Appendix G
Noise Study

Land Use Plan and Zoning Amendments Project

Noise Impact Study

City of Gardena, CA

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Sound Solutions for Planning and Design

TABLE OF CONTENTS

1.0 Introduction 1
1.1 Purpose of Analysis and Study Objectives 1
1.2 Site Location and Project Area 1
1.3 Proposed Project Description 1
1.4 Existing Land Uses 2

2.0 Fundamentals of Noise 8
2.1 Sound, Noise, and Acoustics 8
2.2 Frequency and Hertz 8
2.3 Sound Pressure Levels and Decibels 8
2.4 Addition of Decibels 8
2.5 Human Response to Changes in Noise Levels 9
2.6 Noise Descriptors 10
2.7 Tonal Sounds 11
2.8 Sound Propagation 11
2.9 Ground Absorption 12
2.10 Sound Attenuation 12

3.0 Ground-Borne Vibration Fundamentals 15
3.1 Vibration Descriptors 15
3.2 Vibration Perception 17
3.3 Vibration Propagation 17

4.0 Regulatory Setting..... 18
4.1 Federal Regulations 18
4.2 State Regulations 20
4.3 City of Gardena 21

5.0 Study Method and Procedure..... 27
5.1 Noise Measurement Procedure and Criteria 27
5.2 SoundPLAN Noise Modeling 27
5.3 FHWA Traffic Noise Prediction Model 28

6.0 Existing Noise Environment 30
6.1 General Land Use Noise 30
6.2 Noise Measurements 30
6.3 Existing Noise Modeling 33
6.4 Existing Vibration Sources in the Project Area 36

7.0 Future Noise Environment, Impacts, and Mitigation 37
7.1 Transportation Noise 37
7.2 Stationary Noise 42
7.3 Construction Noise 42
7.4 Groundborne Vibration 44

8.0 CEQA Analysis 47
9.0 References 49

LIST OF APPENDICES

Appendix A: SoundPLAN Data
Appendix B: Noise Measurement Data and Field Sheets
Appendix C: FHWA Roadway Noise Worksheets

LIST OF EXHIBITS

Exhibit A: Plan Area 3
Exhibit B: Existing General Plan Land Use Map 4
Exhibit C: Proposed General Plan Land Use Map 5
Exhibit D: Existing Zoning Districts 6
Exhibit E: Proposed Zoning Districts 7
Exhibit F: Typical Ground-borne Vibration Levels 16
Exhibit G: Noise and Land Use Compatibility 23
Exhibit H: Noise Measurement Location Map 32
Exhibit I: Existing Roadway Noise Level Contours (CNEL) 35
Exhibit J: 2040 No Project Noise Contours (CNEL) 40
Exhibit K: 2040 With Project Noise Contours (CNEL) 41

LIST OF TABLES

Table 1: Summary of Existing On-Site Development 2
Table 2: Decibel Addition 8
Table 3: Typical Noise Levels 9
Table 4: Perceived Changes in Noise Levels 10
Table 5: Noise Reduction Afforded by Common Building Construction 13
Table 6: Typical Human Reaction and Effect on Buildings Due to Ground-Borne Vibration 15
Table 7: FHWA Design Noise Levels 19
Table 8: Gardena Exterior Noise Standards 24

Table 9: Gardena Interior Noise Standards 24
Table 10: Roadway Noise Modeling Parameters 28
Table 11: Vehicle Mix Data 29
Table 12: Short-Term Noise Measurement Summary 30
Table 13: Long-Term Noise Measurement Summary 31
Table 14: Existing Exterior Noise Levels Along Roadways 33
Table 15: 2040 No Project Traffic Noise Levels (dBA, CNEL) 37
Table 16: 2040 Plus Project Traffic Noise Levels (dBA, CNEL) 38
Table 17: Change in Noise Along Roadways (dBA, CNEL @ 50') 39
Table 18: Typical Construction Noise Levels 43
Table 19: Vibration Source Levels for Construction Equipment 45
Table 20: Guideline Vibration Damage Potential Threshold Criteria 46

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 Noise 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

Located in the South Bay region of Los Angeles County, 13 miles south of downtown Los Angeles, Gardena is an urban community encompassing 5.7 square miles. Gardena is situated near four major freeways: Harbor (I-110), San Diego (I-405), Century (I-105), and Artesia (SR-91). Surrounding communities are Hawthorne and Los Angeles County to the north and west, Torrance to the south and west, and Los Angeles to the south and east.

1.3 Proposed Project Description

The Project proposes to amend the Land Use Plan of the Community Development Element of the General Plan with the addition of new land use designations. Other technical updates will be added to reflect changes that have occurred since 2006. Additionally, new zones will be created to provide consistency with the Land Use Plan update. The Project proposes to rescind the Artesia Corridor Specific Plan (ACSP). If approved, development of the parcels would no longer be governed by the ACSP and the parcels would be re-designated and re-zoned.

The Gardena Land Use Policy Map and Zoning Map will be amended to apply the new land use designations and zones to specific parcels, resolve split-zoned parcels, and resolve inconsistencies between the zones and existing on-site conditions. For a majority of the parcels the proposed amendments allow for new residential development or increased residential development when compared to existing conditions. There is no increased development capacity for those parcels to be redesignated or rezoned only to resolve inconsistencies with existing on-site conditions. Some of the site-specific redesignations and modifications proposed to the land use categories and corresponding

zones would result in reductions in allowed residential densities and residential development potential when compared to the existing General Plan land use and land use categories; however, overall the proposed Project would provide for increased residential densities and increased residential development potential and would be in compliance with the Housing Crisis Act.

1.4 Existing Land Uses

The Project Area contains a mix of existing on-site development, as shown in Table 1, *Summary of Existing On-Site Development*. As indicated in Table 1, the Project Area is currently developed with approximately 7.5 million square feet of non-resdential building and 1,115 dwelling units.

Table 1: Summary of Existing On-Site Development

Land Use	Development	
	Dwelling Units	Building Square Feet
Single-Family Residential	154	
Multiple-Family Residential[1]	961	
Commercial[2]		2,048,845
Education		45,161
Government and Utilities Facilities		1,300
Office		224,225
Office/Industrial		38,770
Hospital		214,782
Industrial[3]		4,914,486
Religious		55,758
Transportation, Communication, Utilities		1,054
Total	**1,115**	**7,544,381**

Source: City of Gardena, November 22, 2022.
Notes:
1. Includes residential units associated with Mixed Residential and Commercial
2. Includes currently vacant commercial buildings
3. Includes currently vacant industrial buildings

Exhibit A
Regional Location

Exhibit B

Existing General Plan Land Use Map

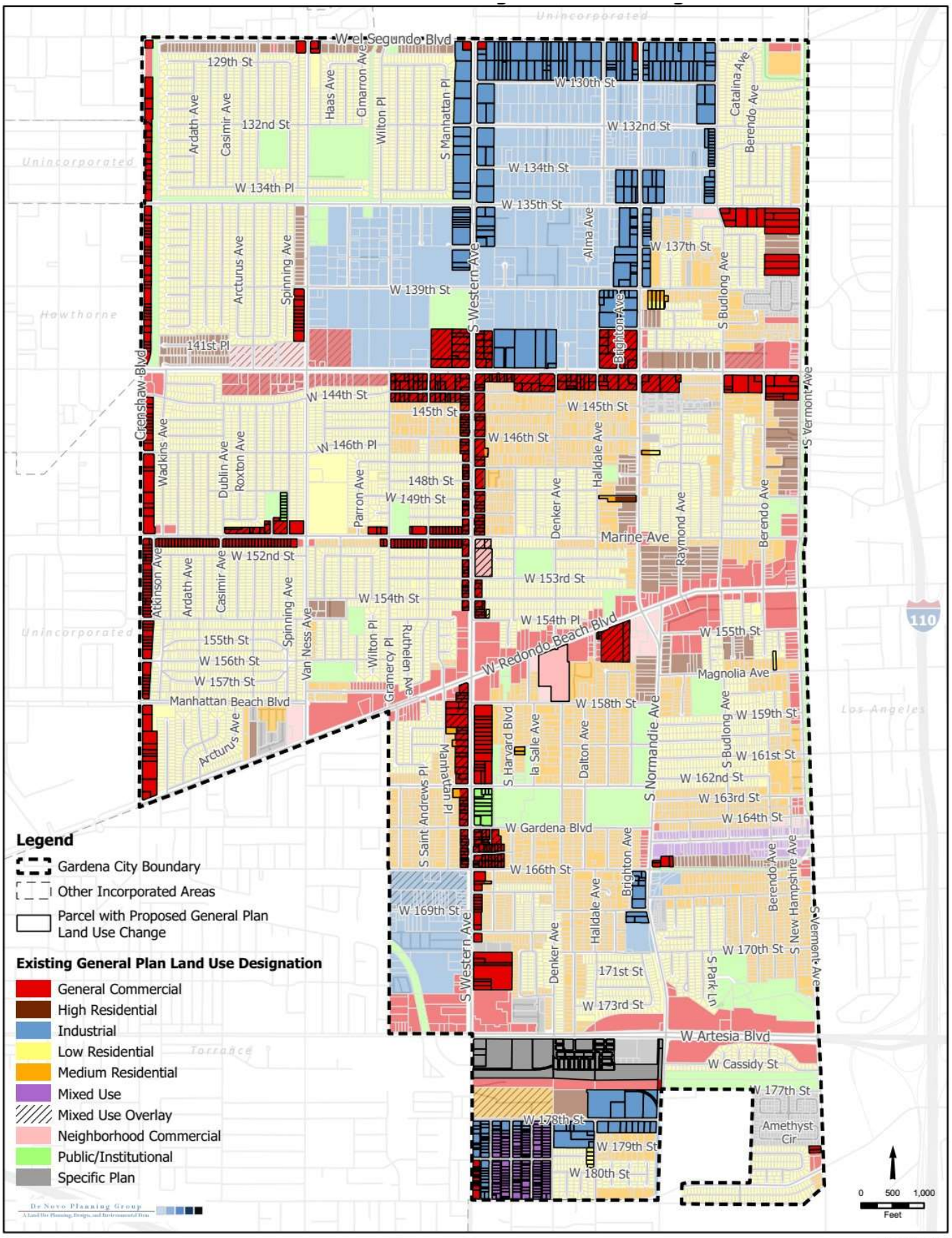


Exhibit C
Proposed General Plan Land Use Map

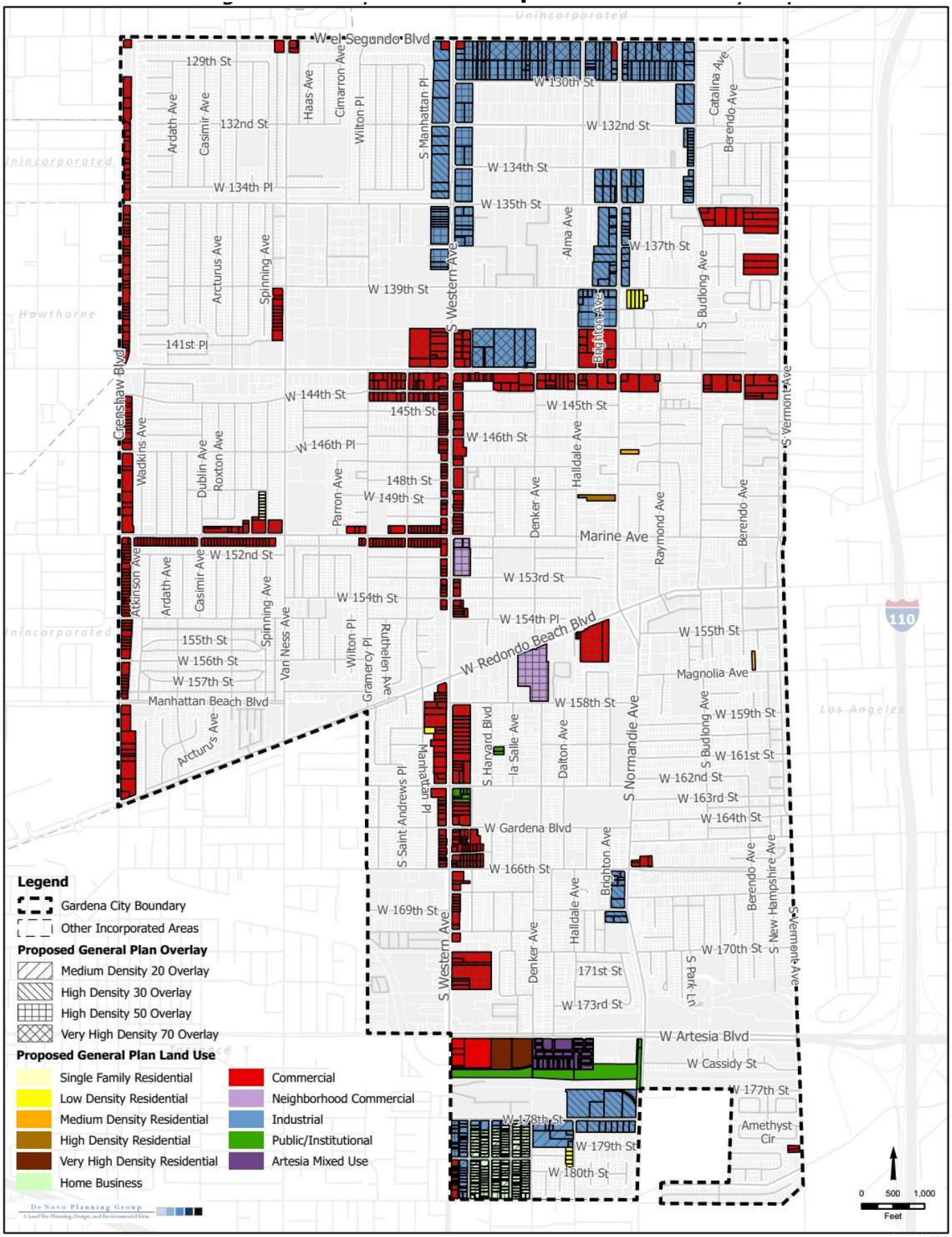


Exhibit D
Existing Zoning Districts

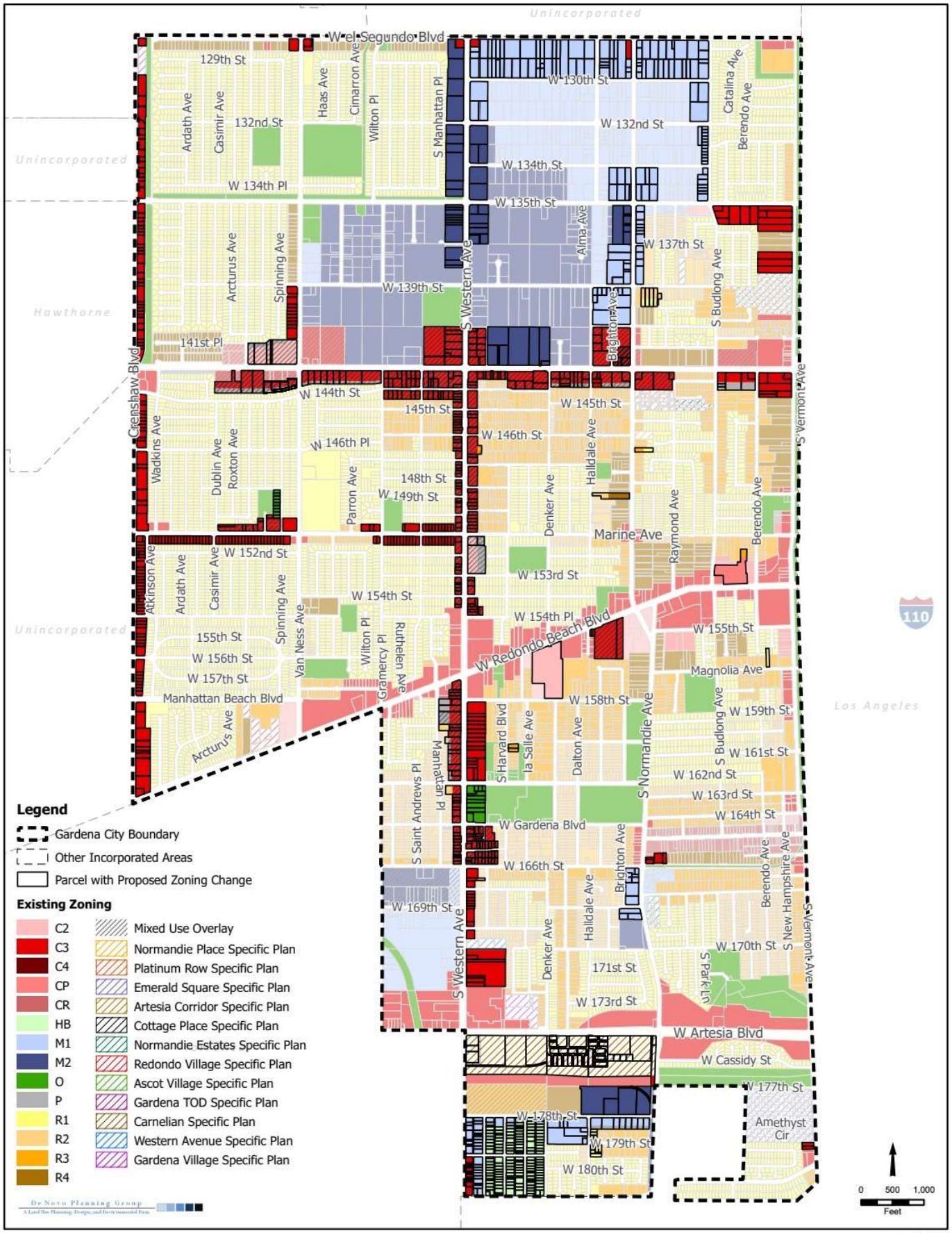
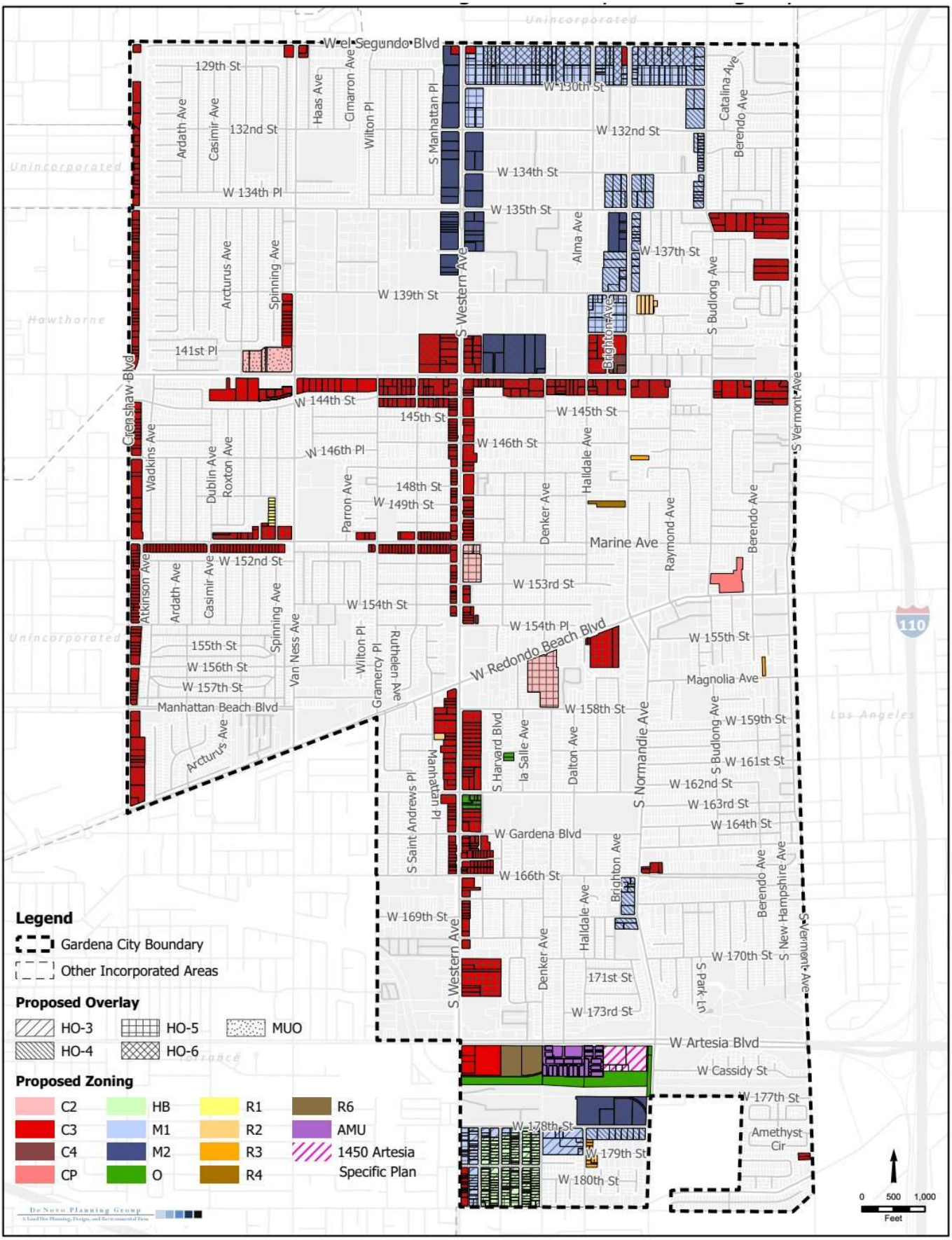


Exhibit E
Proposed Zoning Districts



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 F 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

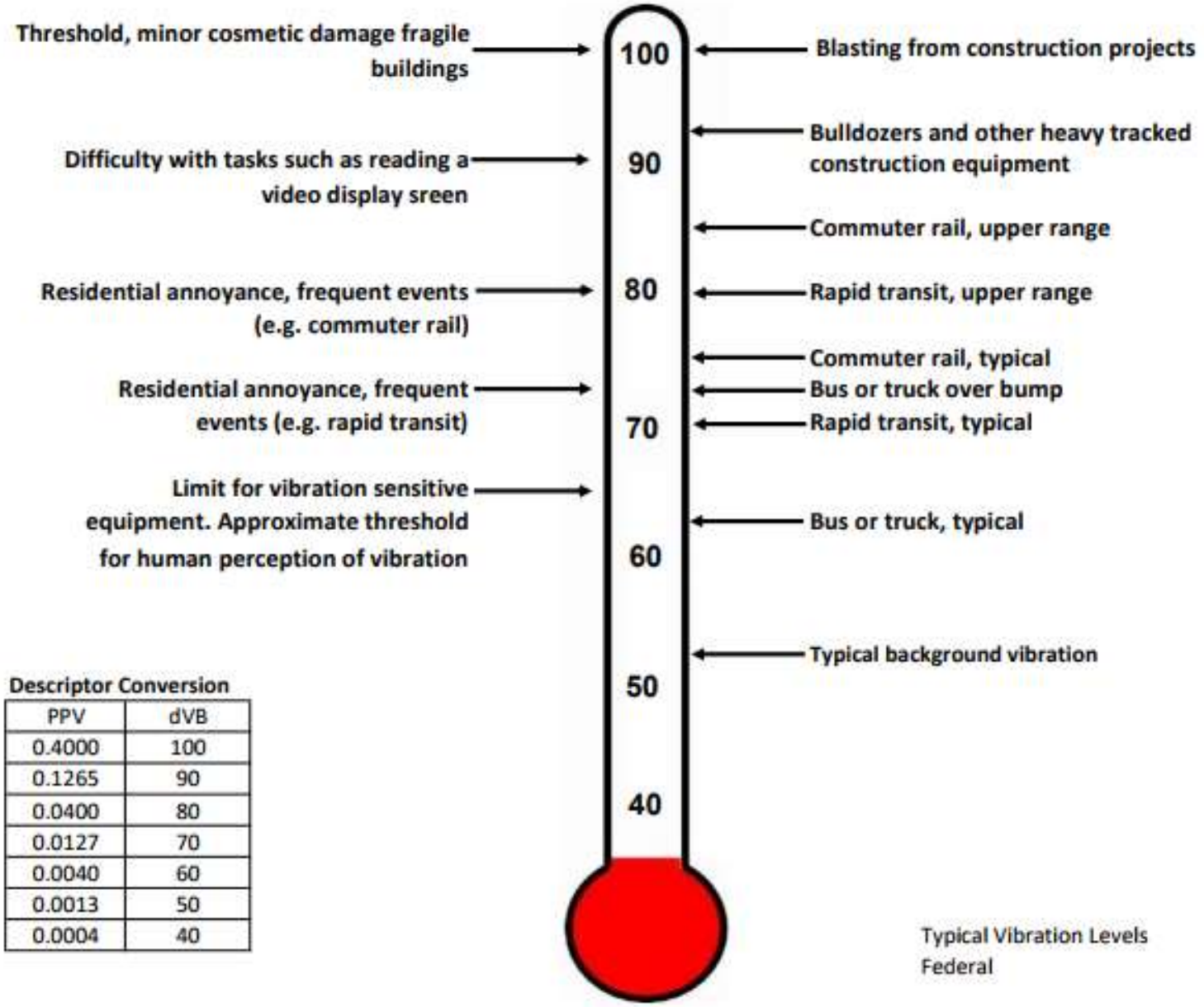
VdB – A commonly used abbreviation to describe the vibration level (VdB) for a vibration source.

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 F

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

- The Department of Transportation (DOT) assumed a significant role in noise control through its various agencies.
- The Federal Aviation Agency (FAA) 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 jurisdiction use their land use regulatory authority to arrange new development in such a way that "noise sensitive" uses are either prohibited from being constructed adjacent to a highway or 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 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 (Nonresidential 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 Gardena

Existing planning policies and noise regulations applicable to noise within the City of Gardena are presented in the Noise Plan of the City of Gardena General Plan 2006 and within the City of Gardena Municipal Code. Applicable goals, policies, and regulations are presented below.

4.3.1 City of Gardena General Plan 2006

General Plan Goals, Policies and Actions
The 2006 General Plan Noise Plan includes the following goals, policies and actions that are intended to avoid or reduce noise impacts related to transportation, stationary, and construction related noise sources.

N Goal 1: Use noise control measures to reduce the impact from transportation noise sources.

Policies

N 1.1: Minimize noise conflicts between land uses and the circulation network, and mitigate sound levels where necessary or feasible to ensure the peace and quiet of the community.

N 1.2: Reduce unnecessary traffic volumes in residential neighborhoods by limiting throughways and by facilitating the use of alternative routes around, rather than through, neighborhoods.

N 1.3: Promote the use of new technologies to minimize traffic noise, such as use of rubberized asphalt in road surface materials.

N 1.4: Promote the use of traffic calming measures where appropriate, such as narrow roadways and on street parking, in commercial and mixed-use districts.

N 1.5: Reduce noise impacts from vehicles, particularly in residential area through enforcement of speed limits on arterials and local roads.

N 1.6: Require compliance with State's Vehicle Code noise standards within the City.

N 1.7: Ensure the effective enforcement of City, State and Federal noise standards by all City Divisions.

N 1.8: Encourage walking, biking, carpooling, use of public transit and other alternative modes of transportation to minimize vehicular use and associated traffic noise.

N 1.9: Encourage, where feasible and reasonable, noise mitigation measures, such as noise barriers and realignments, in the design and construction of new roadway projects in Gardena.

N 1.10: Consider noise impacts to residential neighborhoods when designating truck routes and major circulation corridors.

N 1.11: Maintain bus routes that meet public transportation needs and minimize noise impacts in residential areas.

N 1.12: Encourage the Public Utilities Commission and Union Pacific to minimize the level of noise produced by train movements and horns within Gardena by reducing speeds, improving vehicle system technology and developing improved procedures for train engineer horn sounding.

N 1.13: Encourage Gardena citizen participation and City involvement on committees that would influence future aircraft and railroad operations in Los Angeles County.

N 1.14: Participate in the planning and impact assessment activities of the County Airport Land Use Commission and other regional or State agencies relative to any proposed expansion or change in flight patterns at the Hawthorne Municipal Airport or the Compton Airport.

N Goal 2: Incorporate noise considerations into land use planning decisions.

N 2.1: Promote noise regulations that establish acceptable noise standards for various land uses throughout Gardena.
N 2.2: Require noise/land use compatibility standards to guide future planning and development.
N 2.3: Promote compliance with the State's noise insulation standards in the conversion of existing apartments into condominiums wherever feasible.
N 2.4: Require mitigation of all significant noise impacts as a condition of project approval.
N 2.5: Require proposed projects to be reviewed for compatibility with nearby noisesensitive land uses with the intent of reducing noise impacts.
N 2.6: Require new residential developments located in proximity to existing commercial/ industrial operations to control residential interior noise levels as a condition of approval and minimize exposure of residents in the site design.
N 2.7: Require new commercial/industrial operations located in proximity to existing or proposed residential areas to incorporate noise mitigation into the project design.
N 2.8: Require that mixed-use structures and areas be designed to prevent transfer of noise and vibration from commercial areas to residential areas.
N 2.9: Encourage the creative use of site and building design techniques as a means to minimize noise impacts.
N 2.10: Promote replacement of significant noise sources with non-noise-generating land uses when plans for future use of areas are developed
N 2.11: Require the County of Los Angeles, the City of Hawthorne, the City of Los Angeles, and the City of Torrance to minimize or avoid land use/noise conflicts prior to project approvals.

N Goal 3: Develop measures to control non-transportation noise impacts.

N 3.1: Require compliance with a quantitative noise ordinance based on the Model Noise Ordinance developed by the (now-defunct) State of California Office of Noise Control.
N 3.2: Require compliance with noise regulations. Review and update Gardena's policies and regulations affecting noise.
N 3.3: Require compliance with construction hours to minimize the impacts of construction noise on adjacent land.
N 3.4: Require new equipment and vehicles purchased by the City to comply with noise performance standards consistent with available noise reduction technology. N 3.5: Require City departments to observe State and Federal occupational safety and health noise standards.

Noise/Land Use Compatibility

Exhibit G, Noise and Land Use Compatibility (Figure N-1 of the General Plan) presents a land use compatibility chart for community noise derived from a similar table originally prepared by the California Office of Noise Control (2017). 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 G: Noise and Land Use Compatibility

Land Use Category	CNEL, dB 55	60	65	70	75	80
Residential - Single family, multifamily, duplex	A	A	B	C	C		
Residential - Mobile homes	A	A	B	C	C		
Transient Lodging - Motels, hotels	A	A	B	B	C	C	
Schools, Libraries, Churches, Hospitals, Nursing Homes	A	A	B	C	C		
Auditoriums, Concert Halls, Amphitheaters, Meeting Halls	B	B	C	C			
Sports Arenas, Outdoor Spectator Sports, Amusement Parks	A	A	A	B	B		
Playgrounds, Neighborhood Parks	A	A	A	B	C		
Golf Courses, Riding Stables, Cemeteries	A	A	A	A	B	C	C
Office and Professional Buildings	A	A	A	B	B	C	
Commercial Retail, Banks, Restaurants, Theaters	A	A	A	A	B	B	C
Industrial, Manufacturing, Utilities, Wholesale, Service Stations	A	A	A	A	B	B	B
Agriculture	A	A	A	A	A	A	A

Legend

A — NORMALLY ACCEPTABLE
Specified land use is satisfactory based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

B — CONDITIONALLY ACCEPTABLE
New construction or development should be undertaken only after a detailed analysis of the noise 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.

C — NORMALLY UNACCEPTABLE
New construction or development should generally be discouraged. If it does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

CLEARLY UNACCEPTABLE
New construction or development should generally not be undertaken.

Source: Taken in part from "Aircraft Noise Impact Planning Guidelines for Local Agencies," U.S. Dept. of Housing and Urban Development, TE/NA-472, November 1972.

4.3.2 City of Gardena 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 Gardena's Noise Ordinance consists of Chapter 8.36 of the Gardena Municipal Code. These sections include noise-related definitions, presents exterior and interior noise standards, outlines the City's noise measurement procedure, lists specifically prohibited noises and exemptions, and discusses consequences for violation of the code.

Section 8.36.030 states that it is unlawful to make noise which disturbs the peace and quiet of any neighborhood or person of normal sensitivity.

Section 8.36.040 outlines the exterior noise standards as presented in Table 8 below.

Table 8: Gardena Exterior Noise Standards

Type of Land Use	Allowable Exterior Noise Level			
	15-Minute Average Noise Level (Leq)		Maximum Noise Level (Lmax)	
	7 a.m. to 10 p.m.	10 p.m. to 7 am	7 a.m. to 10 p.m.	10 p.m. to 7 am
Residential	55 dB(A)	50 dB(A)	75 dB(A)	70 dB(A)
Residential portions of mixed-use	60 dB(A)	50 dB(A)	80 dB(A)	70 dB(A)
Commercial	65 dB(A)	60 dB(A)	85 dB(A)	80 dB(A)
Industrial or manufacturing	70 dB(A)	70 dB(A)	90 dB(A)	90 dB(A)

This section clarifies that if the noise contains a pure tone such as a whine, screech, or hum, or contains repetitive, impulsive or impact noise such as hammering or riveting, or contains music or speech conveying informational content, each of the above noise standards shall be reduced by 5 dB. If the ambient exceeds these standards, the ambient noise level becomes the standard.

Section 8.36.050 outlines the interior noise standards as presented in Table 9 below.

Table 9: Gardena Interior Noise Standards

Type of Land Use	Allowable Exterior Noise Level			
	15-Minute Average Noise Level (Leq)		Maximum Noise Level (Lmax)	
	7 a.m. to 10 p.m.	10 p.m. to 7 am	7 a.m. to 10 p.m.	10 p.m. to 7 am
Residential	45 dB(A)	40 dB(A)	65 dB(A)	60 dB(A)
Residential portions of mixed-use	45 dB(A)	40 dB(A)	70 dB(A)	60 dB(A)

This section also clarifies that if the noise contains a pure tone such as a whine, screech, or hum, or contains repetitive, impulsive or impact noise such as hammering or riveting, or contains music or speech conveying informational content, each of the above noise standards shall be reduced by 5 dB. If the ambient exceeds these standards, the ambient noise level becomes the standard.

Section 8.36.060 outlines the noise measurement procedure required by the City or its agent when a complaint is made.

Section 8.36.070 lists specific prohibited acts on specific devices and activities including:

1. Radios, Television Sets, Musical Instruments and Similar Devices.
2. Loudspeakers (Amplified Sound).
3. Street Sales.
4. Yelling, Shouting, Whistling and Singing.
5. Animals and Birds.
6. Loading and Unloading.
7. Perceptible Vibration (0.01 in/sec).
8. Powered Model Vehicles.
9. Stationary Non-Emergency Signaling Devices.
10. Emergency Signaling Devices.
11. Domestic Power Tools, Machinery.
12. Places of Public Entertainment.
13. Tampering.
14. Motor Vehicle Noise Limits.
15. Motor Vehicle Horns.
16. Motorized Recreational Vehicles Operating Off Public Right-of-Way.
17. Vehicle, Motorboat, or Aircraft Repair and Testing.
18. Standing Motor Vehicles.

Section 8.36.080 lists specific exemptions from this chapter which includes:

A. Emergency sound for the purpose of alerting persons to the existence of an emergency, or

B. Mechanical devices, apparatus or equipment used, related to or connected with emergency machinery, vehicle or work.

C. Warning Devices necessary for the protection of public safety, as for example police, fire, and ambulance sirens, and train horns shall be exempted from the provisions of this ordinance.

D. Noise from occasional outdoor events/activities, outdoor gatherings, public dances, shows, and sporting and entertainment events, provided said events are conducted pursuant to a permit or license issued by the City relative to the staging of said event.

E. School Activities, provided said activities are conducted on the grounds of a public or private nursery, elementary, intermediate or secondary school or college.

F. Gatherings or festival activities conducted on a publicly owned and operated park or playground, pursuant to a city permit.

G. Noise associated with construction, repair, remodeling, grading or demolition of any real property, provided said activities do not take place between the hours of 6:00 p.m. and 7:00 a.m. on weekdays between the hours of 6:00 p.m. and 9:00 a.m. on Saturday or any time on Sunday or a Federal holiday.

H. Operation of refuse and recyclable collection vehicles, provided:

1. Collection of residential refuse/recyclables does not occur between the hours of 6:00 p.m. and 7:00 a.m. on Weekdays, or at any time on a weekend or holiday, except as provided below.
2. Collection from commercial premises, audible in residential areas, and which does not occur between the hours of 6:00 p.m. and 7:00 a.m. on weekdays, or at any time on a weekend or holiday, except as provided below.
3. When a collection day occurs on a holiday, alternative collections may be made on the following Saturday, between the hours of 7 a.m. and 6 p.m.

I. Federal or State Preempted Activities to the extent regulation thereof has been preempted by State or Federal law.

J. Street cleaning, parking lot sweeping and sidewalk steam cleaning activities provided the activities do not occur between the hours of 10:00 p.m. and 7:00 a.m. on weekdays or at any time on a weekend or holiday.

1. When a cleaning/sweeping day occurs on a holiday, alternative scheduling may be made on the following Saturday, between the hours of 7 a.m. and 6 p.m.

K. Pre-existing Noise Sources. Commercial and/or industrial operations in existence prior to the date of adoption of this amendment, if in compliance with local zoning statues, shall be granted a six-month period from the effective date of this ordinance to comply with the provisions of this chapter. If prior to the end of the six-month period, it can be shown that compliance with the provisions herein constitutes a hardship in terms of technical and economic feasibility, an extension of time may be granted by the City Manager.

Section 8.36.090 outlines the enforcement of this chapter.

Chapter 18.46 contains the following noise restrictions for conditional use permits:

- Large collection facilities and processing facilities in the M-1 and M-2 zones cannot exceeds 55 dBA at a residential property line and 60 dBA at all other property lines.
- Motor vehicle dealerships, including accessory repair facilities, in C-3 and C-4 zones cannot have outdoor amplified sound or interior loudspeakers above 45 dBA at residential property lines. All noise generating equipment exposed to the exterior must be muffled and cannot operation between 6PM and 8AM if disturbing.

Section 18.42.200 outlines that projects must demonstrate that HVAC units comply to Chapter 8.36 prior to building permit issuance. It also outlines specific construction noise requirements.

Section 8.20.100(G) states that compaction vehicles shall not exceed 75 dBA at 25 feet from the vehicle.

Section 8.40.070(B) requires mufflers on all internal combustion engines during drilling operations.

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, 2040 without Project, and 2040 with Project traffic noise level contours for the 20 segments analyzed in the Project's traffic impact analysis provided by Kittelson & Associates, Inc. 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 10 and Table 11, and in Appendix C. A summary of the model parameters and REMEL adjustments are 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 to compare existing traffic noise levels to 2040 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 10 and Table 11.

Table 10: Roadway Noise Modeling Parameters

Roadway	Segment	Existing ADT[1]	2040 No Project ADT[1]	2040 With Project ADT[1]	Speed[2]	Vehicle Mix[3]
El Segundo Blvd.	Western Ave. to Normandie Ave.	30,777	30,800	30,800	40	Heavy Arterial
135th St.	Western Ave. to Normandie Ave.	16,858	19,900	21,800	40	Major Collector
Rosecrans Ave.	Van Ness Ave. to Western Ave.	31,758	31,800	33,200	40	Arterial
Rosecrans Ave.	Western Ave. to Normandie Ave.	41,590	41,600	41,700	40	Heavy Arterial
Marine Ave.	Crenshaw Blvd. to Van Ness Ave.	17,340	19,300	20,500	35	Major Collector
Marine Ave.	Western Ave. to Normandie Ave.	18,483	20,100	19,800	30	Major Collector
Redondo Beach Blvd.	Western Ave. to Normandie Ave.	30,337	30,300	30,500	35	Arterial
Crenshaw Blvd.	El Segundo Blvd. to 135th St.	32,198	32,400	33,000	35	Heavy Arterial
Crenshaw Blvd.	135th St. to Rosecrans Ave.	27,764	29,200	29,600	40	Heavy Arterial
Crenshaw Blvd.	Rosecrans Ave. to Marine Ave.	27,485	27,500	28,400	40	Arterial
Crenshaw Blvd.	Marine Ave. to Manhattan Beach Blvd.	24,671	24,700	25,100	40	Arterial
Western Ave.	El Segundo Blvd. to 135th St.	21,028	21,600	24,000	40	Arterial
Western Ave.	135th St. to Rosecrans Ave.	22,840	25,100	25,200	40	Arterial
Western Ave.	Rosecrans Ave. to Marine Ave.	26,365	26,900	28,400	40	Arterial
Western Ave.	158th St. to 162nd St.	30,668	32,700	34,400	40	Arterial
Western Ave.	166th St. to Artesia Blvd.	31,208	33,300	34,200	40	Arterial
Western Ave.	Artesia Blvd. to 182nd St.	27705	30900	31500	40	Arterial
Normandie Ave.	135th St. to Rosecrans Ave.	19425	20200	20400	35	Major Collector
Normandie Ave.	170th St. to Artesia Blvd.	26,240	27,700	28,200	35	Major Collector
Vermont Ave.	135th St. to Rosecrans Ave.	19,881	22,500	23,100	40	Arterial

Notes:
1) Kittelson Associates, April 2023.
2) Speed was modeled as posted.
3) See Table 11

Table 11: 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
Existing Arterial				
Automobiles	78.3%	10.9%	10.8%	96.4%
Medium Trucks	78.1%	5.9%	16.0%	1.0%
Heavy Trucks	67.4%	6.9%	25.7%	2.6%
Existing Arterial 2				
Automobiles	75.1%	10.8%	14.2%	96.3%
Medium Trucks	73.6%	5.8%	20.7%	1.0%
Heavy Trucks	61.4%	6.5%	32.1%	2.7%
Existing Collector				
Automobiles	80.0%	9.6%	10.5%	96.4%
Medium Trucks	79.3%	5.2%	15.5%	1.0%
Heavy Trucks	68.9%	6.0%	25.0%	2.5%
2040 Arterial				
Automobiles	78.4%	10.9%	10.7%	96.0%
Medium Trucks	78.1%	5.9%	15.9%	1.1%
Heavy Trucks	67.2%	7.1%	25.6%	2.9%
2040 Arterial 2				
Automobiles	75.1%	10.8%	14.1%	95.8%
Medium Trucks	73.6%	5.8%	20.6%	1.1%
Heavy Trucks	61.3%	6.7%	32.0%	3.1%
2040 Collector				
Automobiles	80.0%	9.6%	10.4%	96.0%
Medium Trucks	79.4%	5.2%	15.4%	1.1%
Heavy Trucks	68.8%	6.2%	25.0%	2.9%

Notes:
[1] Gardena 24hr traffic counts, Transportation Studies, Inc. 2021.
[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, recreational, and institutional 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

Two (2) long-term 24-hour noise measurements and five (5) 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

Five short-term noise measurements (15-minute) were taken in order to document the daytime Leq level at different locations throughout the Project Area. Measured noise levels ranged between 56.2 and 76.4 dBA Leq. Vehicle noise associated with Western Ave., 182nd St., Marine Ave., and Crenshaw Blvd., and Rosecrans Ave. noise were the primary sources of ambient noise. Noise measurement results are presented in Table 12. Field notes and meter output are provided in Appendix B.

Table 12: Short-Term Noise Measurement Summary

Noise Measurement Location	Approximate Location	Date	Time	A-Weighted Sound Level (dBA)						
				Leq	Lmax	Lmin	L2	L8	L25	L50
ST1	1651 W 182nd St.	4/11/23	6:58 AM	69.0	81.0	43.6	76.3	73.1	70.4	66.6
ST3	1857 Marine Ave	4/11/23	7:34 AM	68.2	77.1	44.5	73.9	72.1	70.1	66.9
ST4	14906 Wadshan Alley	4/11/23	7:57 AM	58.7	70.9	45.8	65.2	61.6	59.4	57.4
ST5	14308 S Western Ave.	4/11/23	8:26 AM	76.4	95.5	59.1	83.7	76.5	73.7	70.1
ST6	13204 Manhattan Pl.	4/11/23	8:49 AM	56.2	76.0	43.1	64.7	58.9	54.5	50.6

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, 15-minute duration

6.2.2 Long-Term Noise Measurements

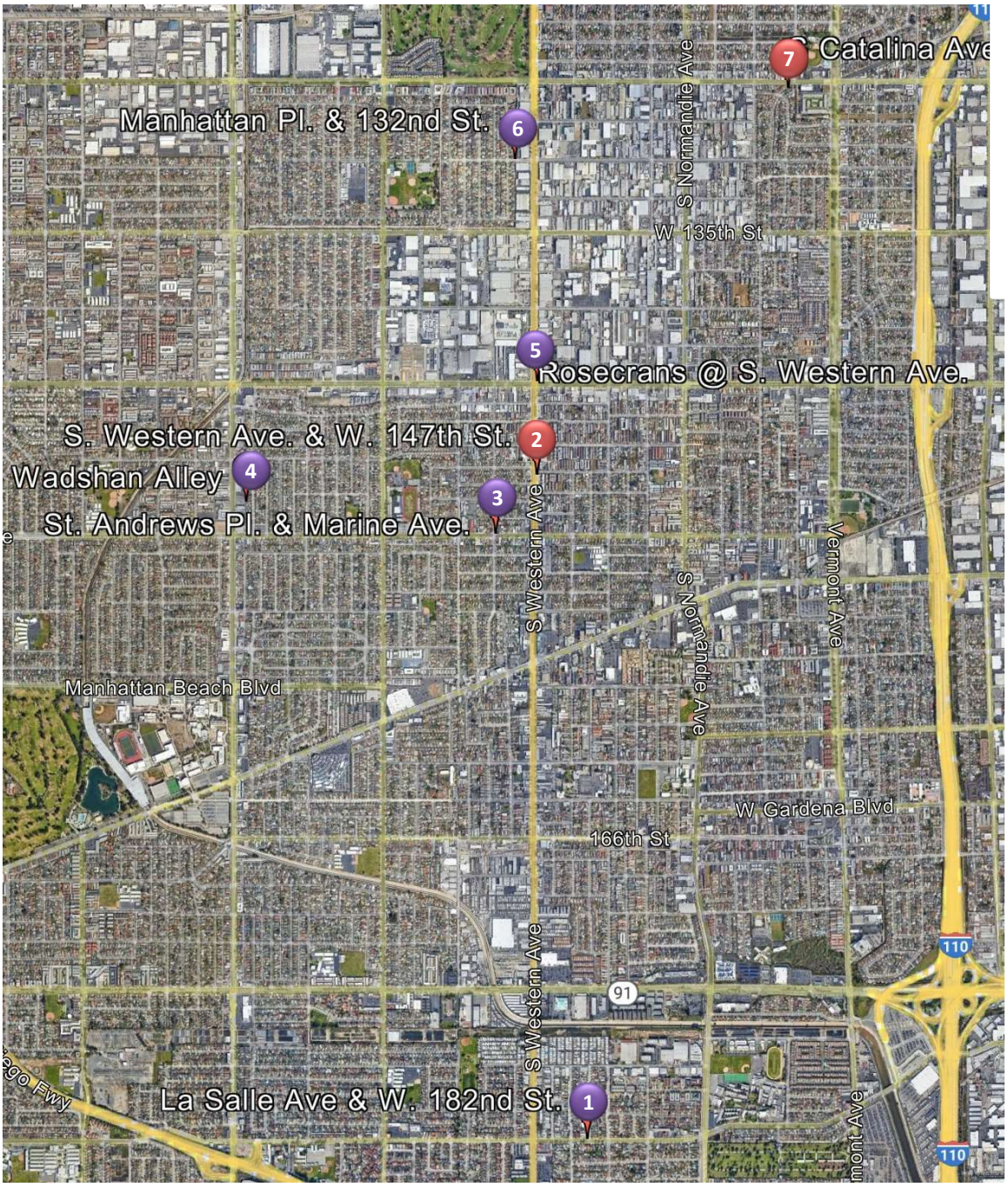
Two (2) long-term noise measurements (24 consecutive hours) were taken in order to document the Community Noise Equivalent Level (CNEL) at different locations throughout the Project Area. As shown in Table 13, the measured CNEL was 72.3 at 55 feet from the centerline of Western Ave. and 62.1 dBA at 120 feet from El Segundo Blvd. The primary noise source was vehicle traffic. Table 13 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 13: Long-Term Noise Measurement Summary

Noise Measurement Location	Approximate Location	Date	Description	A-Weighted Sound Level (dBA)			
				Daytime Leq	Evening Leq	Nighttime Leq	CNEL
LT2	14700 S Western Ave.	4/11/23-4/12/23	Western Ave. traffic noise	70.7	68.1	63.5	72.3
LT7	End of S Catalina Ave.	4/11/23-4/12/23	El Segundo Blvd. traffic noise	58.2	55.9	54.9	62.1

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
Noise Measurement Location Map



x = Short-Term measurement (15-Minute)

x = Long-Term measurement (24-Hour)

6.3 Existing Noise Modeling

The primary sources of noise in Gardena 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 14 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 noise sources. 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 14: Existing Exterior Noise Levels Along Roadways

Roadway	Segment Limits	CNEL, dBA @50 ft	Distance to Contour (feet)			
			70 dBA	65 dBA	60 dBA	55 dBA
El Segundo Blvd.	Western Ave. to Normandie Ave.	75.9	196	619	1956	6186
135th St.	Western Ave. to Normandie Ave.	72.5	89	281	889	2812
Rosecrans Ave.	Van Ness Ave. to Western Ave.	76.1	202	638	2019	6383
Rosecrans Ave.	Western Ave. to Normandie Ave.	77.2	264	836	2643	8359
Marine Ave.	Crenshaw Blvd. to Van Ness Ave.	71.4	70	221	698	2207
Marine Ave.	Western Ave. to Normandie Ave.	70.6	57	181	572	1810
Redondo Beach Blvd.	Western Ave. to Normandie Ave.	74.3	134	425	1344	4251
Crenshaw Blvd.	El Segundo Blvd. to 135th St.	74.4	138	438	1384	4376
Crenshaw Blvd.	135th St. to Rosecrans Ave.	74.8	150	475	1503	4753
Crenshaw Blvd.	Rosecrans Ave. to Marine Ave.	74.7	149	470	1488	4705
Crenshaw Blvd.	Marine Ave. to Manhattan Beach Blvd.	74.3	134	422	1335	4223
Western Ave.	El Segundo Blvd. to 135th St.	73.7	117	371	1174	3711
Western Ave.	135th St. to Rosecrans Ave.	74.1	127	403	1275	4031
Western Ave.	Rosecrans Ave. to Marine Ave.	74.7	147	465	1471	4653
Western Ave.	158th St. to 162nd St.	75.3	171	541	1712	5413
Western Ave.	166th St. to Artesia Blvd.	75.4	174	551	1742	5508
Western Ave.	Artesia Blvd. to 182nd St.	74.9	155	489	1546	4890
Normandie Ave.	135th St. to Rosecrans Ave.	72.1	81	257	814	2573
Normandie Ave.	170th St. to Artesia Blvd.	73.4	110	348	1099	3475
Vermont Ave.	135th St. to Rosecrans Ave.	73.8	120	380	1201	3797

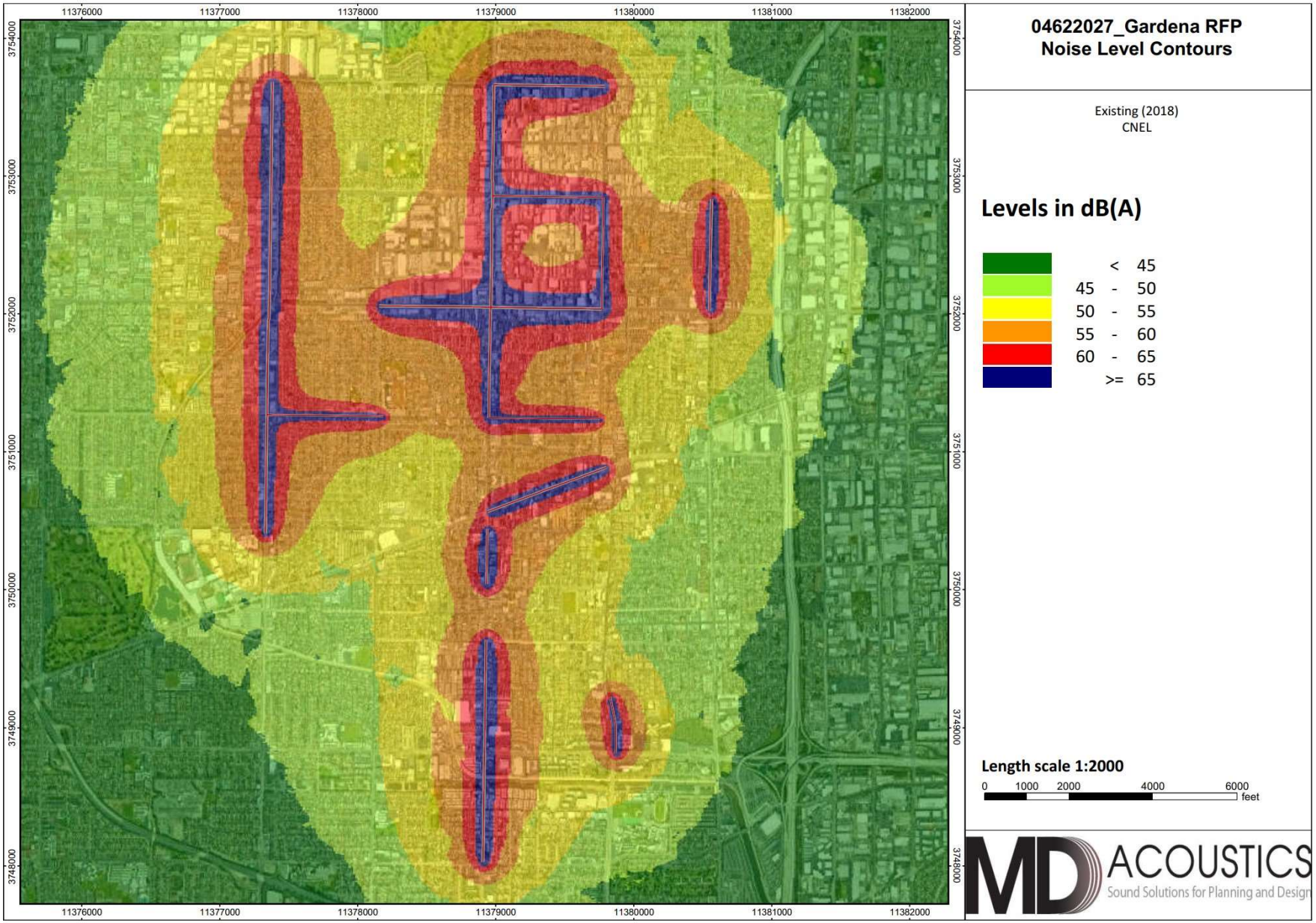
Roadway	Segment Limits	CNEL, dBA @50 ft	Distance to Contour (feet)			
			70 dBA	65 dBA	60 dBA	55 dBA

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.

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 half a mile northwest of the Project Area. The noise contours associated with this airport 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 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).

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 at 25 feet.

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 Gardena 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 Gardena General Plan policies and ordinances and programmatic mitigation measures are provided as applicable.

7.1 Transportation Noise

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. There is no rail lines within the Project Area and there is therefore railway no impact.

The primary noise source in the Project Area will continue to be vehicle traffic. Future traffic noise level contours are presented in Exhibits J and K. Tables 15 and 16 show the future noise levels at a distance of 50 feet from the centerline of studied roadways by the year 2040 for No Project and With Project. The distances to the 55, 60, 65, and 70 dBA CNEL noise contours are also provided.

Table 15: 2040 No Project Traffic Noise Levels (dBA, CNEL)

Roadway	Segment Limits	CNEL, dBA @50 ft	Distance to Contour (feet)			
			70 dBA	65 dBA	60 dBA	55 dBA
El Segundo Blvd.	Western Ave. to Normandie Ave.	75.9	196	619	1958	6191
135th St.	Western Ave. to Normandie Ave.	73.2	105	332	1050	3320
Rosecrans Ave.	Van Ness Ave. to Western Ave.	76.1	202	639	2021	6392
Rosecrans Ave.	Western Ave. to Normandie Ave.	77.2	264	836	2644	8361
Marine Ave.	Crenshaw Blvd. to Van Ness Ave.	71.9	78	246	777	2456
Marine Ave.	Western Ave. to Normandie Ave.	71.0	62	197	623	1969
Redondo Beach Blvd.	Western Ave. to Normandie Ave.	74.3	134	425	1343	4246
Crenshaw Blvd.	El Segundo Blvd. to 135th St.	74.4	139	440	1393	4404
Crenshaw Blvd.	135th St. to Rosecrans Ave.	75.0	158	500	1581	4998
Crenshaw Blvd.	Rosecrans Ave. to Marine Ave.	74.7	149	471	1489	4707
Crenshaw Blvd.	Marine Ave. to Manhattan Beach Blvd.	74.3	134	423	1337	4228
Western Ave.	El Segundo Blvd. to 135th St.	73.8	121	381	1206	3812
Western Ave.	135th St. to Rosecrans Ave.	74.5	140	443	1401	4430
Western Ave.	Rosecrans Ave. to Marine Ave.	74.8	150	475	1501	4748
Western Ave.	158th St. to 162nd St.	75.6	183	577	1825	5771
Western Ave.	166th St. to Artesia Blvd.	75.7	186	588	1859	5877
Western Ave.	Artesia Blvd. to 182nd St.	75.4	172	545	1725	5454
Normandie Ave.	135th St. to Rosecrans Ave.	72.3	85	268	846	2675
Normandie Ave.	170th St. to Artesia Blvd.	73.7	116	367	1160	3669
Vermont Ave.	135th St. to Rosecrans Ave.	74.3	136	430	1359	4297

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

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.

Table 16: 2040 Plus Project Traffic Noise Levels (dBA, CNEL)

Roadway	Segment Limits	CNEL, dBA @50 ft	Distance to Contour (feet)			
			70 dBA	65 dBA	60 dBA	55 dBA
El Segundo Blvd.	Western Ave. to Normandie Ave.	75.9	196	619	1958	6191
135th St.	Western Ave. to Normandie Ave.	73.6	115	364	1150	3636
Rosecrans Ave.	Van Ness Ave. to Western Ave.	76.3	211	667	2110	6673
Rosecrans Ave.	Western Ave. to Normandie Ave.	77.2	265	838	2650	8381
Marine Ave.	Crenshaw Blvd. to Van Ness Ave.	72.2	83	261	825	2609
Marine Ave.	Western Ave. to Normandie Ave.	70.9	61	194	613	1939
Redondo Beach Blvd.	Western Ave. to Normandie Ave.	74.3	135	427	1352	4274
Crenshaw Blvd.	El Segundo Blvd. to 135th St.	74.5	142	449	1418	4485
Crenshaw Blvd.	135th St. to Rosecrans Ave.	75.1	160	507	1602	5067
Crenshaw Blvd.	Rosecrans Ave. to Marine Ave.	74.9	154	486	1537	4861
Crenshaw Blvd.	Marine Ave. to Manhattan Beach Blvd.	74.3	136	430	1359	4297
Western Ave.	El Segundo Blvd. to 135th St.	74.3	134	424	1339	4236
Western Ave.	135th St. to Rosecrans Ave.	74.5	141	445	1406	4448
Western Ave.	Rosecrans Ave. to Marine Ave.	75.0	159	501	1585	5012
Western Ave.	158th St. to 162nd St.	75.8	192	607	1920	6071
Western Ave.	166th St. to Artesia Blvd.	75.8	191	604	1909	6036
Western Ave.	Artesia Blvd. to 182nd St.	75.5	176	556	1758	5559
Normandie Ave.	135th St. to Rosecrans Ave.	72.3	85	270	854	2702
Normandie Ave.	170th St. to Artesia Blvd.	73.7	118	374	1181	3735
Vermont Ave.	135th St. to Rosecrans Ave.	74.5	140	441	1395	4412

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.

As shown in Tables 15 and 16 and Exhibit I, J, and K, by the year 2040, 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, 2040 without Project traffic volumes are expected to be up to 0.7 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 17).

Compared to existing traffic noise levels, 2040 with Project traffic volumes are expected to be up to 1.1 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 17: Change in Noise Along Roadways (dBA, CNEL @ 50')

Roadway	Segment	Existing	2040 No Project		2040 With Project	
		CNEL @ 50' dBA	CNEL @ 50' dBA	Change in Noise Level	CNEL @ 50' dBA	Change in Noise Level
El Segundo Blvd.	Western Ave. to Normandie Ave.	75.9	75.9	0.0	75.9	0.0
135th St.	Western Ave. to Normandie Ave.	72.5	73.2	0.7	73.6	1.1
Rosecrans Ave.	Van Ness Ave. to Western Ave.	76.1	76.1	0.0	76.3	0.2
Rosecrans Ave.	Western Ave. to Normandie Ave.	77.2	77.2	0.0	77.2	0.0
Marine Ave.	Crenshaw Blvd. to Van Ness Ave.	71.4	71.9	0.5	72.2	0.7
Marine Ave.	Western Ave. to Normandie Ave.	70.6	71.0	0.4	70.9	0.3
Redondo Beach Blvd.	Western Ave. to Normandie Ave.	74.3	74.3	0.0	74.3	0.0
Crenshaw Blvd.	El Segundo Blvd. to 135th St.	74.4	74.4	0.0	74.5	0.1
Crenshaw Blvd.	135th St. to Rosecrans Ave.	74.8	75.0	0.2	75.1	0.3
Crenshaw Blvd.	Rosecrans Ave. to Marine Ave.	74.7	74.7	0.0	74.9	0.1
Crenshaw Blvd.	Marine Ave. to Manhattan Beach Blvd.	74.3	74.3	0.0	74.3	0.1
Western Ave.	El Segundo Blvd. to 135th St.	73.7	73.8	0.1	74.3	0.6
Western Ave.	135th St. to Rosecrans Ave.	74.1	74.5	0.4	74.5	0.4
Western Ave.	Rosecrans Ave. to Marine Ave.	74.7	74.8	0.1	75.0	0.3
Western Ave.	158th St. to 162nd St.	75.3	75.6	0.3	75.8	0.5
Western Ave.	166th St. to Artesia Blvd.	75.4	75.7	0.3	75.8	0.4
Western Ave.	Artesia Blvd. to 182nd St.	74.9	75.4	0.5	75.5	0.6
Normandie Ave.	135th St. to Rosecrans Ave.	72.1	72.3	0.2	72.3	0.2
Normandie Ave.	170th St. to Artesia Blvd.	73.4	73.7	0.2	73.7	0.3
Vermont Ave.	135th St. to Rosecrans Ave.	73.8	74.3	0.5	74.5	0.7

Notes:

1. Existing and Future traffic volumes compiled by Kittelson & Associates, Inc. Apr 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.

Exhibit J

2040 No Project Noise Contours (CNEL)

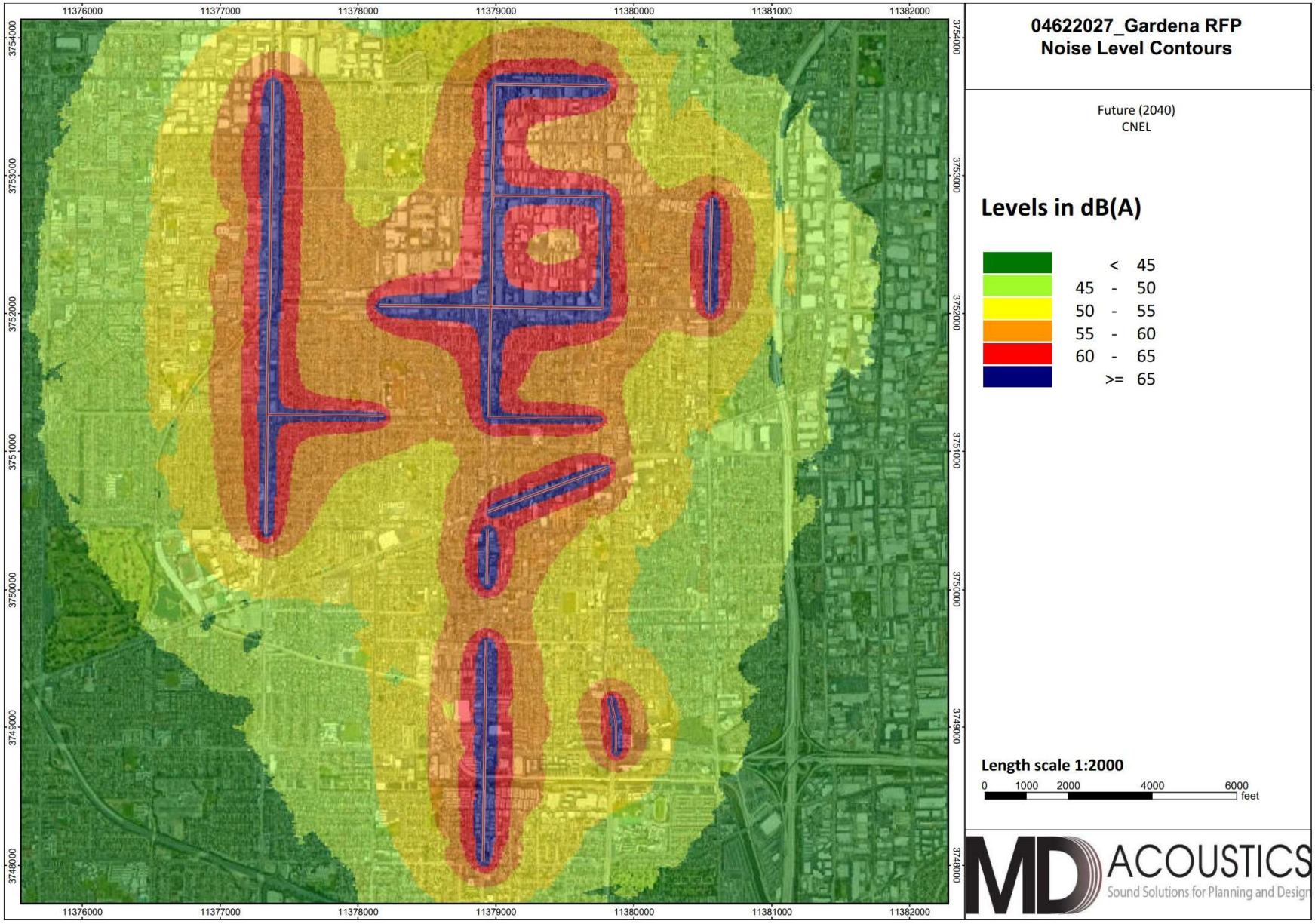
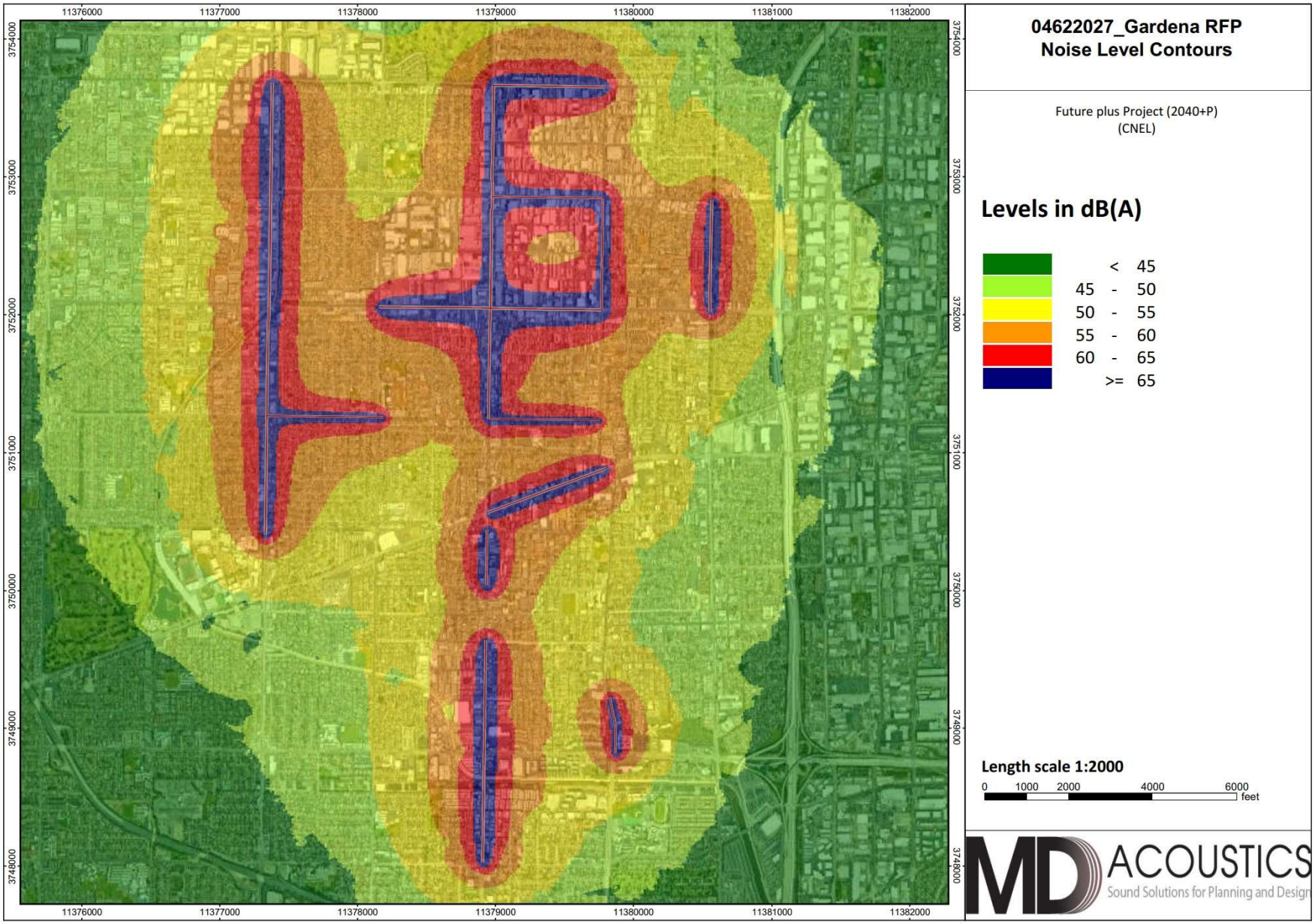


Exhibit K

2040 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 G, impacts can be mitigated to a level that is less than significant with implementation of noise control measures, such as relocating residential outdoor recreational areas away from 65 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 G. For residential developments, the study must ensure that interior levels in livable areas do not exceed 45 dBA CNEL.

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 4.3.2. 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.

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 times of between the hours of 6:00 p.m. and 7:00 a.m. on weekdays between the hours of 6:00 p.m. and 9:00 a.m. on Saturday or any time on Sunday or a Federal holiday per Section 8.36.080(G) of the Gardena 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 18. 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. Contractors are required to comply with the City of Gardena's construction noise reduction techniques described in Section 18.42.200(E).

Table 18: 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 8.36.080(G). 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.

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 8.36.080(G) of the Gardena Municipal Code. Potential impacts would be site-specific, depending on the equipment used and distances to sensitive receptors. These impacts can be reduced to less than significant with the implementation the following noise reduction techniques from Section 18.42.200(E) of the Municipal Code which must be included in all construction plans or specifications:

1. Construction contracts specify that all construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers and other state-required noise attenuation devices.
2. The project applicant shall demonstrate to the satisfaction of the city's building official that construction noise reduction methods shall be used where feasible, including shutting off idling equipment.
3. During construction, equipment staging areas shall be located such that the greatest distance is between the staging area noise sources and noise-sensitive receptors.
4. Per Section 8.36.080, construction activities shall not occur during the hours of 6:00 p.m. and 7:00 a.m. on weekdays; between the hours of 6:00 p.m. and 9:00 a.m. on Saturday; or any time on Sunday or a federal holiday.

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 21, 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 19: 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
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 20 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 19, 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. These impacts can be reduced to less than significant with the implementation of **Mitigation Measure NOI-1**:

Applicants for future proposed projects whose construction utilizes pile drivers within 200 feet of existing buildings or vibratory rollers within 50 feet of existing buildings shall be required to prepare a vibration impact study which would be required to 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.

Table 20: 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, 2040 plus Project traffic volumes are expected to be up to 1.1 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 17).

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 the implementation of noise control measures such as relocating outdoor recreational areas away from 65 dBA CNEL or greater areas or shielding outdoor areas using noise barriers.***

Stationary Noise Sources

Stationary noise will be significant if it exceeds the levels outlined in the Gardena Municipal Code as outlined in Section 4.3.2. 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 4.3.2. ***Stationary noise impacts can be mitigated to "less than significant" with implementation of Gardena Noise Ordinance.***

Construction Noise and Vibration

Construction noise will be significant if construction occurs outside of the hours specified in Section 8.36.080(G) of the Gardena 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 18.42.200(E) of the Municipal Code 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 reduced to less than significant with the implementation of **Mitigation Measure NOI-1**:

Applicants for future proposed projects whose construction utilizes pile drivers within 200 feet of existing buildings or vibratory rollers within 50 feet of existing buildings shall be required to prepare a vibration impact study which would be required to 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.

This impact would be less than significant with mitigation measure NOI-1.

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.

Gardena, City of

2006 General Plan.
City of Gardena Municipal Code.

Office of Planning and Research, State of California

2017 Office of Planning and Research, General Plan Guidelines.

Appendix A:
SoundPLAN Data

Road	ADT Veh/24h	Gradient %	
135th St. (Western Ave. to Normandie Ave	16858	-0.5	
Crenshaw Blvd. (135th St. to Rosecrans A	27764	0.3	
Crenshaw Blvd. (El Segundo Blvd. to 135t	32198	0.0	
Crenshaw Blvd. (Marine Ave. to Manhattan	24671	0.1	
Crenshaw Boulevard	27485	-0.2	
El Segundo Blvd. (Western Ave. to Norman	30777	1.7	
Marine Ave. (Crenshaw Blvd. to Van Ness	17340	-0.2	
Marine Ave. (Western Ave. to Normandie A	18483	0.3	
Normandie Ave. (135th St. to Rosecrans A	19425	-0.5	
Normandie Ave. (170th St. to Artesia Blv	26240	-1.3	
Redondo Beach Blvd. (Western Ave. to Nor	30337	0.7	
Rosecrans Ave. (Van Ness Ave. to Western	31758	0.1	
Rosecrans Ave. (Western Ave. to Normandi	41590	-0.3	
Vermont Ave. (135th St. to Rosecrans Ave	19881	-1.6	
Western Ave. (135th St. to Rosecrans Ave	22840	0.2	
Western Ave. (158th St. to 162nd St.)	30668	-0.5	
Western Ave. (166th St. to Artesia Blvd.	31208	-0.2	
Western Ave. (Artesia Blvd. to 182nd St.	27705	0.2	
Western Ave. (El Segundo Blvd. to 135th	21028	-2.1	
Western Ave. (Rosecrans Ave. to Marine A	26365	0.4	

Road	ADT Veh/24h	Gradient %	
135th St. (Western Ave. to Normandie Ave	19900	-0.5	
Crenshaw Blvd. (135th St. to Rosecrans A	29200	0.3	
Crenshaw Blvd. (El Segundo Blvd. to 135t	32400	0.0	
Crenshaw Blvd. (Marine Ave. to Manhattan	24700	0.1	
Crenshaw Boulevard	27500	-0.2	
El Segundo Blvd. (Western Ave. to Norman	30800	1.7	
Marine Ave. (Crenshaw Blvd. to Van Ness	19300	-0.2	
Marine Ave. (Western Ave. to Normandie A	20100	0.3	
Normandie Ave. (135th St. to Rosecrans A	20200	-0.5	
Normandie Ave. (170th St. to Artesia Blv	27700	-1.3	
Redondo Beach Blvd. (Western Ave. to Nor	30300	0.7	
Rosecrans Ave. (Van Ness Ave. to Western	31800	0.1	
Rosecrans Ave. (Western Ave. to Normandi	41600	-0.3	
Vermont Ave. (135th St. to Rosecrans Ave	22500	-1.6	
Western Ave. (135th St. to Rosecrans Ave	25100	0.2	
Western Ave. (158th St. to 162nd St.)	32700	-0.5	
Western Ave. (166th St. to Artesia Blvd.	33300	-0.2	
Western Ave. (Artesia Blvd. to 182nd St.	30900	0.2	
Western Ave. (El Segundo Blvd. to 135th	21600	-2.1	
Western Ave. (Rosecrans Ave. to Marine A	26900	0.4	

Road	Section name	KM km	ADT Veh/24h	Gradient %	
Vermont Ave.	135th St. to Rosecrans Ave.	0.000	23100	-1.6	
Rosecrans Ave.	Van Ness Ave. to Western Ave	0.000	33200	0.1	
Normandie Ave.	135th St. to Rosecrans Ave.	0.000	20400	-0.5	
Crenshaw Blvd.	El Segundo Blvd. to 135th St	0.000	33000	0.0	
Rosecrans Ave.	Western Ave. to Normandie Ave.	0.000	41700	-0.3	
Western Ave. (El Segundo Blvd. to 135th		0.000	24000	-2.1	
135th St. (Western Ave. to Normandie Ave		0.000	21800	-0.5	
El Segundo Blvd. (Western Ave. to Norman		0.000	30800	1.7	
Marine Ave.	Western Ave. to Normandie Ave.	0.000	19800	0.3	
Crenshaw Boulevard	Rosecrans Ave. to Marine Ave.	0.000	28400	-0.2	
Crenshaw Blvd. (135th St. to Rosecrans A		0.000	29600	0.3	
Marine Ave. (Crenshaw Blvd. to Van Ness		0.000	20500	-0.2	
Western Ave. (Rosecrans Ave. to Marine A		0.000	28400	0.4	
Western Ave. (158th St. to 162nd St.)		0.000	34400	-0.5	
Western Ave. (135th St. to Rosecrans Ave		0.000	25200	0.2	
Redondo Beach Blvd. (Western Ave. to Nor		0.000	30500	0.7	
Normandie Ave. (170th St. to Artesia Blv		0.000	28200	-1.3	
Western Ave. (166th St. to Artesia Blvd.		0.000	34200	-0.2	
Western Ave. (Artesia Blvd. to 182nd St.		0.000	31500	0.2	
Crenshaw Blvd. (Marine Ave. to Manhattan		0.000	25100	0.1	

Appendix B:

Noise Measurement Data and Field Sheets

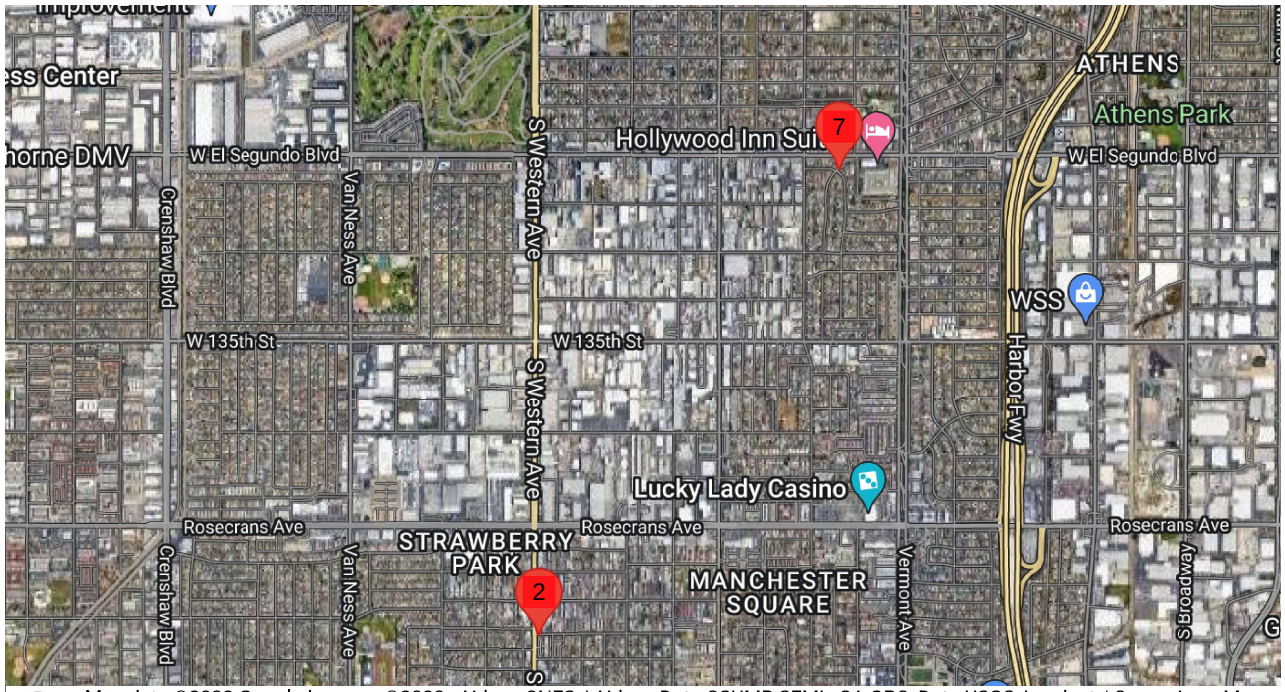
24-Hour Continuous Noise Measurement Datasheet

Project Name:	Land Use Plan and Zoning Amendments
Project: #/Name:	0462-2020-027
Site Address/Location:	Gardena, CA
Date:	04/11/2023
Field Tech/Engineer:	Jason Schuyler/ Claire Pincock

Site Observations:

Over Cast-temp 57F winds 1-3 MPH. NM2-The primary Noise source is traffic and pedestrian. NM7- Roaid noise is primarily blocked by a block wall on one side of the cul de sac. Primarily residential noise

Sound Meter:	Piccolo-II, SoftdB	**SN:**	PO221031803
Settings:	A-weighted, slow, 1-min, 24-hour duration		
Site Id:	NM2, NM7		



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24-Hour Continuous Noise Measurement Datasheet - Cont.

Project Name: Land Use Plan and Zoning Amendments

Site Address/Location: Gardena, CA

Site Id: NM2, NM7

Figure 1: NM2

Figure 2: NM7

24-Hour Continuous Noise Measurement Datasheet - Cont.

Project Name: Land Use Plan and Zoning Amendments

Site Address/Location: Gardena, CA

Site Id: NM2

Site Topo: Buildings 1-2 stories tall

Meteorological Cond.: 57F Overcast winds 1-10MPH

Ground Type: buildings and asphalt

Day: 1 of 2

Noise Source(s) w/ Distance: road noise and residential noise

Table 1: Baseline Noise Measurement Summary

Date	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
4/11/2023	8:00 AM	9:00 AM	68.4	81.9	51	70.6	70.3	69.4	68.1	66.1
4/11/2023	9:00 AM	10:00 AM	67.7	82.1	52.1	70.4	69.2	68.3	67.4	65.8
4/11/2023	10:00 AM	11:00 AM	68.5	92.6	53.8	74.7	71	69	67.2	64.8
4/11/2023	11:00 AM	12:00 PM	71	95.9	54.2	80.8	70.4	68.7	67.9	65
4/11/2023	12:00 PM	1:00 PM	68.3	85.5	55.1	73.5	70	68.8	67.7	65.9
4/11/2023	1:00 PM	2:00 PM	69.8	91.6	55.8	76.7	71.2	69.3	68.6	66.5
4/11/2023	2:00 PM	3:00 PM	76.4	107.1	54.7	80	70.4	68.5	67.8	65.8
4/11/2023	3:00 PM	4:00 PM	68.7	85.5	53.4	73.7	70.5	69	68.1	66.4
4/11/2023	4:00 PM	5:00 PM	70.3	91.4	55.6	76.6	72.1	70	68.9	67.5
4/11/2023	5:00 PM	6:00 PM	71.4	96.3	53.7	75.3	73	70.3	69.6	67.4
4/11/2023	6:00 PM	7:00 PM	69.7	92	52.5	71.7	70.7	69.9	69.1	66.9
4/11/2023	7:00 PM	8:00 PM	68.7	87.4	52.1	73.7	70.6	69.1	67.7	65.2
4/11/2023	8:00 PM	9:00 PM	69.1	94.6	51.7	78	69.3	68.1	66.6	64.2
4/11/2023	9:00 PM	10:00 PM	65.6	78.2	50.9	68.4	67.6	66.7	65.3	62.5
4/11/2023	10:00 PM	11:00 PM	65	86.2	50.8	67.9	67	65.8	64.3	61
4/11/2023	11:00 PM	12:00 AM	63.2	79.6	50.5	67.3	65.7	64.2	62.2	58.8
4/11/2023	12:00 AM	1:00 AM	61.5	83.8	50.7	66.3	63.6	62.2	60.6	55.6
4/11/2023	1:00 AM	2:00 AM	61.7	88.5	50.5	66.6	63.3	60.4	58.7	53.9
4/11/2023	2:00 AM	3:00 AM	59.3	76.4	50.5	65.9	62.5	60.3	57.6	50.9
4/11/2023	3:00 AM	4:00 AM	59.9	78.1	50.4	65.9	63.1	60.8	58.7	54.4
4/11/2023	4:00 AM	5:00 AM	61.3	75.4	50.2	65.8	64.5	62.3	60.7	56.5
4/11/2023	5:00 AM	6:00 AM	64.1	78	50.2	68.8	67.3	65	63.6	59.6
4/11/2023	6:00 AM	7:00 AM	68	92	51	70.9	70	67.8	67	63.8
4/11/2023	7:00 AM	8:00 AM	68.4	84	50.9	70.8	70.3	69.1	68.2	66.3

	DNL	71.5

24-Hour Continuous Noise Measurement Datasheet - Cont.

Project Name:	Land Use Plan and Zoning Amendments	**Site Topo:**	Buildings 1-2 stories tall	**Day:** 2 of 2	
Site Address/Location:	Gardena, CA	**Meteorological Cond.:**	57F Overcast winds 1-10MPH	**Noise Source(s) w/ Distance:**	road noise and residential noise inside cul de sac
Site Id:	NM7	**Ground Type:**	buildings and asphalt		

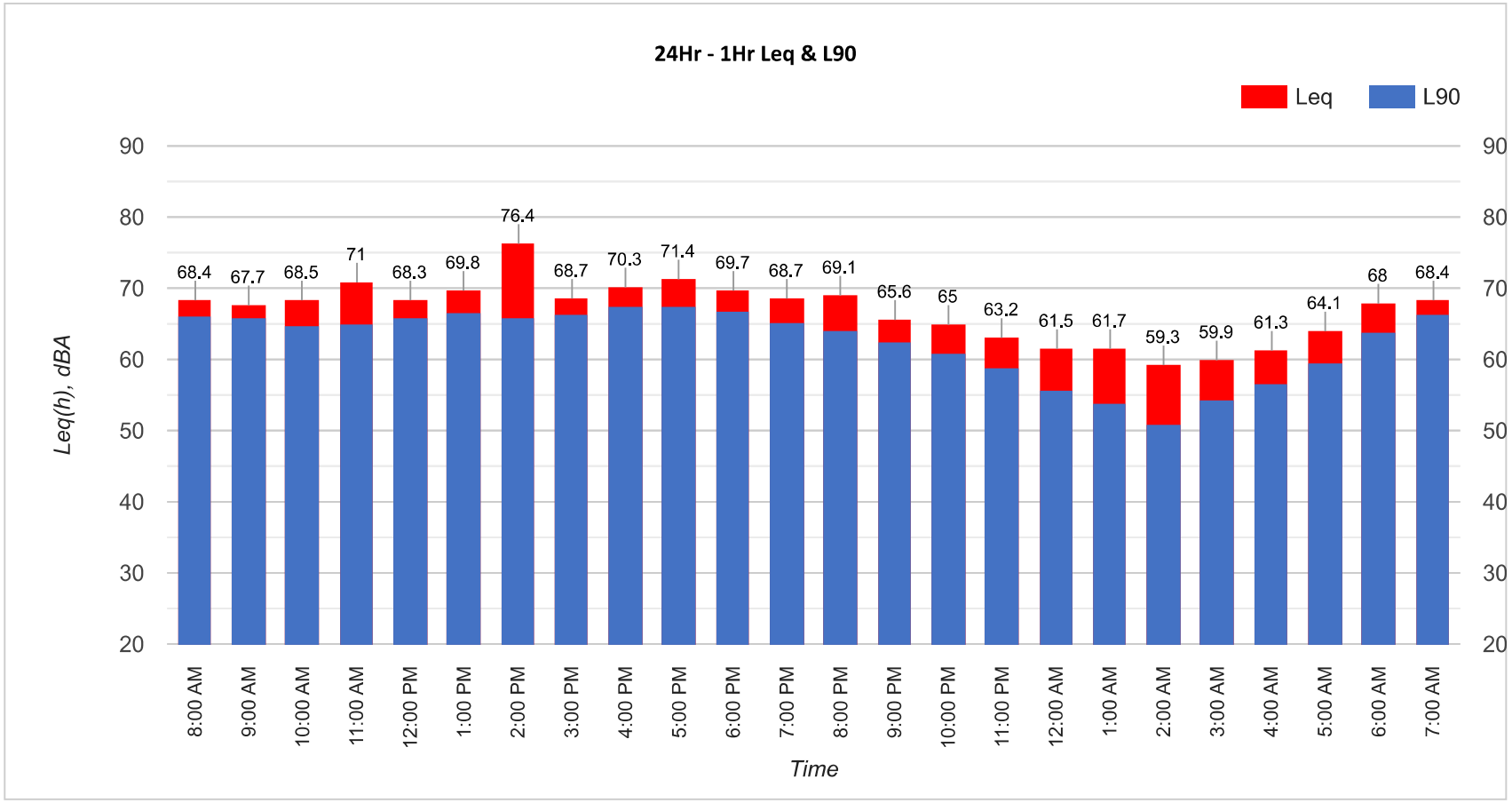
Table 2: Baseline Noise Measurement Summary

Date	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
4/11/2023	10:01 AM	11:01 AM	55.7	71.7	43.8	59.3	58.3	56.8	55.2	52.6
4/11/2023	11:01 AM	12:01 PM	57.5	79.9	45.2	63.3	59.9	56.2	54.4	52.3
4/11/2023	12:01 PM	1:01 PM	56.7	76.9	45.3	60.2	58.1	57	56	53.1
4/11/2023	1:01 PM	2:01 PM	57.6	75.5	46.1	61.2	59.1	57.2	56.4	53.6
4/11/2023	2:01 PM	3:01 PM	57.5	73.4	47.3	62.6	60.2	57.7	56.4	53.9
4/11/2023	3:01 PM	4:01 PM	59.6	81.4	47.6	66.9	63.2	59.2	57.3	54.8
4/11/2023	4:01 PM	5:01 PM	59.9	75	47.8	65.1	62.5	60.4	58.5	56
4/11/2023	5:01 PM	6:01 PM	58	76.5	47.9	62.6	60.5	58.2	56.9	55.2
4/11/2023	6:01 PM	7:01 PM	57.4	75.6	48.5	61	58.8	57.9	56.8	55
4/11/2023	7:01 PM	8:01 PM	57.3	75.4	47.3	61.8	60.2	57.4	56.4	53.9
4/11/2023	8:01 PM	9:01 PM	55.6	75.2	43.4	62.2	58	55.8	54.1	52.5
4/11/2023	9:01 PM	10:01 PM	54.1	74.2	42	60.4	55.4	54.5	53	50.7
4/11/2023	10:01 PM	11:01 PM	54.9	78.3	36.9	59.6	55.5	53.2	51.8	49
4/11/2023	11:01 PM	12:01 AM	54.3	82.9	37.6	61.5	53.2	52	50.3	47.6
4/11/2023	12:01 AM	1:01 AM	51.2	70.6	40.1	57.9	53.3	51.7	50.1	46.3
4/11/2023	1:01 AM	2:01 AM	49.7	68.7	37.6	56.1	52.1	50.2	48.4	45.1
4/11/2023	2:01 AM	3:01 AM	48.5	62.4	37	52.3	51.4	49.1	47.9	44.9
4/11/2023	3:01 AM	4:01 AM	50.4	63.8	37.8	54.8	53.6	51.4	49.6	45.9
4/11/2023	4:01 AM	5:01 AM	54.6	74.2	39	60.2	57.9	55.4	53.3	49.5
4/11/2023	5:01 AM	6:01 AM	58	81.5	43.2	62.2	61	58.7	56.1	52.7
4/11/2023	6:01 AM	7:01 AM	59.3	67.9	45.4	62.3	61.7	60.4	59.2	55.3
4/11/2023	7:01 AM	8:01 AM	58.4	68.9	47.5	61.2	60.5	59.6	57.8	55.3
4/11/2023	8:01 AM	9:01 AM	57.5	71.4	45.6	61.7	59.3	58.1	57.2	54.2
4/11/2023	9:01 AM	10:01 AM	60.1	79.4	44.2	66	59.4	57.1	55.9	53.1

	DNL	61.1

24-Hour Continuous Noise Measurement Datasheet - Cont.

Project Name:	Land Use Plan and Zoning Amendments	**Site Topo:**	Buildings 1-2 stories tall	**Day:**	1 of 2
Site Address/Location:	Gardena, CA	**Meteorological Cond.:**	57F Overcast winds 1-10MPH	**Noise Source(s) w/ Distance:**	road noise and residential noise
Site Id:	NM2	**Ground Type:**	buildings and asphalt		



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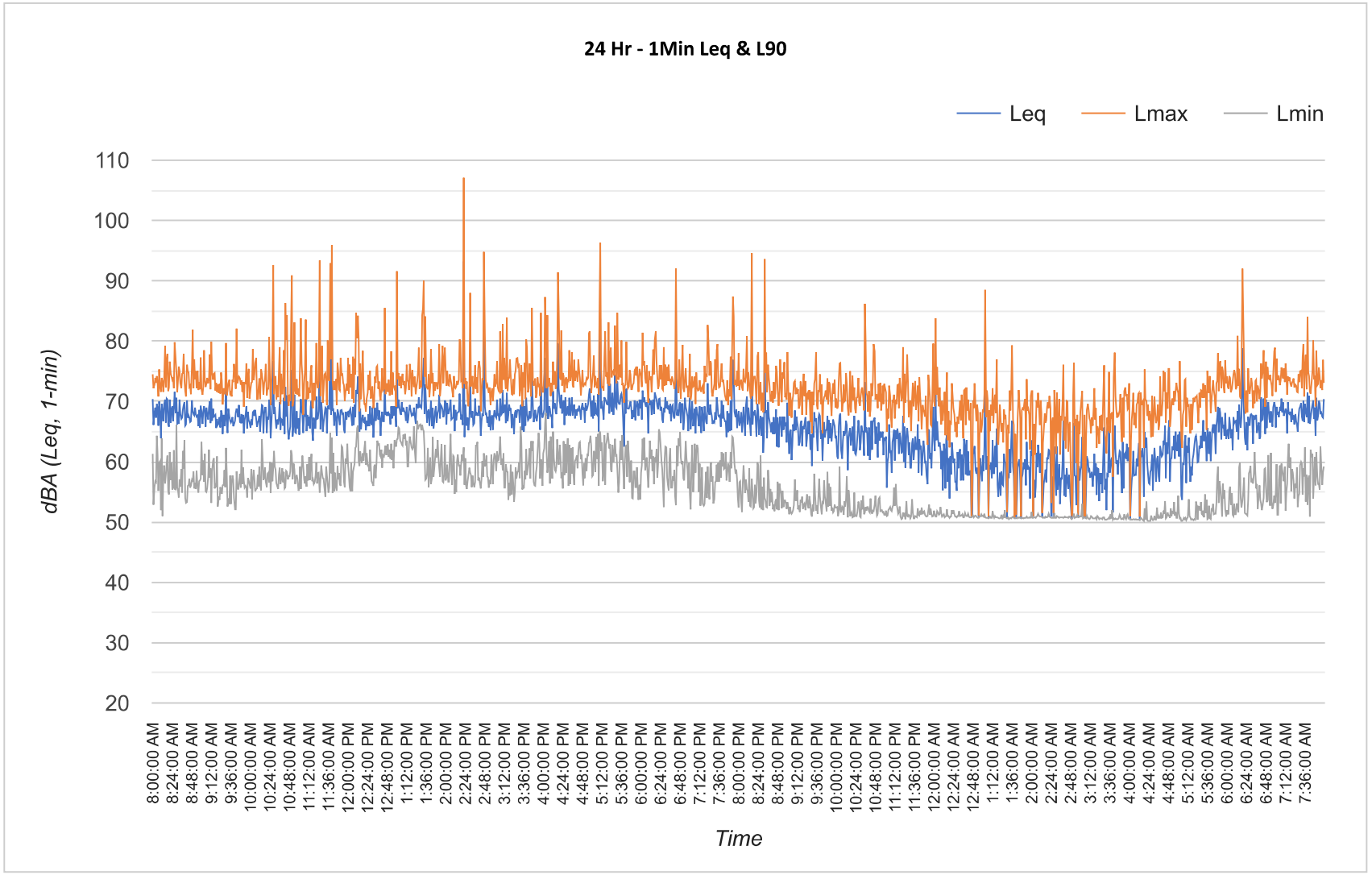
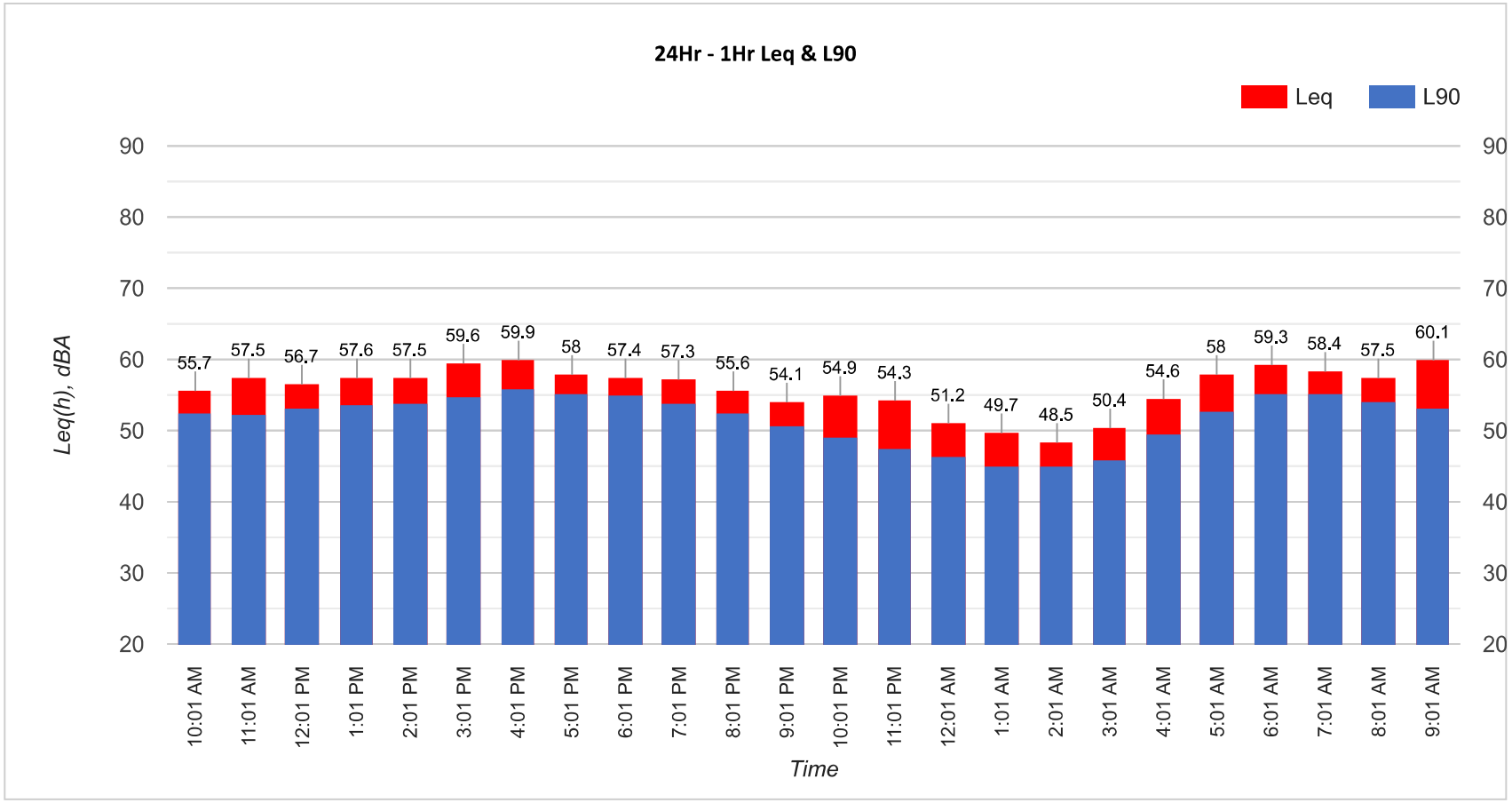
24-Hour Continuous Noise Measurement Datasheet - Cont.

Project Name:	Land Use Plan and Zoning Amendments	**Site Topo:**	Buildings 1-2 stories tall	**Day:**	1 of 2
Site Address/Location:	Gardena, CA			**Noise Source(s) w/ Distance:**	
Site Id:	NM2	**Meteorological Cond.:**	57F Overcast winds 1-10MPH		road noise and residential noise
		Ground Type:	buildings and asphalt		



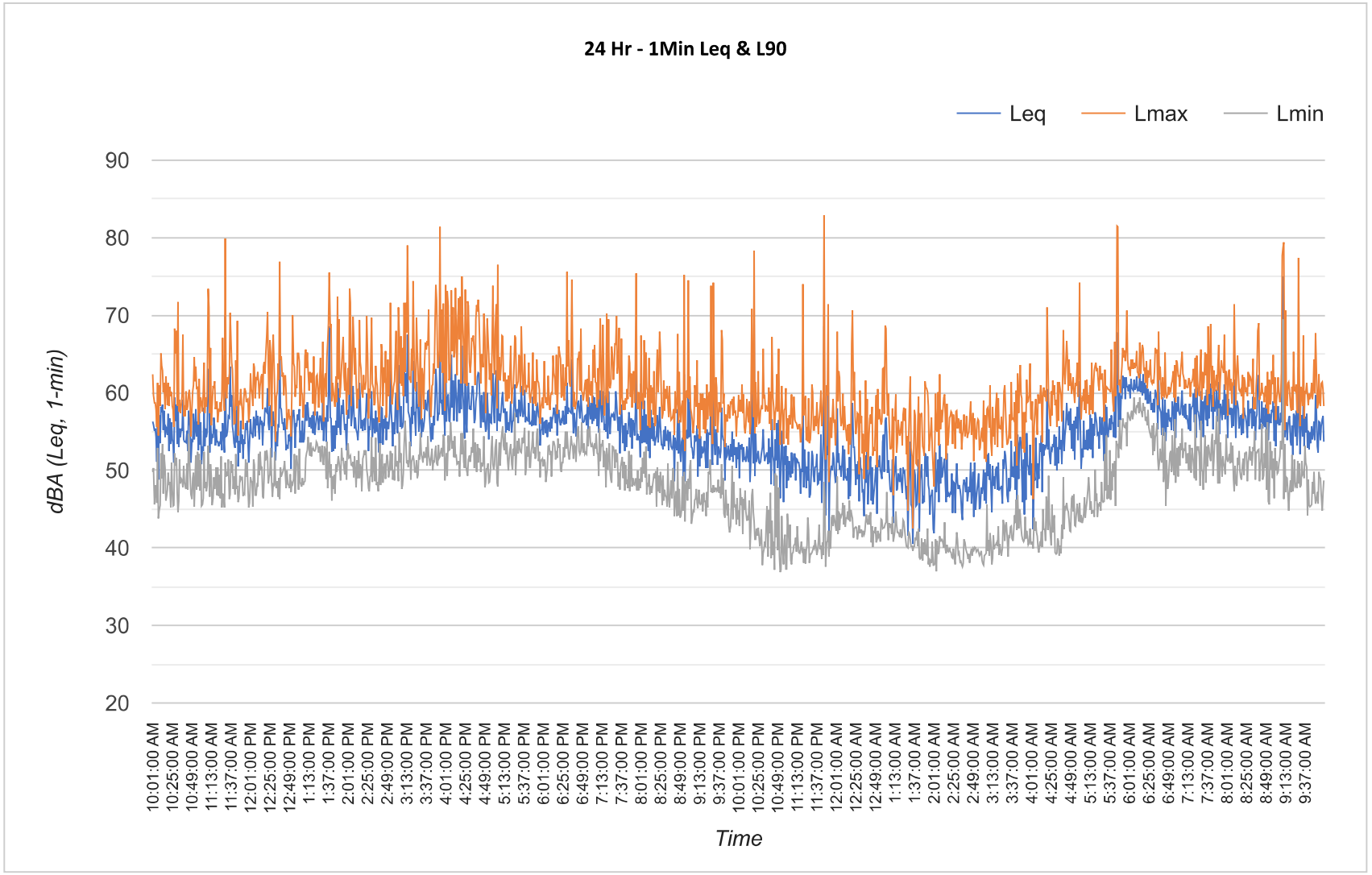
24-Hour Continuous Noise Measurement Datasheet - Cont.

Project Name:	Land Use Plan and Zoning Amendments	**Site Topo:**	Buildings 1-2 stories tall	**Day:**	1 of 2
Site Address/Location:	Gardena, CA	**Meteorological Cond.:**	57F Overcast winds 1-10MPH	**Noise Source(s) w/ Distance:**	road noise and residential noise inside cul de sac
Site Id:	NM7	**Ground Type:**	buildings and asphalt		



24-Hour Continuous Noise Measurement Datasheet - Cont.

Project Name:	Land Use Plan and Zoning Amendments	**Site Topo:**	Buildings 1-2 stories tall	**Day:**	1 of 2
Site Address/Location:	Gardena, CA	**Meteorological Cond.:**	57F Overcast winds 1-10MPH	**Noise Source(s) w/ Distance:**	road noise and residential noise inside cul de sac
Site Id:	NM7	**Ground Type:**	buildings and asphalt		



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Chandler, AZ 85249

CA Office
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Simi Valley, CA 93065

15-Minute Continuous Noise Measurement Datasheet

Project: Land Use Plan and Zoning Amendments **Site Observations:**
Site Address/Location: Gardena, CA
Date: 4/11/2023
Field Tech/Engineer: Jason Schuyler/ Claire Pincock

General Location:
Sound Meter: XL2, Nti **SN:** A2A-08562-E0
Settings: A-weighted, fast, 1-sec, 15-minute duration
Meteorological Con.: Overcast. 57F winds 1-3 MPH
Site ID: ST-1, ST-3 thru ST-6

Table 1: Morning - Baseline Noise Measurement Summary

Location	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
ST-1	6:58 AM	7:13 AM	69.0	81	43.6	76.3	73.1	70.4	66.6	51.6
ST-3	7:34 AM	7:49 AM	68.2	77.1	44.5	73.9	72.1	70.1	66.9	56.0
ST-4	7:57 AM	8:12 AM	58.7	70.9	45.8	65.2	61.6	59.4	57.4	51.4
ST-5	8:26 AM	8:41 AM	76.4	95.5	59.1	83.7	76.5	73.7	70.1	64.6
ST-6	8:49 AM	9:04 AM	56.2	76.0	43.1	64.7	58.9	54.5	50.6	45.8

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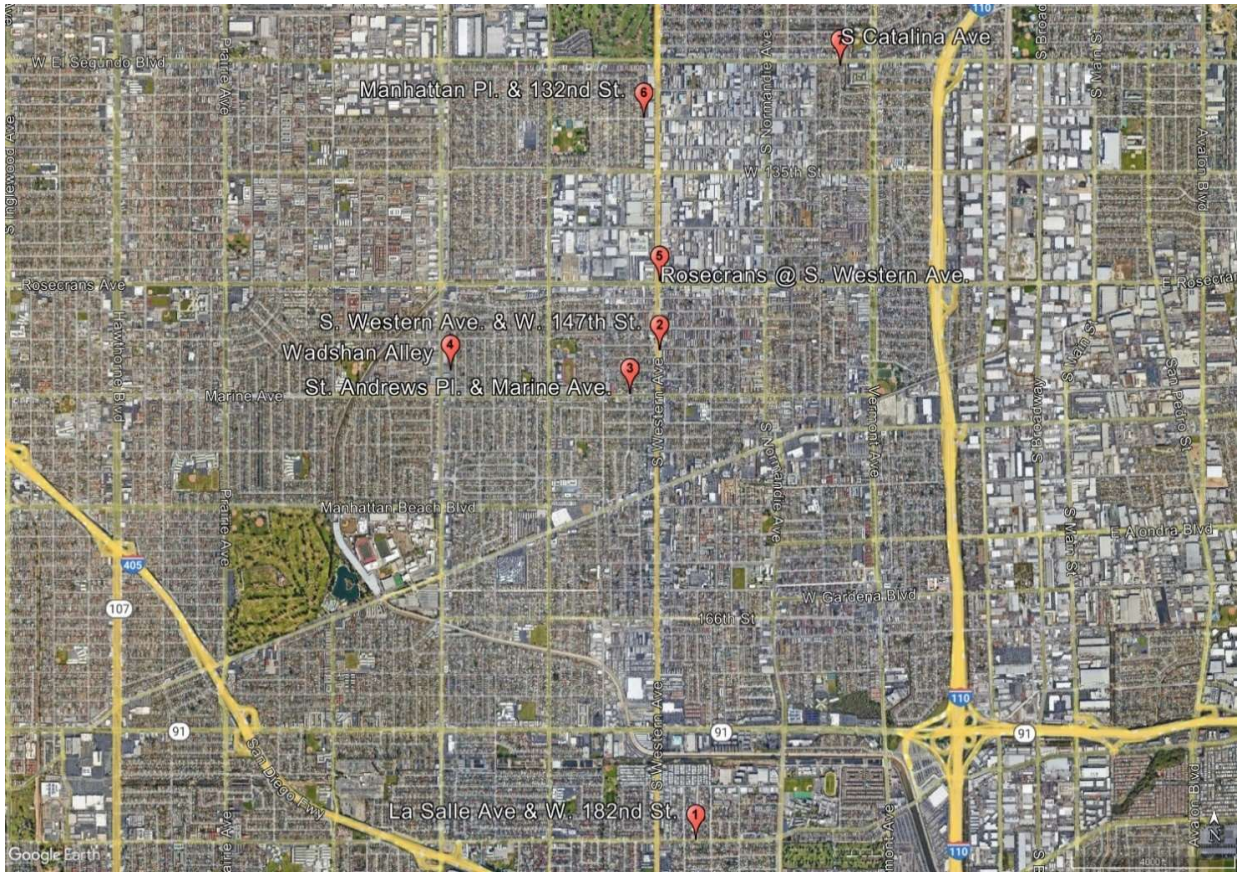
Simi Valley, CA 93065

15-Minute Continuous Noise Measurement Datasheet - Cont.

Project: Land Use Plan and Zoning Amendments
Site Address/Location: Gardena, CA
Site ID: ST-1, ST-3 thru ST-6

Figure 1: Monitoring Locations 1-7



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15-Minute Continuous Noise Measurement Datasheet - ST-1

Project: Land Use Plan and Zoning Amendments
Site Address/Location: La Salle Ave. & 182nd St.
Site ID: ST-1
Site Topo: 57 Degrees
Cloudy, wind 1-3 MPH
Ground Type: Hard
Noise Source(s) w/ Distance:
C/L of W 182nd St. is 50' from meter

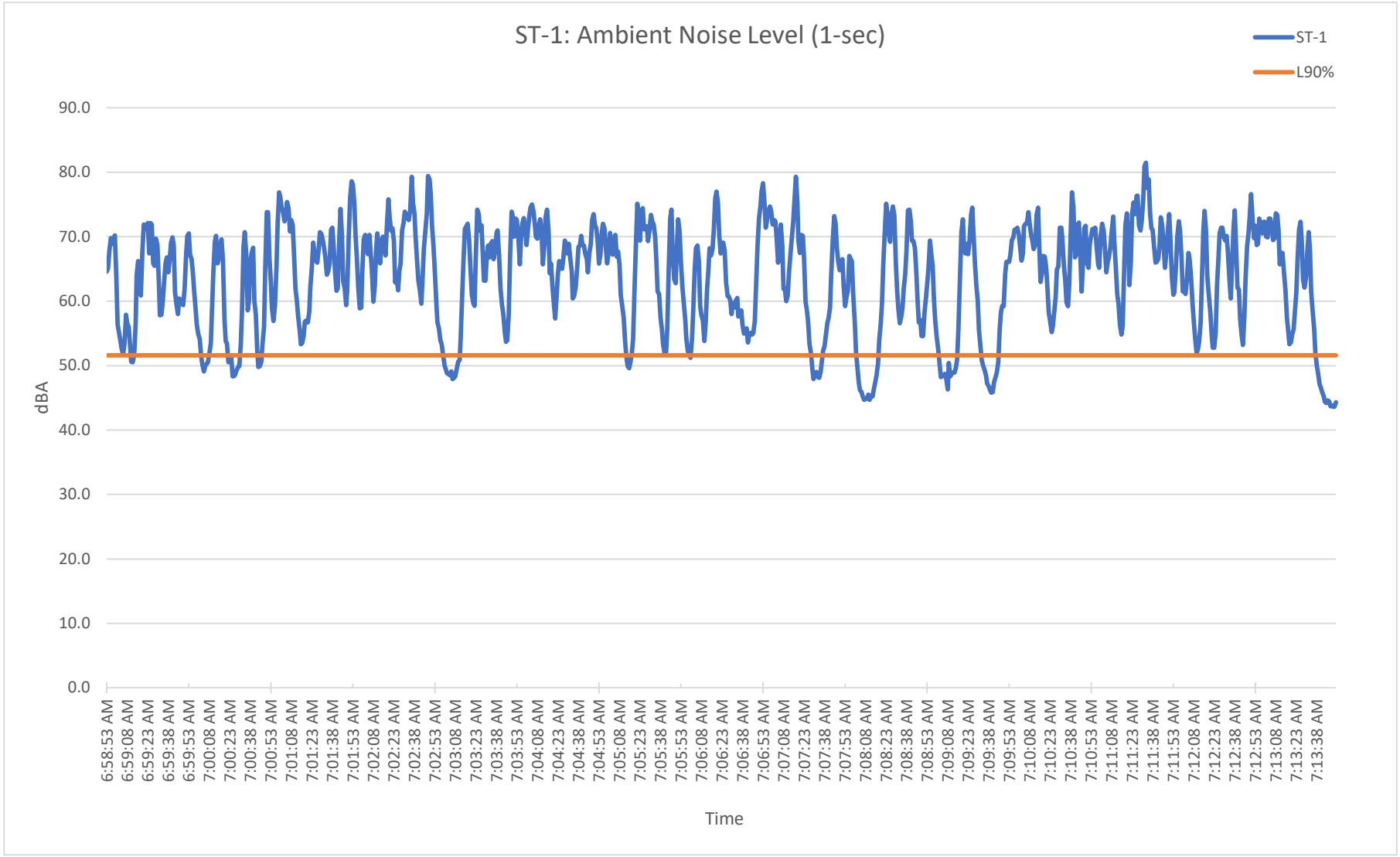

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Figure 2-1: ST-1 Site

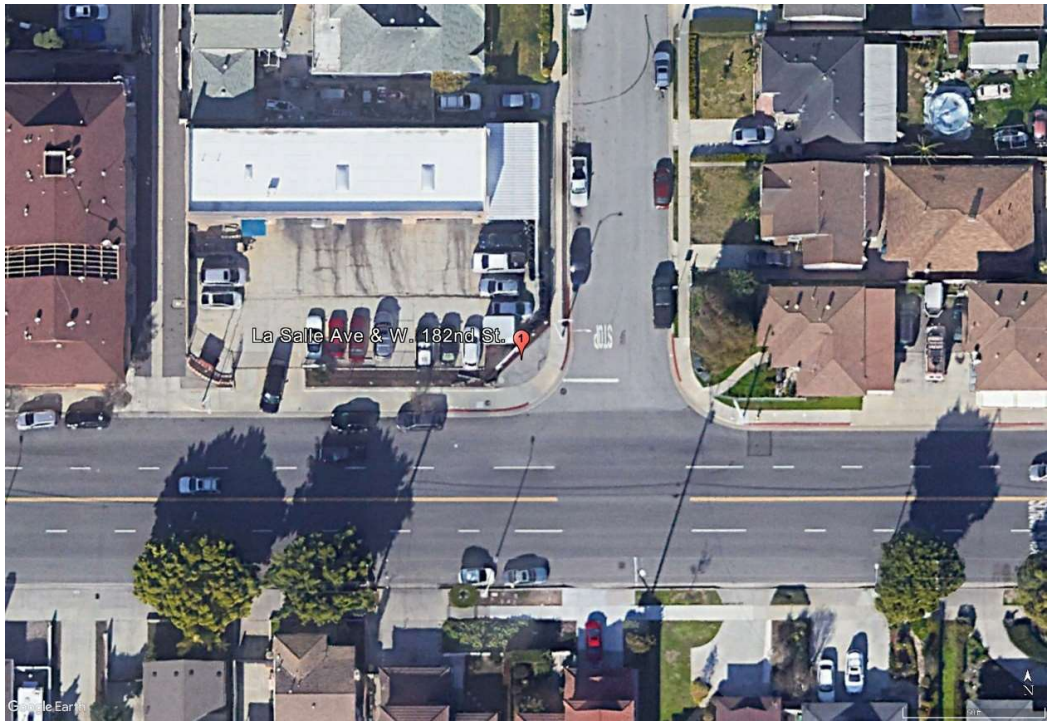

Figure 2-2: ST-1 Photo

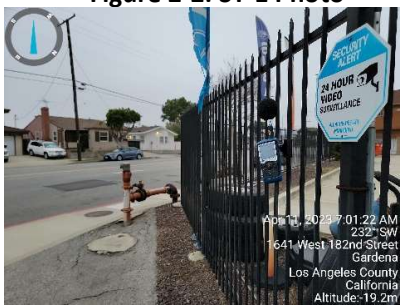

Figure 2-3: ST-1 Photo

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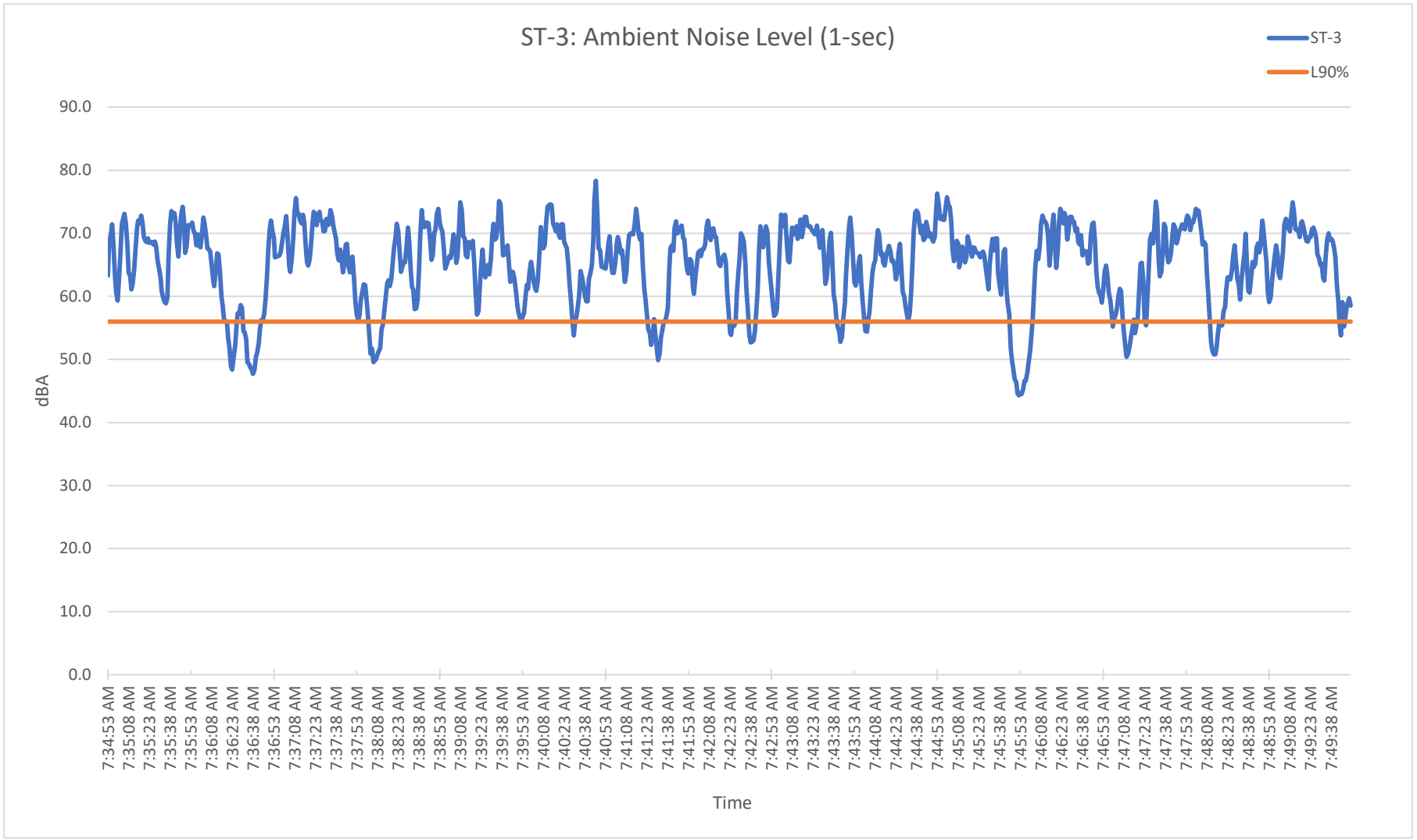
Simi Valley, CA 93065

15-Minute Continuous Noise Measurement Datasheet - ST-3

Project:	Land Use Plan and Zoning Amendments	**Site Topo:**	57 Degrees	**Noise Source(s) w/ Distance:**	
Site Address/Location:	Marine Ave. & St. Andrews Pl.		Cloudy, wind 1-3 MPH		C/L of Marine Ave is 40ft from meter
Site ID:	ST-3	**Ground Type:**	Soft site, w/ street surface hard		



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Simi Valley, CA 93065

Figure 3-1: ST-3 Site

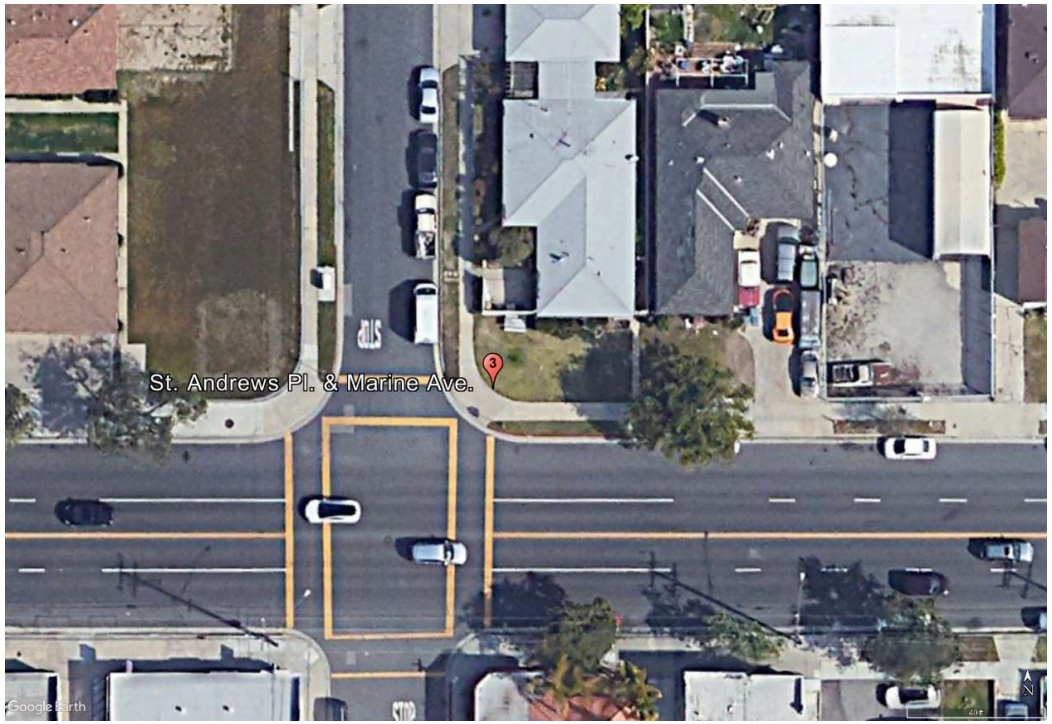

Figure 3-2: ST-3 Photo

Figure 3-3: ST-3 Photo

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Simi Valley, CA 93065

15-Minute Continuous Noise Measurement Datasheet - ST-4

Project: Land Use Plan and Zoning Amendments
Site Address/Location: Wadshan Alley
Site ID: ST-4
Site Topo: 57 Degrees
Cloudy, wind 1-3 MPH
Ground Type: Hard site, w/ street surface hard
Noise Source(s) w/ Distance:
C/L of Crenshaw Blvd is 217' from meter

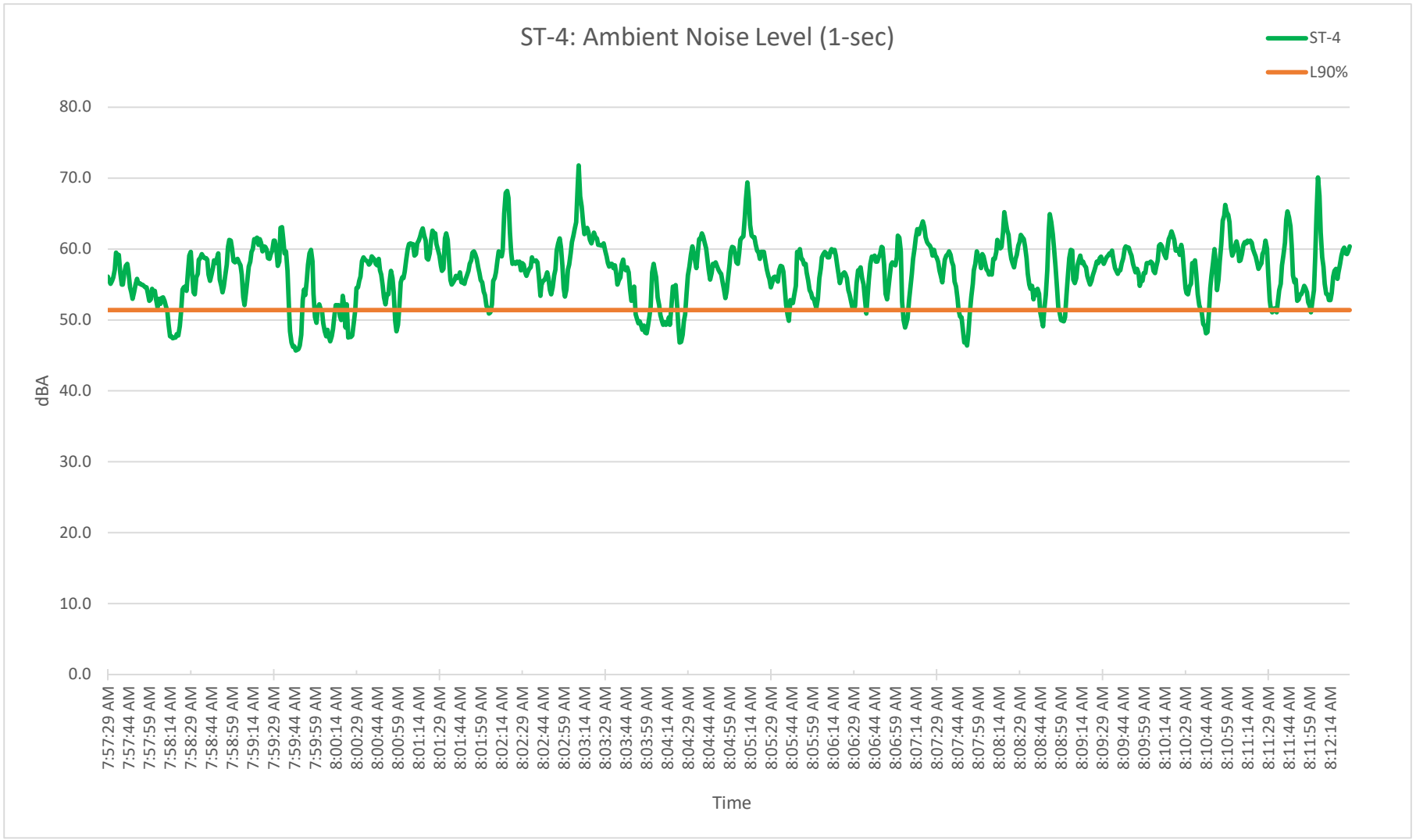

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Figure 4-1: ST-4 Site

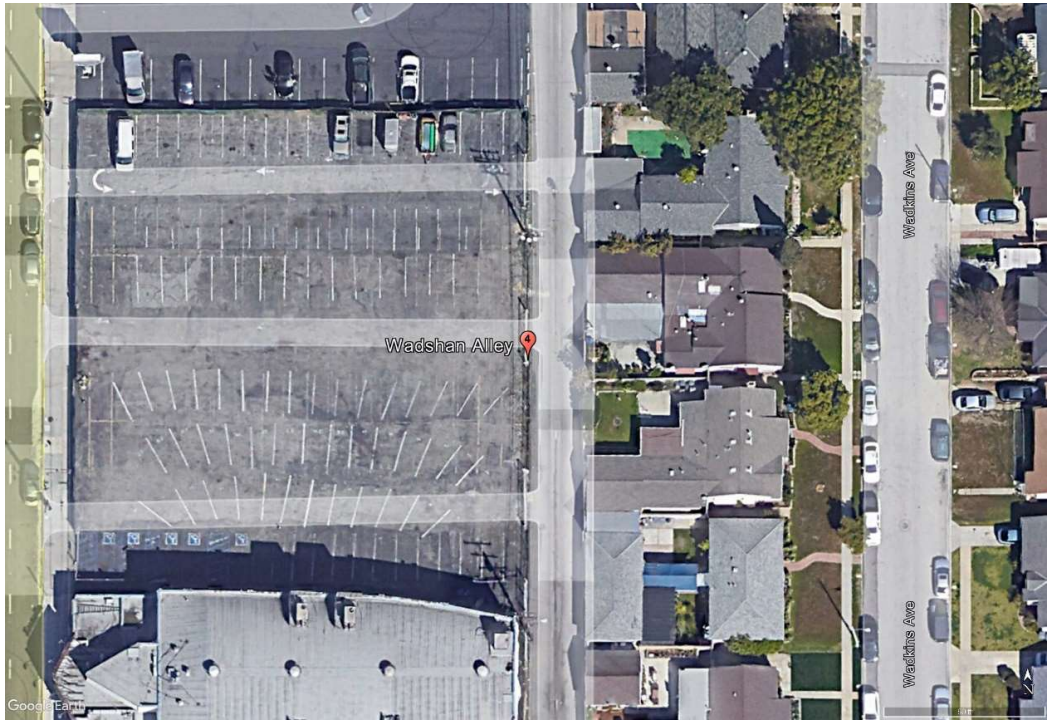

Figure 4-2: ST-4 Photo

Figure 4-3: ST-4 Photo

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Simi Valley, CA 93065

15-Minute Continuous Noise Measurement Datasheet - ST-5

Project: Land Use Plan and Zoning Amendments
Site Address/Location: Rosecrans & Western
Site ID: ST-5

Site Topo: 57 Degrees
Cloudy, wind 1-3 MPH
Ground Type: Hard site

Noise Source(s) w/ Distance:
C/L of S Western Ave. is 50' from meter
C/L of Rosecrans Ave. is 200' from meter

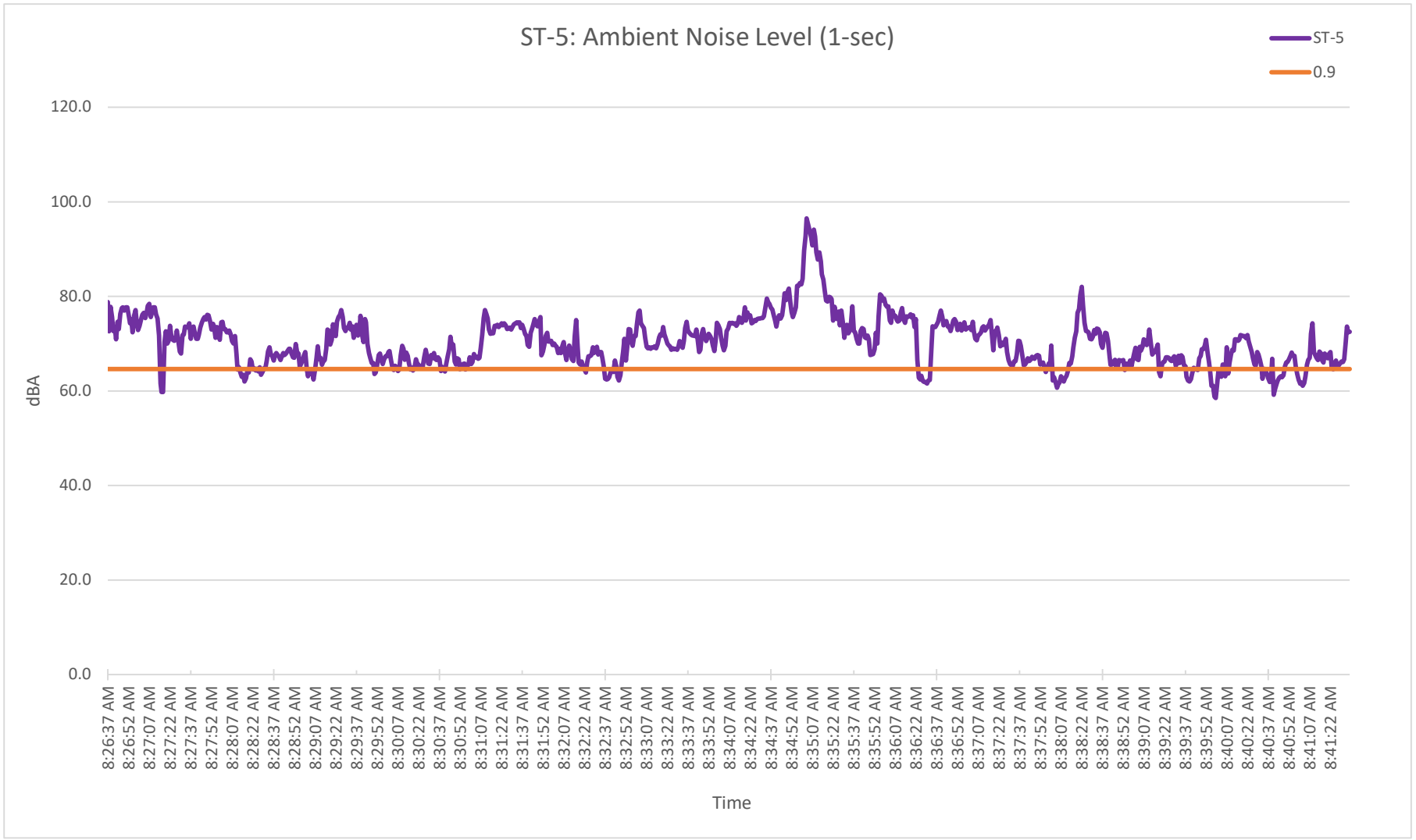

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Figure 5-1: ST-5 Site

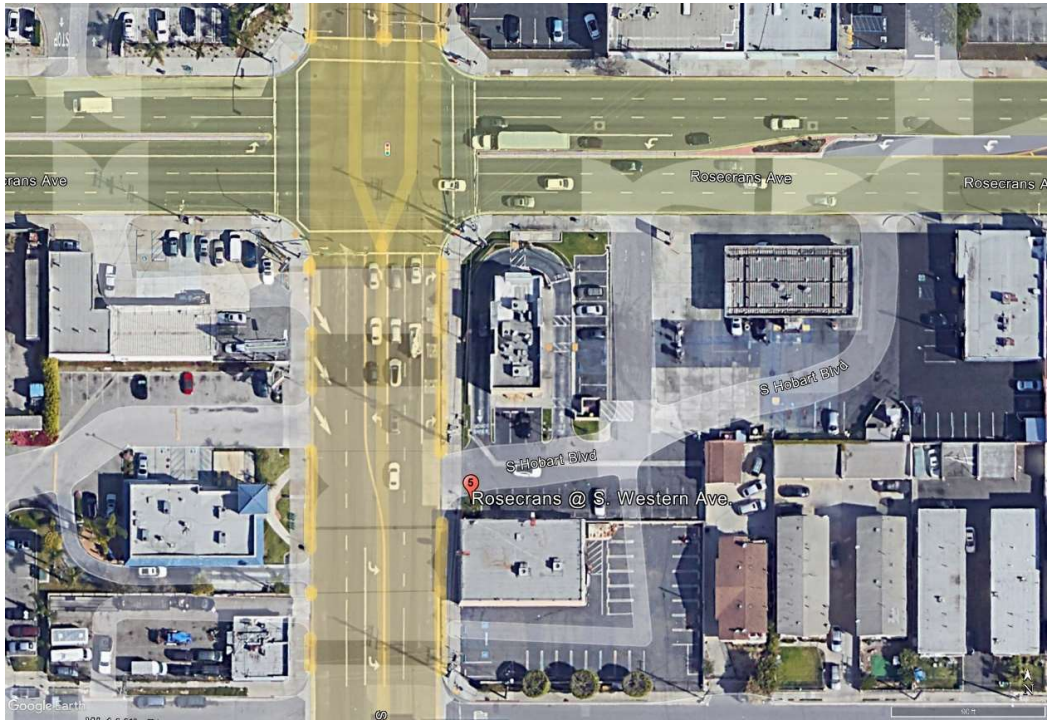

Figure 5-2: ST-5 Photo

Figure 5-3: ST-5 Photo

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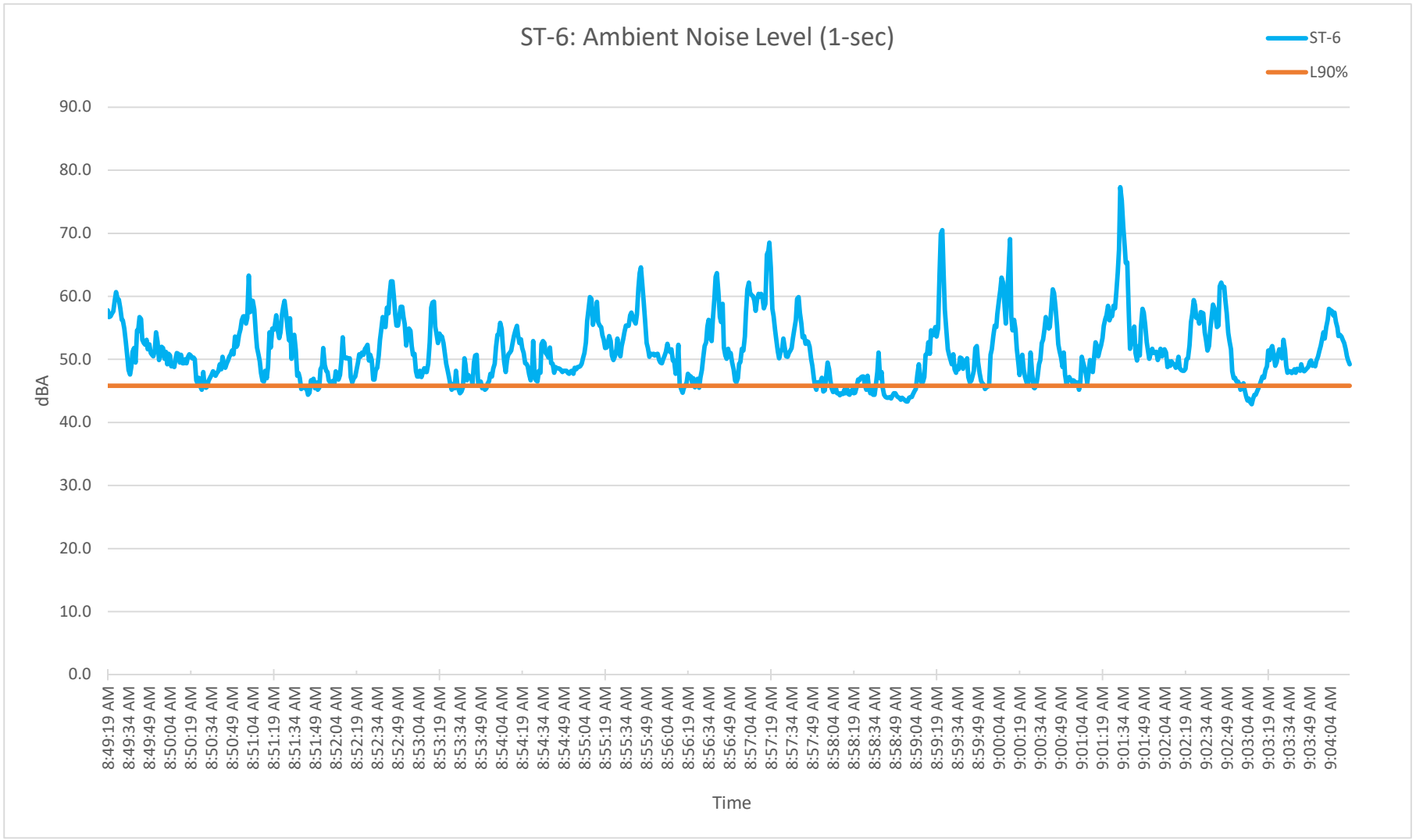
15-Minute Continuous Noise Measurement Datasheet - ST-6

Project:	Land Use Plan and Zoning Amendments	**Site Topo:**	57 Degrees	**Noise Source(s) w/ Distance:**	
Site Address/Location:	132nd St. & Manhattan Pl.		Cloudy, wind 1-3 MPH	C/L of S Western Ave. is 440' from meter	
Site ID:	ST-6	**Ground Type:**	Soft site, w/ street surface hard		



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CA Office
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Figure 6-1: ST-6 Site

Figure 6-2: ST-6 Photo

Figure 6-3: ST-6 Photo

Appendix C:
FHWA Roadway Noise Worksheets

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY El Segundo Blvd.
SEGMENT Western Ave. to Normandie Ave.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	30,777
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,078

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	71.8	69.6	68.7	63.9	71.7	72.2
MEDIUM TRUCKS	61.3	59.0	55.5	55.1	62.2	62.4
HEAVY TRUCKS	70.7	67.6	65.5	66.4	72.9	73.1
VEHICULAR NOISE	74.5	71.9	70.5	68.6	75.6	**75.9**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	196	619	1956	6186
LDN	180	570	1803	5702

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY El Segundo Blvd.
SEGMENT Western Ave. to Normandie Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	30,800
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,080

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	71.8	69.6	68.7	63.9	71.7	72.2
MEDIUM TRUCKS	61.3	59.0	55.5	55.1	62.2	62.4
HEAVY TRUCKS	70.7	67.6	65.5	66.4	72.9	73.1
VEHICULAR NOISE	74.5	71.9	70.5	68.6	75.6	**75.9**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	196	619	1958	6191
LDN	180	571	1804	5706

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY 135th St.
SEGMENT Western Ave. to Normandie Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	21,800
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	40
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,180

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	45.9	- -
MEDIUM TRUCKS=	4.00	45.8	- -
HEAVY TRUCKS =	8.01	45.9	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	69.5	67.2	66.4	61.6	69.4	69.9
MEDIUM TRUCKS	59.0	56.6	53.2	52.8	59.9	60.1
HEAVY TRUCKS	68.4	65.2	63.2	64.1	70.6	70.8
VEHICULAR NOISE	72.2	69.6	68.2	66.2	73.3	**73.6**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	115	364	1150	3636
LDN	106	335	1060	3352

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Marine Ave.
SEGMENT Crenshaw Blvd. to Van Ness Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	20,500
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	30
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,050

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	47.8	- -
MEDIUM TRUCKS=	4.00	47.7	- -
HEAVY TRUCKS =	8.01	47.8	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	67.4	65.1	64.3	59.5	67.3	67.8
MEDIUM TRUCKS	57.6	55.3	51.8	51.4	58.5	58.8
HEAVY TRUCKS	67.5	64.3	62.2	63.1	69.7	69.9
VEHICULAR NOISE	70.7	68.0	66.5	64.9	71.8	**72.2**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	83	261	825	2609
LDN	76	242	764	2416

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Rosecrans Ave.
SEGMENT Van Ness Ave. to Western Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	33,200
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	72.2	69.9	69.0	64.3	72.0	72.6
MEDIUM TRUCKS	61.6	59.3	55.8	55.4	62.5	62.7
HEAVY TRUCKS	71.1	67.9	65.8	66.7	73.3	73.5
VEHICULAR NOISE	74.9	72.2	70.9	68.9	75.9	**76.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	211	667	2110	6673
LDN	194	615	1945	6151

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Rosecrans Ave.
SEGMENT Western Ave. to Normandie Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	41,700
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	4,170

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	73.2	70.9	70.0	65.3	73.0	73.6
MEDIUM TRUCKS	62.6	60.3	56.8	56.4	63.5	63.7
HEAVY TRUCKS	72.1	68.9	66.8	67.7	74.3	74.5
VEHICULAR NOISE	75.9	73.2	71.9	69.9	76.9	**77.2**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	265	838	2650	8381
LDN	244	773	2443	7725

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Western Ave.
SEGMENT 135th St. to Rosecrans Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	25,200
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,520

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	70.4	68.1	67.3	62.5	70.3	70.8
MEDIUM TRUCKS	59.8	57.5	54.0	53.7	60.7	61.0
HEAVY TRUCKS	69.3	66.1	64.1	65.0	71.5	71.7
VEHICULAR NOISE	73.1	70.5	69.1	67.1	74.1	**74.5**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	141	445	1406	4448
LDN	130	410	1296	4099

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Redondo Beach Blvd.
SEGMENT Western Ave. to Normandie Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	30,500
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,050

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	69.6	67.3	66.4	61.7	69.4	70.0
MEDIUM TRUCKS	59.8	57.4	54.0	53.6	60.7	60.9
HEAVY TRUCKS	69.6	66.4	64.4	65.3	71.8	72.0
VEHICULAR NOISE	72.8	70.1	68.7	67.0	74.0	**74.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	135	427	1352	4274
LDN	125	396	1252	3959

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Crenshaw Blvd.
SEGMENT El Segundo Blvd. to 135th St.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	33,000
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	45
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,300

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	44.8	- -
MEDIUM TRUCKS=	4.00	44.7	- -
HEAVY TRUCKS =	8.01	44.8	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	69.8	67.5	66.6	61.9	69.6	70.2
MEDIUM TRUCKS	60.0	57.7	54.2	53.8	60.9	61.1
HEAVY TRUCKS	69.8	66.6	64.6	65.5	72.0	72.2
VEHICULAR NOISE	73.0	70.3	68.9	67.3	74.2	**74.5**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	142	449	1418	4485
LDN	131	415	1314	4154

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Crenshaw Blvd.
SEGMENT 135th St. to Rosecrans Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	29,600
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	45
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,960

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	44.8	- -
MEDIUM TRUCKS=	4.00	44.7	- -
HEAVY TRUCKS =	8.01	44.8	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	71.0	68.7	67.8	63.1	70.8	71.4
MEDIUM TRUCKS	60.4	58.1	54.6	54.2	61.3	61.5
HEAVY TRUCKS	69.9	66.7	64.6	65.5	72.1	72.3
VEHICULAR NOISE	73.7	71.0	69.7	67.7	74.7	**75.1**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	160	507	1602	5067
LDN	148	467	1477	4670

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Crenshaw Blvd.
SEGMENT Rosecrans Ave. to Marine Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	28,400
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	45
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,840

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	44.8	- -
MEDIUM TRUCKS=	4.00	44.7	- -
HEAVY TRUCKS =	8.01	44.8	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	70.8	68.5	67.7	62.9	70.6	71.2
MEDIUM TRUCKS	60.2	57.9	54.4	54.0	61.1	61.4
HEAVY TRUCKS	69.7	66.5	64.5	65.4	71.9	72.1
VEHICULAR NOISE	73.5	70.9	69.5	67.5	74.5	**74.9**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	154	486	1537	4861
LDN	142	448	1417	4481

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Crenshaw Blvd.
SEGMENT Marine Ave. to Manhattan Beach Blvd.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	25,100
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	45
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,510

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	44.8	- -
MEDIUM TRUCKS=	4.00	44.7	- -
HEAVY TRUCKS =	8.01	44.8	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	70.3	68.0	67.1	62.4	70.1	70.7
MEDIUM TRUCKS	59.7	57.4	53.9	53.5	60.6	60.8
HEAVY TRUCKS	69.1	66.0	63.9	64.8	71.4	71.6
VEHICULAR NOISE	73.0	70.3	69.0	67.0	74.0	**74.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	136	430	1359	4297
LDN	125	396	1252	3960

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Marine Ave.
SEGMENT Western Ave. to Normandie Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	19,800
SPEED =	30
PK HR % =	10
NEAR LANE/FAR LANE DIST =	25
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	1,980

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	48.5	- -
MEDIUM TRUCKS=	4.00	48.4	- -
HEAVY TRUCKS =	8.01	48.5	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	65.3	63.0	62.1	57.4	65.1	65.7
MEDIUM TRUCKS	56.4	54.0	50.6	50.2	57.3	57.5
HEAVY TRUCKS	66.6	63.4	61.4	62.3	68.8	69.0
VEHICULAR NOISE	69.2	66.5	65.0	63.7	70.6	**70.9**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	61	194	613	1939
LDN	57	181	571	1805

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Western Ave.
SEGMENT El Segundo Blvd. to 135th St.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	24,000
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	70.2	67.9	67.1	62.3	70.0	70.6
MEDIUM TRUCKS	59.6	57.3	53.8	53.4	60.5	60.8
HEAVY TRUCKS	69.1	65.9	63.9	64.8	71.3	71.5
VEHICULAR NOISE	72.9	70.3	68.9	66.9	73.9	**74.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	134	424	1339	4236
LDN	123	390	1235	3904

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Vermont Ave.
SEGMENT 135th St. to Rosecrans Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	23,100
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	60
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,310

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	70.4	68.1	67.2	62.5	70.2	70.8
MEDIUM TRUCKS	59.8	57.5	54.0	53.6	60.7	60.9
HEAVY TRUCKS	69.3	66.1	64.0	64.9	71.5	71.7
VEHICULAR NOISE	73.1	70.4	69.1	67.1	74.1	**74.5**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	140	441	1395	4412
LDN	129	407	1286	4066

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Western Ave.
SEGMENT Rosecrans Ave. to Marine Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	28,400
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,840

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	70.9	68.6	67.8	63.0	70.8	71.3
MEDIUM TRUCKS	60.4	58.0	54.6	54.2	61.3	61.5
HEAVY TRUCKS	69.8	66.6	64.6	65.5	72.0	72.2
VEHICULAR NOISE	73.6	71.0	69.6	67.6	74.7	**75.0**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	159	501	1585	5012
LDN	146	462	1461	4620

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Western Ave.
SEGMENT 158th St. to 162nd St.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	34,400
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,440

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	71.8	69.5	68.6	63.9	71.6	72.2
MEDIUM TRUCKS	61.2	58.9	55.4	55.0	62.1	62.3
HEAVY TRUCKS	70.6	67.5	65.4	66.3	72.9	73.1
VEHICULAR NOISE	74.5	71.8	70.5	68.5	75.5	**75.8**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	192	607	1920	6071
LDN	177	560	1770	5596

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Western Ave.
SEGMENT 166th St. to Artesia Blvd.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	34,200
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,420

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	71.7	69.4	68.6	63.8	71.6	72.1
MEDIUM TRUCKS	61.2	58.8	55.4	55.0	62.1	62.3
HEAVY TRUCKS	70.6	67.4	65.4	66.3	72.8	73.0
VEHICULAR NOISE	74.4	71.8	70.4	68.4	75.5	**75.8**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	191	604	1909	6036
LDN	176	556	1759	5563

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Western Ave.
SEGMENT Artesia Blvd. to 182nd St.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	31,500
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,150

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	71.4	69.1	68.2	63.5	71.2	71.8
MEDIUM TRUCKS	60.8	58.5	55.0	54.6	61.7	61.9
HEAVY TRUCKS	70.3	67.1	65.1	65.9	72.5	72.7
VEHICULAR NOISE	74.1	71.4	70.1	68.1	75.1	**75.5**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	176	556	1758	5559
LDN	162	512	1620	5124

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Normandie Ave.
SEGMENT 135th St. to Rosecrans Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	20,400
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	40
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,040

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	45.9	- -
MEDIUM TRUCKS=	4.00	45.8	- -
HEAVY TRUCKS =	8.01	45.9	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	67.6	65.3	64.4	59.7	67.4	68.0
MEDIUM TRUCKS	57.8	55.5	52.0	51.6	58.7	58.9
HEAVY TRUCKS	67.6	64.4	62.4	63.3	69.8	70.0
VEHICULAR NOISE	70.8	68.1	66.7	65.0	72.0	**72.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	85	270	854	2702
LDN	79	250	791	2502

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Normandie Ave.
SEGMENT 170th St. to Artesia Blvd.
LOCATION: Gardena, CA SCENARIO: Cumulative plus Project

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	28,200
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	40
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,820

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	45.9	- -
MEDIUM TRUCKS=	4.00	45.8	- -
HEAVY TRUCKS =	8.01	45.9	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	69.0	66.7	65.8	61.1	68.8	69.4
MEDIUM TRUCKS	59.2	56.9	53.4	53.0	60.1	60.3
HEAVY TRUCKS	69.0	65.8	63.8	64.7	71.2	71.4
VEHICULAR NOISE	72.2	69.5	68.1	66.5	73.4	**73.7**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	118	374	1181	3735
LDN	109	346	1094	3459

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY El Segundo Blvd.
SEGMENT Western Ave. to Normandie Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	30,800
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,080

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	71.8	69.6	68.7	63.9	71.7	72.2
MEDIUM TRUCKS	61.3	59.0	55.5	55.1	62.2	62.4
HEAVY TRUCKS	70.7	67.6	65.5	66.4	72.9	73.1
VEHICULAR NOISE	74.5	71.9	70.5	68.6	75.6	**75.9**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	196	619	1958	6191
LDN	180	571	1804	5706

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY 135th St.
SEGMENT Western Ave. to Normandie Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	19,900
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	40
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	1,990

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	45.9	- -
MEDIUM TRUCKS=	4.00	45.8	- -
HEAVY TRUCKS =	8.01	45.9	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	69.1	66.8	66.0	61.2	69.0	69.5
MEDIUM TRUCKS	58.6	56.2	52.8	52.4	59.5	59.7
HEAVY TRUCKS	68.0	64.9	62.8	63.7	70.2	70.4
VEHICULAR NOISE	71.8	69.2	67.8	65.9	72.9	**73.2**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	105	332	1050	3320
LDN	97	306	968	3060

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Marine Ave.
SEGMENT Crenshaw Blvd. to Van Ness Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	19,300
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	30
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	1,930

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	47.8	- -
MEDIUM TRUCKS=	4.00	47.7	- -
HEAVY TRUCKS =	8.01	47.8	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	67.2	64.9	64.0	59.3	67.0	67.6
MEDIUM TRUCKS	57.4	55.0	51.6	51.2	58.2	58.5
HEAVY TRUCKS	67.2	64.0	62.0	62.9	69.4	69.6
VEHICULAR NOISE	70.4	67.7	66.3	64.6	71.6	**71.9**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	78	246	777	2456
LDN	72	228	719	2275

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Rosecrans Ave.
SEGMENT Van Ness Ave. to Western Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	31,800
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,180

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	72.0	69.7	68.8	64.1	71.8	72.4
MEDIUM TRUCKS	61.4	59.1	55.6	55.2	62.3	62.6
HEAVY TRUCKS	70.9	67.7	65.7	66.5	73.1	73.3
VEHICULAR NOISE	74.7	72.0	70.7	68.7	75.7	**76.1**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	202	639	2021	6392
LDN	186	589	1863	5891

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Rosecrans Ave.
SEGMENT Western Ave. to Normandie Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	41,600
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	4,160

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	73.2	70.9	70.0	65.3	73.0	73.5
MEDIUM TRUCKS	62.6	60.3	56.8	56.4	63.5	63.7
HEAVY TRUCKS	72.0	68.9	66.8	67.7	74.2	74.5
VEHICULAR NOISE	75.9	73.2	71.9	69.9	76.9	**77.2**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	264	836	2644	8361
LDN	244	771	2437	7707

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Western Ave.
SEGMENT 135th St. to Rosecrans Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	25,100
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,510

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	70.4	68.1	67.3	62.5	70.2	70.8
MEDIUM TRUCKS	59.8	57.5	54.0	53.6	60.7	61.0
HEAVY TRUCKS	69.3	66.1	64.1	65.0	71.5	71.7
VEHICULAR NOISE	73.1	70.5	69.1	67.1	74.1	**74.5**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	140	443	1401	4430
LDN	129	408	1291	4083

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Marine Ave.
SEGMENT Western Ave. to Normandie Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	20,100
SPEED =	30
PK HR % =	10
NEAR LANE/FAR LANE DIST =	25
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,010

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	48.5	- -
MEDIUM TRUCKS=	4.00	48.4	- -
HEAVY TRUCKS =	8.01	48.5	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	65.3	63.1	62.2	57.4	65.2	65.7
MEDIUM TRUCKS	56.4	54.1	50.6	50.2	57.3	57.6
HEAVY TRUCKS	66.7	63.5	61.5	62.4	68.9	69.1
VEHICULAR NOISE	69.3	66.6	65.0	63.8	70.6	**71.0**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	62	197	623	1969
LDN	58	183	580	1833

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Redondo Beach Blvd.
SEGMENT Western Ave. to Normandie Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	30,300
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,030

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	69.5	67.2	66.4	61.6	69.4	69.9
MEDIUM TRUCKS	59.7	57.4	53.9	53.5	60.6	60.9
HEAVY TRUCKS	69.6	66.4	64.3	65.2	71.8	72.0
VEHICULAR NOISE	72.8	70.1	68.7	67.0	74.0	**74.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	134	425	1343	4246
LDN	124	393	1244	3933

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Crenshaw Blvd.
SEGMENT El Segundo Blvd. to 135th St.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	32,400
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	45
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,240

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	44.8	- -
MEDIUM TRUCKS=	4.00	44.7	- -
HEAVY TRUCKS =	8.01	44.8	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	69.7	67.4	66.6	61.8	69.5	70.1
MEDIUM TRUCKS	59.9	57.6	54.1	53.7	60.8	61.0
HEAVY TRUCKS	69.7	66.5	64.5	65.4	71.9	72.1
VEHICULAR NOISE	72.9	70.2	68.8	67.2	74.1	**74.4**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	139	440	1393	4404
LDN	129	408	1290	4079

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Crenshaw Blvd.
SEGMENT 135th St. to Rosecrans Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	29,200
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	45
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,920

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	44.8	- -
MEDIUM TRUCKS=	4.00	44.7	- -
HEAVY TRUCKS =	8.01	44.8	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	70.9	68.6	67.8	63.0	70.8	71.3
MEDIUM TRUCKS	60.3	58.0	54.5	54.2	61.2	61.5
HEAVY TRUCKS	69.8	66.6	64.6	65.5	72.0	72.2
VEHICULAR NOISE	73.6	71.0	69.6	67.6	74.6	**75.0**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	158	500	1581	4998
LDN	146	461	1457	4607

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Crenshaw Blvd.
SEGMENT Rosecrans Ave. to Marine Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	27,500
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	45
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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	44.8	- -
MEDIUM TRUCKS=	4.00	44.7	- -
HEAVY TRUCKS =	8.01	44.8	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	70.7	68.4	67.5	62.8	70.5	71.1
MEDIUM TRUCKS	60.1	57.8	54.3	53.9	61.0	61.2
HEAVY TRUCKS	69.5	66.4	64.3	65.2	71.8	72.0
VEHICULAR NOISE	73.4	70.7	69.4	67.4	74.4	**74.7**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	149	471	1489	4707
LDN	137	434	1372	4339

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Crenshaw Blvd.
SEGMENT Marine Ave. to Manhattan Beach Blvd.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	24,700
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	45
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,470

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	44.8	- -
MEDIUM TRUCKS=	4.00	44.7	- -
HEAVY TRUCKS =	8.01	44.8	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	70.2	67.9	67.1	62.3	70.0	70.6
MEDIUM TRUCKS	59.6	57.3	53.8	53.4	60.5	60.8
HEAVY TRUCKS	69.1	65.9	63.9	64.8	71.3	71.5
VEHICULAR NOISE	72.9	70.3	68.9	66.9	73.9	**74.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	134	423	1337	4228
LDN	123	390	1232	3897

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Western Ave.
SEGMENT El Segundo Blvd. to 135th St.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	21,600
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,160

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	69.7	67.4	66.6	61.8	69.6	70.1
MEDIUM TRUCKS	59.2	56.9	53.4	53.0	60.1	60.3
HEAVY TRUCKS	68.6	65.5	63.4	64.3	70.8	71.0
VEHICULAR NOISE	72.4	69.8	68.4	66.5	73.5	**73.8**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	121	381	1206	3812
LDN	111	351	1111	3514

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Vermont Ave.
SEGMENT 135th St. to Rosecrans Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	22,500
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	60
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,250

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	70.3	68.0	67.1	62.4	70.1	70.7
MEDIUM TRUCKS	59.7	57.4	53.9	53.5	60.6	60.8
HEAVY TRUCKS	69.1	66.0	63.9	64.8	71.4	71.6
VEHICULAR NOISE	73.0	70.3	69.0	67.0	74.0	**74.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	136	430	1359	4297
LDN	125	396	1252	3961

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Western Ave.
SEGMENT Rosecrans Ave. to Marine Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	26,900
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,690

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	70.7	68.4	67.6	62.8	70.5	71.1
MEDIUM TRUCKS	60.1	57.8	54.3	53.9	61.0	61.3
HEAVY TRUCKS	69.6	66.4	64.4	65.3	71.8	72.0
VEHICULAR NOISE	73.4	70.8	69.4	67.4	74.4	**74.8**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	150	475	1501	4748
LDN	138	438	1384	4376

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Western Ave.
SEGMENT 158th St. to 162nd St.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	32,700
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,270

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	71.5	69.3	68.4	63.6	71.4	71.9
MEDIUM TRUCKS	61.0	58.7	55.2	54.8	61.9	62.1
HEAVY TRUCKS	70.4	67.3	65.2	66.1	72.6	72.8
VEHICULAR NOISE	74.2	71.6	70.2	68.3	75.3	**75.6**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	183	577	1825	5771
LDN	168	532	1682	5319

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Western Ave.
SEGMENT 166th St. to Artesia Blvd.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	33,300
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,330

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	71.6	69.3	68.5	63.7	71.5	72.0
MEDIUM TRUCKS	61.0	58.7	55.2	54.9	61.9	62.2
HEAVY TRUCKS	70.5	67.3	65.3	66.2	72.7	72.9
VEHICULAR NOISE	74.3	71.7	70.3	68.3	75.3	**75.7**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	186	588	1859	5877
LDN	171	542	1713	5417

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Western Ave.
SEGMENT Artesia Blvd. to 182nd St.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	30,900
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,090

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	71.3	69.0	68.2	63.4	71.1	71.7
MEDIUM TRUCKS	60.7	58.4	54.9	54.5	61.6	61.9
HEAVY TRUCKS	70.2	67.0	65.0	65.9	72.4	72.6
VEHICULAR NOISE	74.0	71.4	70.0	68.0	75.0	**75.4**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	172	545	1725	5454
LDN	159	503	1590	5027

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Normandie Ave.
SEGMENT 135th St. to Rosecrans Ave.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	20,200
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	40
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,020

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	45.9	- -
MEDIUM TRUCKS=	4.00	45.8	- -
HEAVY TRUCKS =	8.01	45.9	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	67.5	65.2	64.4	59.6	67.4	67.9
MEDIUM TRUCKS	57.7	55.4	51.9	51.5	58.6	58.9
HEAVY TRUCKS	67.6	64.4	62.3	63.2	69.8	70.0
VEHICULAR NOISE	70.8	68.1	66.6	65.0	72.0	**72.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	85	268	846	2675
LDN	78	248	784	2478

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Normandie Ave.
SEGMENT 170th St. to Artesia Blvd.
LOCATION: Gardena, CA SCENARIO: Cumulative

JOB #: 0462-2020-27
DATE: 16-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	27,700
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	40
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,770

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	45.9	- -
MEDIUM TRUCKS=	4.00	45.8	- -
HEAVY TRUCKS =	8.01	45.9	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	68.9	66.6	65.8	61.0	68.7	69.3
MEDIUM TRUCKS	59.1	56.8	53.3	52.9	60.0	60.2
HEAVY TRUCKS	68.9	65.8	63.7	64.6	71.1	71.3
VEHICULAR NOISE	72.1	69.5	68.0	66.4	73.3	**73.7**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	116	367	1160	3669
LDN	107	340	1075	3398

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY 135th St.
SEGMENT Western Ave. to Normandie Ave.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	16,858
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	40
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	1,686

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	45.9	- -
MEDIUM TRUCKS=	4.00	45.8	- -
HEAVY TRUCKS =	8.01	45.9	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	68.4	66.1	65.3	60.5	68.3	68.8
MEDIUM TRUCKS	57.8	55.5	52.0	51.7	58.7	59.0
HEAVY TRUCKS	67.3	64.1	62.1	63.0	69.5	69.7
VEHICULAR NOISE	71.1	68.5	67.1	65.1	72.1	**72.5**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	89	281	889	2812
LDN	82	259	820	2592

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Marine Ave.
SEGMENT Crenshaw Blvd. to Van Ness Ave.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	17,340
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	30
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	1,734

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	47.8	- -
MEDIUM TRUCKS=	4.00	47.7	- -
HEAVY TRUCKS =	8.01	47.8	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	66.7	64.4	63.6	58.8	66.5	67.1
MEDIUM TRUCKS	56.9	54.6	51.1	50.7	57.8	58.0
HEAVY TRUCKS	66.7	63.5	61.5	62.4	68.9	69.1
VEHICULAR NOISE	69.9	67.2	65.8	64.2	71.1	**71.4**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	70	221	698	2207
LDN	65	204	646	2044

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Rosecrans Ave.
SEGMENT Van Ness Ave. to Western Ave.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	31,758
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,176

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	72.0	69.7	68.8	64.1	71.8	72.4
MEDIUM TRUCKS	61.4	59.1	55.6	55.2	62.3	62.5
HEAVY TRUCKS	70.9	67.7	65.7	66.5	73.1	73.3
VEHICULAR NOISE	74.7	72.0	70.7	68.7	75.7	**76.1**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	202	638	2019	6383
LDN	186	588	1860	5883

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Rosecrans Ave.
SEGMENT Western Ave. to Normandie Ave.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	41,590
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	65
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	4,159

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	73.1	70.9	70.0	65.3	73.0	73.5
MEDIUM TRUCKS	62.6	60.3	56.8	56.4	63.5	63.7
HEAVY TRUCKS	72.0	68.9	66.8	67.7	74.2	74.5
VEHICULAR NOISE	75.8	73.2	71.9	69.9	76.9	**77.2**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	264	836	2643	8359
LDN	244	770	2436	7705

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Western Ave.
SEGMENT 135th St. to Rosecrans Ave.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	22,840
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,284

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	70.0	67.7	66.8	62.1	69.8	70.4
MEDIUM TRUCKS	59.4	57.1	53.6	53.2	60.3	60.5
HEAVY TRUCKS	68.9	65.7	63.7	64.5	71.1	71.3
VEHICULAR NOISE	72.7	70.0	68.7	66.7	73.7	**74.1**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	127	403	1275	4031
LDN	117	372	1175	3715

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Marine Ave.
SEGMENT Western Ave. to Normandie Ave.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	18,483
SPEED =	30
PK HR % =	10
NEAR LANE/FAR LANE DIST =	25
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	1,848

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	48.5	- -
MEDIUM TRUCKS=	4.00	48.4	- -
HEAVY TRUCKS =	8.01	48.5	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	65.0	62.7	61.8	57.1	64.8	65.4
MEDIUM TRUCKS	56.1	53.7	50.3	49.9	57.0	57.2
HEAVY TRUCKS	66.3	63.1	61.1	62.0	68.5	68.7
VEHICULAR NOISE	68.9	66.2	64.7	63.4	70.3	**70.6**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	57	181	572	1810
LDN	53	169	533	1685

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Redondo Beach Blvd.
SEGMENT Western Ave. to Normandie Ave.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	30,337
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,034

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	69.5	67.3	66.4	61.6	69.4	69.9
MEDIUM TRUCKS	59.7	57.4	53.9	53.6	60.6	60.9
HEAVY TRUCKS	69.6	66.4	64.4	65.2	71.8	72.0
VEHICULAR NOISE	72.8	70.1	68.7	67.0	74.0	**74.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	134	425	1344	4251
LDN	125	394	1245	3937

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Crenshaw Blvd.
SEGMENT El Segundo Blvd. to 135th St.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	32,198
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	45
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,220

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	44.8	- -
MEDIUM TRUCKS=	4.00	44.7	- -
HEAVY TRUCKS =	8.01	44.8	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	69.7	67.4	66.5	61.8	69.5	70.1
MEDIUM TRUCKS	59.9	57.5	54.1	53.7	60.8	61.0
HEAVY TRUCKS	69.7	66.5	64.5	65.4	71.9	72.1
VEHICULAR NOISE	72.9	70.2	68.8	67.1	74.1	**74.4**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	138	438	1384	4376
LDN	128	405	1282	4053

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Crenshaw Blvd.
SEGMENT 135th St. to Rosecrans Ave.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	27,764
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	45
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,776

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	44.8	- -
MEDIUM TRUCKS=	4.00	44.7	- -
HEAVY TRUCKS =	8.01	44.8	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	70.7	68.4	67.6	62.8	70.5	71.1
MEDIUM TRUCKS	60.1	57.8	54.3	53.9	61.0	61.3
HEAVY TRUCKS	69.6	66.4	64.4	65.3	71.8	72.0
VEHICULAR NOISE	73.4	70.8	69.4	67.4	74.4	**74.8**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	150	475	1503	4753
LDN	139	438	1385	4381

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Crenshaw Blvd.
SEGMENT Rosecrans Ave. to Marine Ave.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	27,485
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	45
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,749

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	44.8	- -
MEDIUM TRUCKS=	4.00	44.7	- -
HEAVY TRUCKS =	8.01	44.8	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	70.7	68.4	67.5	62.8	70.5	71.0
MEDIUM TRUCKS	60.1	57.8	54.3	53.9	61.0	61.2
HEAVY TRUCKS	69.5	66.4	64.3	65.2	71.8	72.0
VEHICULAR NOISE	73.4	70.7	69.4	67.4	74.4	**74.7**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	149	470	1488	4705
LDN	137	434	1371	4336

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Crenshaw Blvd.
SEGMENT Marine Ave. to Manhattan Beach Blvd.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	24,671
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	45
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,467

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	44.8	- -
MEDIUM TRUCKS=	4.00	44.7	- -
HEAVY TRUCKS =	8.01	44.8	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	70.2	67.9	67.0	62.3	70.0	70.6
MEDIUM TRUCKS	59.6	57.3	53.8	53.4	60.5	60.8
HEAVY TRUCKS	69.1	65.9	63.9	64.7	71.3	71.5
VEHICULAR NOISE	72.9	70.2	68.9	66.9	73.9	**74.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	134	422	1335	4223
LDN	123	389	1231	3893

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Western Ave.
SEGMENT El Segundo Blvd. to 135th St.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	21,028
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,103

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	69.6	67.3	66.5	61.7	69.5	70.0
MEDIUM TRUCKS	59.0	56.7	53.3	52.9	59.9	60.2
HEAVY TRUCKS	68.5	65.3	63.3	64.2	70.7	70.9
VEHICULAR NOISE	72.3	69.7	68.3	66.3	73.4	**73.7**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	117	371	1174	3711
LDN	108	342	1082	3421

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Western Ave.
SEGMENT 158th St. to 162nd St.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	30,668
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,067

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	71.3	69.0	68.1	63.4	71.1	71.7
MEDIUM TRUCKS	60.7	58.4	54.9	54.5	61.6	61.8
HEAVY TRUCKS	70.2	67.0	64.9	65.8	72.4	72.6
VEHICULAR NOISE	74.0	71.3	70.0	68.0	75.0	**75.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	171	541	1712	5413
LDN	158	499	1578	4989

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Western Ave.
SEGMENT Rosecrans Ave. to Marine Ave.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	26,365
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,637

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	70.6	68.3	67.5	62.7	70.4	71.0
MEDIUM TRUCKS	60.0	57.7	54.2	53.8	60.9	61.2
HEAVY TRUCKS	69.5	66.3	64.3	65.2	71.7	71.9
VEHICULAR NOISE	73.3	70.7	69.3	67.3	74.3	**74.7**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	147	465	1471	4653
LDN	136	429	1356	4289

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Western Ave.
SEGMENT 166th St. to Artesia Blvd.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	31,208
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	3,121

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	71.3	69.0	68.2	63.4	71.2	71.7
MEDIUM TRUCKS	60.8	58.4	55.0	54.6	61.7	61.9
HEAVY TRUCKS	70.2	67.0	65.0	65.9	72.4	72.6
VEHICULAR NOISE	74.0	71.4	70.0	68.1	75.1	**75.4**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	174	551	1742	5508
LDN	161	508	1605	5077

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Western Ave.
SEGMENT Artesia Blvd. to 182nd St.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	27,705
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	50
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,771

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	70.8	68.5	67.7	62.9	70.7	71.2
MEDIUM TRUCKS	60.2	57.9	54.4	54.1	61.1	61.4
HEAVY TRUCKS	69.7	66.5	64.5	65.4	71.9	72.1
VEHICULAR NOISE	73.5	70.9	69.5	67.5	74.5	**74.9**

NOISE CONTOUR (FT)				
NOISE LEVELS	**70 dBA**	**65 dBA**	**60 dBA**	**55 dBA**
CNEL	155	489	1546	4890
LDN	143	451	1425	4507

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Normandie Ave.
SEGMENT 135th St. to Rosecrans Ave.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	19,425
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	40
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	1,943

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	45.9	- -
MEDIUM TRUCKS=	4.00	45.8	- -
HEAVY TRUCKS =	8.01	45.9	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	67.4	65.1	64.2	59.5	67.2	67.8
MEDIUM TRUCKS	57.6	55.2	51.8	51.4	58.5	58.7
HEAVY TRUCKS	67.4	64.2	62.2	63.1	69.6	69.8
VEHICULAR NOISE	70.6	67.9	66.5	64.8	71.8	**72.1**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	81	257	814	2573
LDN	75	238	754	2383

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Normandie Ave.
SEGMENT 170th St. to Artesia Blvd.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	26,240
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST =	40
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	2,624

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	45.9	- -
MEDIUM TRUCKS=	4.00	45.8	- -
HEAVY TRUCKS =	8.01	45.9	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	68.7	66.4	65.5	60.8	68.5	69.1
MEDIUM TRUCKS	58.9	56.5	53.1	52.7	59.8	60.0
HEAVY TRUCKS	68.7	65.5	63.5	64.4	70.9	71.1
VEHICULAR NOISE	71.9	69.2	67.8	66.1	73.1	**73.4**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	110	348	1099	3475
LDN	102	322	1018	3219

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

PROJECT: Gardena Land Use Plan and Zoning Amendments
ROADWAY Vermont Ave.
SEGMENT 135th St. to Rosecrans Ave.
LOCATION: Gardena, CA SCENARIO: Existing

JOB #: 0462-2020-27
DATE: 17-May-23
ENGINEER: C. Pincock

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	19,881
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST =	60
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	1,988

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	0.708	0.146	0.146	0.958
MEDIUM TRUCKS	0.704	0.079	0.217	0.011
HEAVY TRUCKS	0.577	0.090	0.332	0.031

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	69.7	67.4	66.6	61.8	69.6	70.1
MEDIUM TRUCKS	59.1	56.8	53.4	53.0	60.0	60.3
HEAVY TRUCKS	68.6	65.4	63.4	64.3	70.8	71.0
VEHICULAR NOISE	72.4	69.8	68.4	66.4	73.5	**73.8**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	120	380	1201	3797
LDN	111	350	1107	3500