0.806	0.075	0.119	0.117
HEAVY TRUCKS	0.712	0.084	0.204	0.013

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	43.4	- -
MEDIUM TRUCKS=	4.00	43.3	- -
HEAVY TRUCKS =	8.01	43.4	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	71.0	69.0	67.3	62.0	70.3	70.8
MEDIUM TRUCKS	72.1	70.3	66.1	63.3	71.4	71.7
HEAVY TRUCKS	67.7	65.4	62.2	61.3	68.4	68.7
VEHICULAR NOISE	75.4	73.5	70.4	67.0	75.0	**75.4**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	172	544	1720	5439
LDN	157	497	1571	4968

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Manhattan Beach Blvd.
SEGMENT Inglewood Ave to Hawthorne Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	23,463
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	70
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,346

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.818	0.115	0.067	0.883
MEDIUM TRUCKS	0.846	0.066	0.088	0.111
HEAVY TRUCKS	0.815	0.046	0.138	0.006

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	35.8	- -
MEDIUM TRUCKS=	4.00	35.7	- -
HEAVY TRUCKS =	8.01	35.8	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	70.6	68.9	66.4	59.3	68.8	69.4
MEDIUM TRUCKS	70.5	69.0	64.0	60.4	69.3	69.6
HEAVY TRUCKS	62.7	61.0	54.6	54.6	62.4	62.6
VEHICULAR NOISE	73.9	72.3	68.6	63.5	72.5	**73.0**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	99	313	989	3127
LDN	89	282	892	2820

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Hawthorne Blvd.
SEGMENT Marine Ave. to Manhattan Beach Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	36,715
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	130
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,672

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.778	0.128	0.094	0.875
MEDIUM TRUCKS	0.805	0.087	0.108	0.115
HEAVY TRUCKS	0.758	0.089	0.153	0.011

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	76.1	- -
MEDIUM TRUCKS=	4.00	76.0	- -
HEAVY TRUCKS =	8.01	76.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	67.5	65.7	63.8	57.7	66.4	67.0
MEDIUM TRUCKS	68.4	66.7	63.1	59.2	67.6	68.0
HEAVY TRUCKS	63.3	61.3	58.1	55.6	63.3	63.6
VEHICULAR NOISE	71.7	69.9	67.1	62.5	70.9	**71.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	136	430	1361	4303
LDN	122	387	1223	3867

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Hawthorne Blvd.
SEGMENT 162nd St. to 166th St.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	44,037
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	130
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	4,404

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.761	0.127	0.112	0.869
MEDIUM TRUCKS	0.806	0.075	0.119	0.117
HEAVY TRUCKS	0.712	0.084	0.204	0.013

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	76.1	- -
MEDIUM TRUCKS=	4.00	76.0	- -
HEAVY TRUCKS =	8.01	76.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	68.3	66.3	64.6	59.3	67.5	68.1
MEDIUM TRUCKS	69.3	67.6	63.3	60.5	68.7	69.0
HEAVY TRUCKS	65.0	62.7	59.5	58.5	65.7	66.0
VEHICULAR NOISE	72.7	70.8	67.7	64.3	72.3	**72.6**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	184	582	1839	5816
LDN	168	531	1680	5312

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Rosecrans Ave.
SEGMENT Hawthorne Blvd. to Prairie Ave.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	32,747
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	70
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,275

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.778	0.128	0.094	0.875
MEDIUM TRUCKS	0.805	0.087	0.108	0.115
HEAVY TRUCKS	0.758	0.089	0.153	0.011

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	35.8	- -
MEDIUM TRUCKS=	4.00	35.7	- -
HEAVY TRUCKS =	8.01	35.8	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	72.0	70.1	68.3	62.2	70.8	71.4
MEDIUM TRUCKS	72.1	70.4	66.8	62.9	71.3	71.7
HEAVY TRUCKS	66.6	64.7	61.4	59.0	66.6	66.9
VEHICULAR NOISE	75.6	73.8	71.1	66.4	74.8	**75.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	168	531	1678	5308
LDN	150	476	1505	4758

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Redondo Beach Blvd.
SEGMENT Hawthorne Blvd. to Prairie Ave.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	18,912
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	1,891

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.818	0.115	0.067	0.883
MEDIUM TRUCKS	0.846	0.066	0.088	0.111
HEAVY TRUCKS	0.815	0.046	0.138	0.006

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	38.1	- -
MEDIUM TRUCKS=	4.00	38.0	- -
HEAVY TRUCKS =	8.01	38.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	69.4	67.7	65.2	58.1	67.6	68.2
MEDIUM TRUCKS	69.3	67.8	62.8	59.2	68.1	68.4
HEAVY TRUCKS	61.5	59.8	53.4	53.4	61.2	61.4
VEHICULAR NOISE	72.7	71.1	67.4	62.3	71.3	**71.8**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	75	237	749	2369
LDN	68	214	676	2137

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Manhattan Beach Blvd.
SEGMENT Freeman Ave. to Prairie Ave.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	19,794
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	1,979

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.818	0.115	0.067	0.883
MEDIUM TRUCKS	0.846	0.066	0.088	0.111
HEAVY TRUCKS	0.815	0.046	0.138	0.006

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	38.1	- -
MEDIUM TRUCKS=	4.00	38.0	- -
HEAVY TRUCKS =	8.01	38.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	69.6	67.9	65.4	58.3	67.8	68.4
MEDIUM TRUCKS	69.5	68.0	63.0	59.4	68.3	68.6
HEAVY TRUCKS	61.7	60.0	53.6	53.6	61.4	61.6
VEHICULAR NOISE	72.9	71.3	67.6	62.5	71.5	**72.0**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	78	248	784	2480
LDN	71	224	707	2236

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Prairie Ave.
SEGMENT Marine Ave. to Manhattan Beach Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	25,223
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,522

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.818	0.115	0.067	0.883
MEDIUM TRUCKS	0.846	0.066	0.088	0.111
HEAVY TRUCKS	0.815	0.046	0.138	0.006

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	38.1	- -
MEDIUM TRUCKS=	4.00	38.0	- -
HEAVY TRUCKS =	8.01	38.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	70.6	69.0	66.5	59.3	68.9	69.5
MEDIUM TRUCKS	70.6	69.1	64.0	60.5	69.3	69.7
HEAVY TRUCKS	62.8	61.1	54.6	54.6	62.5	62.7
VEHICULAR NOISE	74.0	72.4	68.6	63.6	72.6	**73.0**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	100	316	999	3160
LDN	90	285	901	2850

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Manhattan Beach Blvd.
SEGMENT Prairie Ave. to Crenshaw Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	21,543
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	55
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,154

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.818	0.115	0.067	0.883
MEDIUM TRUCKS	0.846	0.066	0.088	0.111
HEAVY TRUCKS	0.815	0.046	0.138	0.006

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	41.9	- -
MEDIUM TRUCKS=	4.00	41.8	- -
HEAVY TRUCKS =	8.01	41.9	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	67.9	66.2	63.7	56.6	66.1	66.7
MEDIUM TRUCKS	68.6	67.1	62.0	58.5	67.3	67.7
HEAVY TRUCKS	61.1	59.5	53.0	53.0	60.9	61.0
VEHICULAR NOISE	71.7	70.1	66.2	61.3	70.3	**70.7**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	59	187	591	1867
LDN	53	169	535	1690

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Crenshaw Blvd.
SEGMENT Marine Ave. to Manhattan Beach Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	27,196
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	60
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,720

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.818	0.115	0.067	0.883
MEDIUM TRUCKS	0.846	0.066	0.088	0.111
HEAVY TRUCKS	0.815	0.046	0.138	0.006

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	40.1	- -
MEDIUM TRUCKS=	4.00	40.0	- -
HEAVY TRUCKS =	8.01	40.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	69.1	67.4	64.9	57.8	67.3	67.9
MEDIUM TRUCKS	69.8	68.3	63.2	59.7	68.5	68.9
HEAVY TRUCKS	62.3	60.7	54.2	54.2	62.1	62.2
VEHICULAR NOISE	72.9	71.3	67.4	62.5	71.5	**71.9**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	78	246	778	2461
LDN	70	223	704	2227

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY San Diego Freeway
SEGMENT West of Hawthorne Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	254,000
SPEED =	65
PK HR % =	10
NEAR LANE/FAR LANE DIST =	110
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	25,400

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.761	0.127	0.112	0.869
MEDIUM TRUCKS	0.806	0.075	0.119	0.117
HEAVY TRUCKS	0.712	0.084	0.204	0.013

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	83.6	- -
MEDIUM TRUCKS=	4.00	83.5	- -
HEAVY TRUCKS =	8.01	83.6	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	83.2	81.3	79.5	74.2	82.5	83.0
MEDIUM TRUCKS	80.7	79.0	74.7	71.9	80.1	80.4
HEAVY TRUCKS	74.7	72.4	69.1	68.2	75.4	75.7
VEHICULAR NOISE	85.5	83.6	81.0	76.9	85.0	**85.4**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	3480	11003	34795	110033
LDN	3136	9915	31355	99155

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY San Diego Freeway
SEGMENT East of Hawthorne Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	242,000
SPEED =	65
PK HR % =	10
NEAR LANE/FAR LANE DIST =	110
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	24,200

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.761	0.127	0.112	0.869
MEDIUM TRUCKS	0.806	0.075	0.119	0.117
HEAVY TRUCKS	0.712	0.084	0.204	0.013

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	83.6	- -
MEDIUM TRUCKS=	4.00	83.5	- -
HEAVY TRUCKS =	8.01	83.6	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	83.0	81.1	79.3	74.0	82.3	82.8
MEDIUM TRUCKS	80.5	78.8	74.5	71.7	79.9	80.2
HEAVY TRUCKS	74.5	72.2	68.9	68.0	75.2	75.5
VEHICULAR NOISE	85.3	83.4	80.8	76.7	84.8	**85.2**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	3315	10483	33152	104835
LDN	2987	9447	29874	94470

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Inglewood Ave.
SEGMENT Marine Ave. to 153rd Pl.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	29,900
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	60
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,990

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.778	0.128	0.094	0.875
MEDIUM TRUCKS	0.805	0.087	0.108	0.115
HEAVY TRUCKS	0.758	0.089	0.153	0.011

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	40.1	- -
MEDIUM TRUCKS=	4.00	40.0	- -
HEAVY TRUCKS =	8.01	40.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	69.4	67.5	65.7	59.6	68.3	68.9
MEDIUM TRUCKS	70.3	68.6	65.0	61.1	69.5	69.9
HEAVY TRUCKS	65.2	63.2	60.0	57.5	65.2	65.5
VEHICULAR NOISE	73.6	71.8	69.0	64.4	72.8	**73.2**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	105	332	1051	3325
LDN	94	299	945	2988

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Artesia Blvd.
SEGMENT Inglewood Ave. to Grevillea Ave.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	33,500
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,350

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.778	0.128	0.094	0.875
MEDIUM TRUCKS	0.805	0.087	0.108	0.115
HEAVY TRUCKS	0.758	0.089	0.153	0.011

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	38.1	- -
MEDIUM TRUCKS=	4.00	38.0	- -
HEAVY TRUCKS =	8.01	38.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	70.1	68.3	66.4	60.3	69.0	69.6
MEDIUM TRUCKS	71.1	69.3	65.7	61.8	70.2	70.6
HEAVY TRUCKS	65.9	63.9	60.7	58.3	65.9	66.2
VEHICULAR NOISE	74.3	72.5	69.7	65.1	73.5	**73.9**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	124	392	1240	3921
LDN	111	352	1114	3524

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Manhattan Beach Blvd.
SEGMENT Inglewood Ave to Hawthorne Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	27,400
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	70
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,740

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.818	0.115	0.067	0.883
MEDIUM TRUCKS	0.846	0.066	0.088	0.111
HEAVY TRUCKS	0.815	0.046	0.138	0.006

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	35.8	- -
MEDIUM TRUCKS=	4.00	35.7	- -
HEAVY TRUCKS =	8.01	35.8	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	71.2	69.6	67.1	60.0	69.5	70.1
MEDIUM TRUCKS	71.2	69.7	64.7	61.1	70.0	70.3
HEAVY TRUCKS	63.4	61.7	55.3	55.3	63.1	63.3
VEHICULAR NOISE	74.6	73.0	69.2	64.2	73.2	**73.6**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	115	365	1155	3652
LDN	104	329	1041	3293

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Inglewood Ave.
SEGMENT Manhattan Beach Blvd. to Artesia Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	33,600
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	70
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,360

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.778	0.128	0.094	0.875
MEDIUM TRUCKS	0.805	0.087	0.108	0.115
HEAVY TRUCKS	0.758	0.089	0.153	0.011

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	35.8	- -
MEDIUM TRUCKS=	4.00	35.7	- -
HEAVY TRUCKS =	8.01	35.8	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	72.1	70.2	68.4	62.3	70.9	71.6
MEDIUM TRUCKS	72.2	70.5	66.9	63.0	71.4	71.8
HEAVY TRUCKS	66.8	64.8	61.5	59.1	66.7	67.1
VEHICULAR NOISE	75.8	73.9	71.2	66.5	74.9	**75.4**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	172	545	1722	5446
LDN	154	488	1544	4882

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Rosecrans Ave.
SEGMENT Hawthorne Blvd. to Prairie Ave.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	36,400
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	70
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,640

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.778	0.128	0.094	0.875
MEDIUM TRUCKS	0.805	0.087	0.108	0.115
HEAVY TRUCKS	0.758	0.089	0.153	0.011

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	35.8	- -
MEDIUM TRUCKS=	4.00	35.7	- -
HEAVY TRUCKS =	8.01	35.8	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	72.4	70.6	68.7	62.6	71.3	71.9
MEDIUM TRUCKS	72.6	70.9	67.2	63.4	71.7	72.1
HEAVY TRUCKS	67.1	65.1	61.8	59.4	67.1	67.4
VEHICULAR NOISE	76.1	74.3	71.6	66.9	75.2	**75.7**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	187	590	1866	5900
LDN	167	529	1673	5289

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Hawthorne Blvd.
SEGMENT Marine Ave. to Manhattan Beach Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	34,600
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	130
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,460

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.778	0.128	0.094	0.875
MEDIUM TRUCKS	0.805	0.087	0.108	0.115
HEAVY TRUCKS	0.758	0.089	0.153	0.011

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	76.1	- -
MEDIUM TRUCKS=	4.00	76.0	- -
HEAVY TRUCKS =	8.01	76.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	67.3	65.4	63.6	57.5	66.1	66.7
MEDIUM TRUCKS	68.2	66.4	62.8	59.0	67.3	67.7
HEAVY TRUCKS	63.1	61.1	57.8	55.4	63.0	63.4
VEHICULAR NOISE	71.5	69.6	66.8	62.3	70.6	**71.1**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	128	405	1282	4055
LDN	115	364	1152	3644

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Hawthorne Blvd.
SEGMENT Manhattan Beach Blvd. to 160th St.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	39,000
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	130
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,900

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.778	0.128	0.094	0.875
MEDIUM TRUCKS	0.805	0.087	0.108	0.115
HEAVY TRUCKS	0.758	0.089	0.153	0.011

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	76.1	- -
MEDIUM TRUCKS=	4.00	76.0	- -
HEAVY TRUCKS =	8.01	76.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	67.8	65.9	64.1	58.0	66.7	67.3
MEDIUM TRUCKS	68.7	67.0	63.3	59.5	67.8	68.2
HEAVY TRUCKS	63.6	61.6	58.3	55.9	63.6	63.9
VEHICULAR NOISE	72.0	70.1	67.3	62.8	71.1	**71.6**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	145	457	1445	4571
LDN	130	411	1299	4108

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Hawthorne Blvd.
SEGMENT 162nd St. to 166th St.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	43,200
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	130
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	4,320

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.761	0.127	0.112	0.869
MEDIUM TRUCKS	0.806	0.075	0.119	0.117
HEAVY TRUCKS	0.712	0.084	0.204	0.013

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	76.1	- -
MEDIUM TRUCKS=	4.00	76.0	- -
HEAVY TRUCKS =	8.01	76.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	68.2	66.2	64.5	59.2	67.5	68.0
MEDIUM TRUCKS	69.2	67.5	63.3	60.5	68.6	68.9
HEAVY TRUCKS	64.9	62.6	59.4	58.5	65.6	65.9
VEHICULAR NOISE	72.6	70.7	67.6	64.2	72.2	**72.6**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	180	571	1804	5706
LDN	165	521	1648	5211

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Hawthorne Blvd.
SEGMENT 169th St. to Redondo Beach Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	40,200
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	130
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	4,020

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.761	0.127	0.112	0.869
MEDIUM TRUCKS	0.806	0.075	0.119	0.117
HEAVY TRUCKS	0.712	0.084	0.204	0.013

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	76.1	- -
MEDIUM TRUCKS=	4.00	76.0	- -
HEAVY TRUCKS =	8.01	76.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	67.9	65.9	64.2	58.9	67.1	67.7
MEDIUM TRUCKS	68.9	67.2	62.9	60.1	68.3	68.6
HEAVY TRUCKS	64.6	62.3	59.1	58.2	65.3	65.6
VEHICULAR NOISE	72.3	70.4	67.3	63.9	71.9	**72.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	168	531	1679	5309
LDN	153	485	1533	4849

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Inglewood Ave.
SEGMENT I-405 S Entrance to Manhattan Beach Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	47,100
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	4,710

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.761	0.127	0.112	0.869
MEDIUM TRUCKS	0.806	0.075	0.119	0.117
HEAVY TRUCKS	0.712	0.084	0.204	0.013

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	43.4	- -
MEDIUM TRUCKS=	4.00	43.3	- -
HEAVY TRUCKS =	8.01	43.4	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	71.0	69.1	67.3	62.0	70.3	70.8
MEDIUM TRUCKS	72.1	70.3	66.1	63.3	71.4	71.8
HEAVY TRUCKS	67.7	65.5	62.2	61.3	68.4	68.7
VEHICULAR NOISE	75.4	73.5	70.4	67.0	75.0	**75.4**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	172	545	1724	5453
LDN	157	498	1575	4980

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Redondo Beach Blvd.
SEGMENT Hawthorne Blvd. to Prairie Ave.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	22,300
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,230

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.818	0.115	0.067	0.883
MEDIUM TRUCKS	0.846	0.066	0.088	0.111
HEAVY TRUCKS	0.815	0.046	0.138	0.006

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	38.1	- -
MEDIUM TRUCKS=	4.00	38.0	- -
HEAVY TRUCKS =	8.01	38.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	70.1	68.4	65.9	58.8	68.3	69.0
MEDIUM TRUCKS	70.1	68.5	63.5	60.0	68.8	69.1
HEAVY TRUCKS	62.2	60.6	54.1	54.1	61.9	62.1
VEHICULAR NOISE	73.4	71.8	68.1	63.0	72.0	**72.5**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	88	279	883	2794
LDN	80	252	797	2519

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY San Diego Freeway
SEGMENT East of Hawthorne Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	241,000
SPEED =	65
PK HR % =	10
NEAR LANE/FAR LANE DIST =	110
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	24,100

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.761	0.127	0.112	0.869
MEDIUM TRUCKS	0.806	0.075	0.119	0.117
HEAVY TRUCKS	0.712	0.084	0.204	0.013

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	83.6	- -
MEDIUM TRUCKS=	4.00	83.5	- -
HEAVY TRUCKS =	8.01	83.6	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	83.0	81.0	79.3	74.0	82.3	82.8
MEDIUM TRUCKS	80.5	78.8	74.5	71.7	79.9	80.2
HEAVY TRUCKS	74.4	72.2	68.9	68.0	75.2	75.4
VEHICULAR NOISE	85.3	83.4	80.8	76.6	84.7	**85.2**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	3301	10440	33015	104401
LDN	2975	9408	29751	94080

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Manhattan Beach Blvd.
SEGMENT Freeman Ave. to Prairie Ave.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	23,800
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,380

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.818	0.115	0.067	0.883
MEDIUM TRUCKS	0.846	0.066	0.088	0.111
HEAVY TRUCKS	0.815	0.046	0.138	0.006

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	38.1	- -
MEDIUM TRUCKS=	4.00	38.0	- -
HEAVY TRUCKS =	8.01	38.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	70.4	68.7	66.2	59.1	68.6	69.2
MEDIUM TRUCKS	70.3	68.8	63.8	60.2	69.1	69.4
HEAVY TRUCKS	62.5	60.8	54.4	54.4	62.2	62.4
VEHICULAR NOISE	73.7	72.1	68.4	63.3	72.3	**72.8**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	94	298	943	2981
LDN	85	269	850	2689

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Prairie Ave.
SEGMENT Marine Ave. to Manhattan Beach Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	28,300
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,830

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.818	0.115	0.067	0.883
MEDIUM TRUCKS	0.846	0.066	0.088	0.111
HEAVY TRUCKS	0.815	0.046	0.138	0.006

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	38.1	- -
MEDIUM TRUCKS=	4.00	38.0	- -
HEAVY TRUCKS =	8.01	38.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	71.1	69.5	67.0	59.8	69.4	70.0
MEDIUM TRUCKS	71.1	69.6	64.5	61.0	69.8	70.2
HEAVY TRUCKS	63.3	61.6	55.1	55.1	63.0	63.2
VEHICULAR NOISE	74.5	72.9	69.1	64.1	73.1	**73.5**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	112	355	1121	3545
LDN	101	320	1011	3197

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Manhattan Beach Blvd.
SEGMENT Prairie Ave. to Crenshaw Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	23,600
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	55
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,360

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.818	0.115	0.067	0.883
MEDIUM TRUCKS	0.846	0.066	0.088	0.111
HEAVY TRUCKS	0.815	0.046	0.138	0.006

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	41.9	- -
MEDIUM TRUCKS=	4.00	41.8	- -
HEAVY TRUCKS =	8.01	41.9	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	68.3	66.6	64.1	57.0	66.5	67.1
MEDIUM TRUCKS	69.0	67.5	62.4	58.9	67.7	68.1
HEAVY TRUCKS	61.5	59.9	53.4	53.4	61.2	61.4
VEHICULAR NOISE	72.0	70.5	66.6	61.7	70.7	**71.1**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	65	205	647	2046
LDN	59	185	586	1852

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Crenshaw Blvd.
SEGMENT Marine Ave. to Manhattan Beach Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	32,900
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	60
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,290

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.818	0.115	0.067	0.883
MEDIUM TRUCKS	0.846	0.066	0.088	0.111
HEAVY TRUCKS	0.815	0.046	0.138	0.006

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	40.1	- -
MEDIUM TRUCKS=	4.00	40.0	- -
HEAVY TRUCKS =	8.01	40.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	69.9	68.2	65.7	58.6	68.1	68.8
MEDIUM TRUCKS	70.6	69.1	64.1	60.5	69.3	69.7
HEAVY TRUCKS	63.2	61.5	55.0	55.0	62.9	63.1
VEHICULAR NOISE	73.7	72.1	68.2	63.4	72.3	**72.7**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	94	298	941	2977
LDN	85	269	852	2694

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY San Diego Freeway
SEGMENT West of Hawthorne Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Existing

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	253,000
SPEED =	65
PK HR % =	10
NEAR LANE/FAR LANE DIST =	110
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	25,300

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.761	0.127	0.112	0.869
MEDIUM TRUCKS	0.806	0.075	0.119	0.117
HEAVY TRUCKS	0.712	0.084	0.204	0.013

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	83.6	- -
MEDIUM TRUCKS=	4.00	83.5	- -
HEAVY TRUCKS =	8.01	83.6	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	83.2	81.3	79.5	74.2	82.5	83.0
MEDIUM TRUCKS	80.7	79.0	74.7	71.9	80.1	80.4
HEAVY TRUCKS	74.6	72.4	69.1	68.2	75.4	75.6
VEHICULAR NOISE	85.5	83.6	81.0	76.9	84.9	**85.4**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	3466	10960	34658	109600
LDN	3123	9876	31232	98764

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Inglewood Ave.
SEGMENT Marine Ave. to 153rd Pl.
LOCATION: City of Lawndale, CA SCENARIO: Future Plus Project

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	30,400
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	60
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,040

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.778	0.128	0.094	0.875
MEDIUM TRUCKS	0.805	0.087	0.108	0.115
HEAVY TRUCKS	0.758	0.089	0.153	0.011

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	40.1	- -
MEDIUM TRUCKS=	4.00	40.0	- -
HEAVY TRUCKS =	8.01	40.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	69.5	67.6	65.8	59.7	68.4	69.0
MEDIUM TRUCKS	70.4	68.7	65.0	61.2	69.5	69.9
HEAVY TRUCKS	65.3	63.3	60.0	57.6	65.3	65.6
VEHICULAR NOISE	73.7	71.8	69.0	64.5	72.8	**73.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	107	338	1069	3380
LDN	96	304	961	3038

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Manhattan Beach Blvd.
SEGMENT Inglewood Ave to Hawthorne Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Future Plus Project

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	27,500
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	70
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,750

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.818	0.115	0.067	0.883
MEDIUM TRUCKS	0.846	0.066	0.088	0.111
HEAVY TRUCKS	0.815	0.046	0.138	0.006

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	35.8	- -
MEDIUM TRUCKS=	4.00	35.7	- -
HEAVY TRUCKS =	8.01	35.8	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	71.3	69.6	67.1	60.0	69.5	70.1
MEDIUM TRUCKS	71.2	69.7	64.7	61.1	70.0	70.3
HEAVY TRUCKS	63.4	61.7	55.3	55.3	63.1	63.3
VEHICULAR NOISE	74.6	73.0	69.3	64.2	73.2	**73.7**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	116	366	1159	3665
LDN	105	331	1045	3305

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Inglewood Ave.
SEGMENT I-405 S Entrance to Manhattan Beach Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Future Plus Project

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	47,200
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	4,720

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.761	0.127	0.112	0.869
MEDIUM TRUCKS	0.806	0.075	0.119	0.117
HEAVY TRUCKS	0.712	0.084	0.204	0.013

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	43.4	- -
MEDIUM TRUCKS=	4.00	43.3	- -
HEAVY TRUCKS =	8.01	43.4	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	71.0	69.1	67.3	62.0	70.3	70.8
MEDIUM TRUCKS	72.1	70.3	66.1	63.3	71.4	71.8
HEAVY TRUCKS	67.7	65.5	62.2	61.3	68.5	68.7
VEHICULAR NOISE	75.4	73.5	70.4	67.0	75.0	**75.4**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	173	546	1728	5465
LDN	158	499	1578	4991

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Hawthorne Blvd.
SEGMENT 162nd St. to 166th St.
LOCATION: City of Lawndale, CA SCENARIO: Future Plus Project

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	44,900
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	130
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	4,490

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.761	0.127	0.112	0.869
MEDIUM TRUCKS	0.806	0.075	0.119	0.117
HEAVY TRUCKS	0.712	0.084	0.204	0.013

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	76.1	- -
MEDIUM TRUCKS=	4.00	76.0	- -
HEAVY TRUCKS =	8.01	76.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	68.4	66.4	64.7	59.3	67.6	68.2
MEDIUM TRUCKS	69.4	67.7	63.4	60.6	68.8	69.1
HEAVY TRUCKS	65.1	62.8	59.5	58.6	65.8	66.1
VEHICULAR NOISE	72.8	70.8	67.8	64.4	72.3	**72.7**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	188	593	1875	5930
LDN	171	542	1713	5416

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Hawthorne Blvd.
SEGMENT Marine Ave. to Manhattan Beach Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Future Plus Project

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	35,900
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	130
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,590

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.778	0.128	0.094	0.875
MEDIUM TRUCKS	0.805	0.087	0.108	0.115
HEAVY TRUCKS	0.758	0.089	0.153	0.011

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	76.1	- -
MEDIUM TRUCKS=	4.00	76.0	- -
HEAVY TRUCKS =	8.01	76.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	67.4	65.6	63.7	57.6	66.3	66.9
MEDIUM TRUCKS	68.3	66.6	63.0	59.1	67.5	67.9
HEAVY TRUCKS	63.2	61.2	58.0	55.6	63.2	63.5
VEHICULAR NOISE	71.6	69.8	67.0	62.4	70.8	**71.2**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	133	421	1330	4207
LDN	120	378	1196	3781

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Artesia Blvd.
SEGMENT Inglewood Ave. to Grevillea Ave.
LOCATION: City of Lawndale, CA SCENARIO: Future Plus Project

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	33,500
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,350

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.778	0.128	0.094	0.875
MEDIUM TRUCKS	0.805	0.087	0.108	0.115
HEAVY TRUCKS	0.758	0.089	0.153	0.011

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	38.1	- -
MEDIUM TRUCKS=	4.00	38.0	- -
HEAVY TRUCKS =	8.01	38.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	70.1	68.3	66.4	60.3	69.0	69.6
MEDIUM TRUCKS	71.1	69.3	65.7	61.8	70.2	70.6
HEAVY TRUCKS	65.9	63.9	60.7	58.3	65.9	66.2
VEHICULAR NOISE	74.3	72.5	69.7	65.1	73.5	**73.9**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	124	392	1240	3921
LDN	111	352	1114	3524

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Hawthorne Blvd.
SEGMENT Manhattan Beach Blvd. to 160th St.
LOCATION: City of Lawndale, CA SCENARIO: Future Plus Project

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	40,300
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	130
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	4,030

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.778	0.128	0.094	0.875
MEDIUM TRUCKS	0.805	0.087	0.108	0.115
HEAVY TRUCKS	0.758	0.089	0.153	0.011

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	76.1	- -
MEDIUM TRUCKS=	4.00	76.0	- -
HEAVY TRUCKS =	8.01	76.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	67.9	66.1	64.2	58.1	66.8	67.4
MEDIUM TRUCKS	68.8	67.1	63.5	59.6	68.0	68.4
HEAVY TRUCKS	63.7	61.8	58.5	56.1	63.7	64.0
VEHICULAR NOISE	72.1	70.3	67.5	62.9	71.3	**71.7**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	149	472	1494	4723
LDN	134	424	1342	4245

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Hawthorne Blvd.
SEGMENT 169th St. to Redondo Beach Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Future Plus Project

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	40,300
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	130
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	4,030

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.761	0.127	0.112	0.869
MEDIUM TRUCKS	0.806	0.075	0.119	0.117
HEAVY TRUCKS	0.712	0.084	0.204	0.013

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	76.1	- -
MEDIUM TRUCKS=	4.00	76.0	- -
HEAVY TRUCKS =	8.01	76.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	67.9	65.9	64.2	58.9	67.2	67.7
MEDIUM TRUCKS	68.9	67.2	62.9	60.2	68.3	68.6
HEAVY TRUCKS	64.6	62.3	59.1	58.2	65.3	65.6
VEHICULAR NOISE	72.3	70.4	67.3	63.9	71.9	**72.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	168	532	1683	5323
LDN	154	486	1537	4861

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Inglewood Ave.
SEGMENT Manhattan Beach Blvd. to Artesia Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Future Plus Project

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	33,800
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	70
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,380

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.778	0.128	0.094	0.875
MEDIUM TRUCKS	0.805	0.087	0.108	0.115
HEAVY TRUCKS	0.758	0.089	0.153	0.011

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	35.8	- -
MEDIUM TRUCKS=	4.00	35.7	- -
HEAVY TRUCKS =	8.01	35.8	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	72.1	70.2	68.4	62.3	71.0	71.6
MEDIUM TRUCKS	72.3	70.5	66.9	63.0	71.4	71.8
HEAVY TRUCKS	66.8	64.8	61.5	59.1	66.7	67.1
VEHICULAR NOISE	75.8	74.0	71.2	66.6	74.9	**75.4**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	173	548	1732	5479
LDN	155	491	1553	4911

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Redondo Beach Blvd.
SEGMENT Hawthorne Blvd. to Prairie Ave.
LOCATION: City of Lawndale, CA SCENARIO: Future Plus Project

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	22,300
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,230

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.818	0.115	0.067	0.883
MEDIUM TRUCKS	0.846	0.066	0.088	0.111
HEAVY TRUCKS	0.815	0.046	0.138	0.006

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	38.1	- -
MEDIUM TRUCKS=	4.00	38.0	- -
HEAVY TRUCKS =	8.01	38.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	70.1	68.4	65.9	58.8	68.3	69.0
MEDIUM TRUCKS	70.1	68.5	63.5	60.0	68.8	69.1
HEAVY TRUCKS	62.2	60.6	54.1	54.1	61.9	62.1
VEHICULAR NOISE	73.4	71.8	68.1	63.0	72.0	**72.5**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	88	279	883	2794
LDN	80	252	797	2519

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Rosecrans Ave.
SEGMENT Hawthorne Blvd. to Prairie Ave.
LOCATION: City of Lawndale, CA SCENARIO: Future Plus Project

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	36,300
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	70
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,630

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.778	0.128	0.094	0.875
MEDIUM TRUCKS	0.805	0.087	0.108	0.115
HEAVY TRUCKS	0.758	0.089	0.153	0.011

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	35.8	- -
MEDIUM TRUCKS=	4.00	35.7	- -
HEAVY TRUCKS =	8.01	35.8	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	72.4	70.5	68.7	62.6	71.3	71.9
MEDIUM TRUCKS	72.6	70.8	67.2	63.4	71.7	72.1
HEAVY TRUCKS	67.1	65.1	61.8	59.4	67.1	67.4
VEHICULAR NOISE	76.1	74.3	71.5	66.9	75.2	**75.7**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	186	588	1861	5884
LDN	167	527	1668	5274

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Manhattan Beach Blvd.
SEGMENT Freeman Ave. to Prairie Ave.
LOCATION: City of Lawndale, CA SCENARIO: Future Plus Project

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	24,100
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,410

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.818	0.115	0.067	0.883
MEDIUM TRUCKS	0.846	0.066	0.088	0.111
HEAVY TRUCKS	0.815	0.046	0.138	0.006

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	38.1	- -
MEDIUM TRUCKS=	4.00	38.0	- -
HEAVY TRUCKS =	8.01	38.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	70.4	68.8	66.3	59.1	68.7	69.3
MEDIUM TRUCKS	70.4	68.9	63.8	60.3	69.1	69.5
HEAVY TRUCKS	62.6	60.9	54.4	54.4	62.3	62.5
VEHICULAR NOISE	73.8	72.2	68.4	63.4	72.4	**72.8**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	95	302	955	3019
LDN	86	272	861	2723

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Prairie Ave.
SEGMENT Marine Ave. to Manhattan Beach Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Future Plus Project

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	28,900
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,890

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.818	0.115	0.067	0.883
MEDIUM TRUCKS	0.846	0.066	0.088	0.111
HEAVY TRUCKS	0.815	0.046	0.138	0.006

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	38.1	- -
MEDIUM TRUCKS=	4.00	38.0	- -
HEAVY TRUCKS =	8.01	38.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	71.2	69.5	67.1	59.9	69.5	70.1
MEDIUM TRUCKS	71.2	69.7	64.6	61.1	69.9	70.2
HEAVY TRUCKS	63.4	61.7	55.2	55.2	63.1	63.3
VEHICULAR NOISE	74.5	73.0	69.2	64.1	73.1	**73.6**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	114	362	1145	3620
LDN	103	326	1032	3265

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Manhattan Beach Blvd.
SEGMENT Prairie Ave. to Crenshaw Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Future Plus Project

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	24,000
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	55
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,400

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.818	0.115	0.067	0.883
MEDIUM TRUCKS	0.846	0.066	0.088	0.111
HEAVY TRUCKS	0.815	0.046	0.138	0.006

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	41.9	- -
MEDIUM TRUCKS=	4.00	41.8	- -
HEAVY TRUCKS =	8.01	41.9	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	68.3	66.7	64.2	57.0	66.6	67.2
MEDIUM TRUCKS	69.1	67.5	62.5	59.0	67.8	68.1
HEAVY TRUCKS	61.6	59.9	53.5	53.5	61.3	61.5
VEHICULAR NOISE	72.1	70.5	66.6	61.8	70.8	**71.2**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	66	208	658	2080
LDN	60	188	595	1883

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY Crenshaw Blvd.
SEGMENT Marine Ave. to Manhattan Beach Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Future Plus Project

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	33,200
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	60
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,320

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		50
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.818	0.115	0.067	0.883
MEDIUM TRUCKS	0.846	0.066	0.088	0.111
HEAVY TRUCKS	0.815	0.046	0.138	0.006

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	40.1	- -
MEDIUM TRUCKS=	4.00	40.0	- -
HEAVY TRUCKS =	8.01	40.1	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	69.9	68.3	65.8	58.6	68.2	68.8
MEDIUM TRUCKS	70.7	69.1	64.1	60.6	69.4	69.7
HEAVY TRUCKS	63.2	61.5	55.1	55.1	62.9	63.1
VEHICULAR NOISE	73.7	72.1	68.2	63.4	72.4	**72.8**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	95	300	950	3004
LDN	86	272	860	2719

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY San Diego Freeway
SEGMENT West of Hawthorne Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Future Plus Project

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	271,000
SPEED =	65
PK HR % =	10
NEAR LANE/FAR LANE DIST =	110
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	27,100

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.761	0.127	0.112	0.869
MEDIUM TRUCKS	0.806	0.075	0.119	0.117
HEAVY TRUCKS	0.712	0.084	0.204	0.013

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	83.6	- -
MEDIUM TRUCKS=	4.00	83.5	- -
HEAVY TRUCKS =	8.01	83.6	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	83.5	81.5	79.8	74.5	82.8	83.3
MEDIUM TRUCKS	81.0	79.3	75.0	72.2	80.4	80.7
HEAVY TRUCKS	74.9	72.7	69.4	68.5	75.7	75.9
VEHICULAR NOISE	85.8	83.9	81.3	77.1	85.2	**85.7**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	3712	11740	37124	117397
LDN	3345	10579	33454	105791

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Lawndale General Plan Update
ROADWAY San Diego Freeway
SEGMENT East of Hawthorne Blvd.
LOCATION: City of Lawndale, CA SCENARIO: Future Plus Project

JOB #: 0462-19-10
DATE: 27-Jun-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	259,000
SPEED =	65
PK HR % =	10
NEAR LANE/FAR LANE DIST =	110
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	25,900

RECEIVER INPUT DATA

RECEIVER DISTANCE =		100
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		100
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	10	
MED TRUCKS	10	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	10	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.761	0.127	0.112	0.869
MEDIUM TRUCKS	0.806	0.075	0.119	0.117
HEAVY TRUCKS	0.712	0.084	0.204	0.013

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	83.6	- -
MEDIUM TRUCKS=	4.00	83.5	- -
HEAVY TRUCKS =	8.01	83.6	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	83.3	81.4	79.6	74.3	82.6	83.1
MEDIUM TRUCKS	80.8	79.1	74.8	72.0	80.2	80.5
HEAVY TRUCKS	74.8	72.5	69.2	68.3	75.5	75.7
VEHICULAR NOISE	85.6	83.7	81.1	77.0	85.0	**85.5**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	3548	11220	35480	112199
LDN	3197	10111	31973	101107