APPENDIX H.1:
Noise and Vibration Assessment

Noise and Vibration Impact Assessment for the Fairview Developmental Center Specific Plan Project

City of Costa Meas, California

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LIST OF ACRONYMS AND ABBREVIATIONS

Term	Definition
CALGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CBC	California Building Code
CEQA	California Environmental Quality Act
City	City of Costa Mesa
CNEL	Community Noise Equivalent Level
dB	decibels
dBA	A-weighted decibels
DNL	Day-Night Average Noise Level
ECORP	ECORP Consulting, Inc.
FHWA	Federal Highway Administration
FICON	Federal Interagency Committee on Noise
FTA	Federal Transit Administration
HVAC	Heating, ventilation, and air conditioning
Hz	Hertz
L_{dn}	Day-Night Average Noise Level
L_{eq}	Equivalent Noise Level
L_{max}	the maximum A-weighted noise level during the measurement period
L_{min}	the minimum A-weighted noise level during the measurement period
PPV	Peak Particle Velocity
Project	Fairview Developmental Center Specific Plan Project
RMS	Root Mean Square
sf	square feet
Specific Plan	Fairview Developmental Center Specific Plan
SR	State Route
STC	Sound Transmission Class
VdB	Vibration Velocity Level

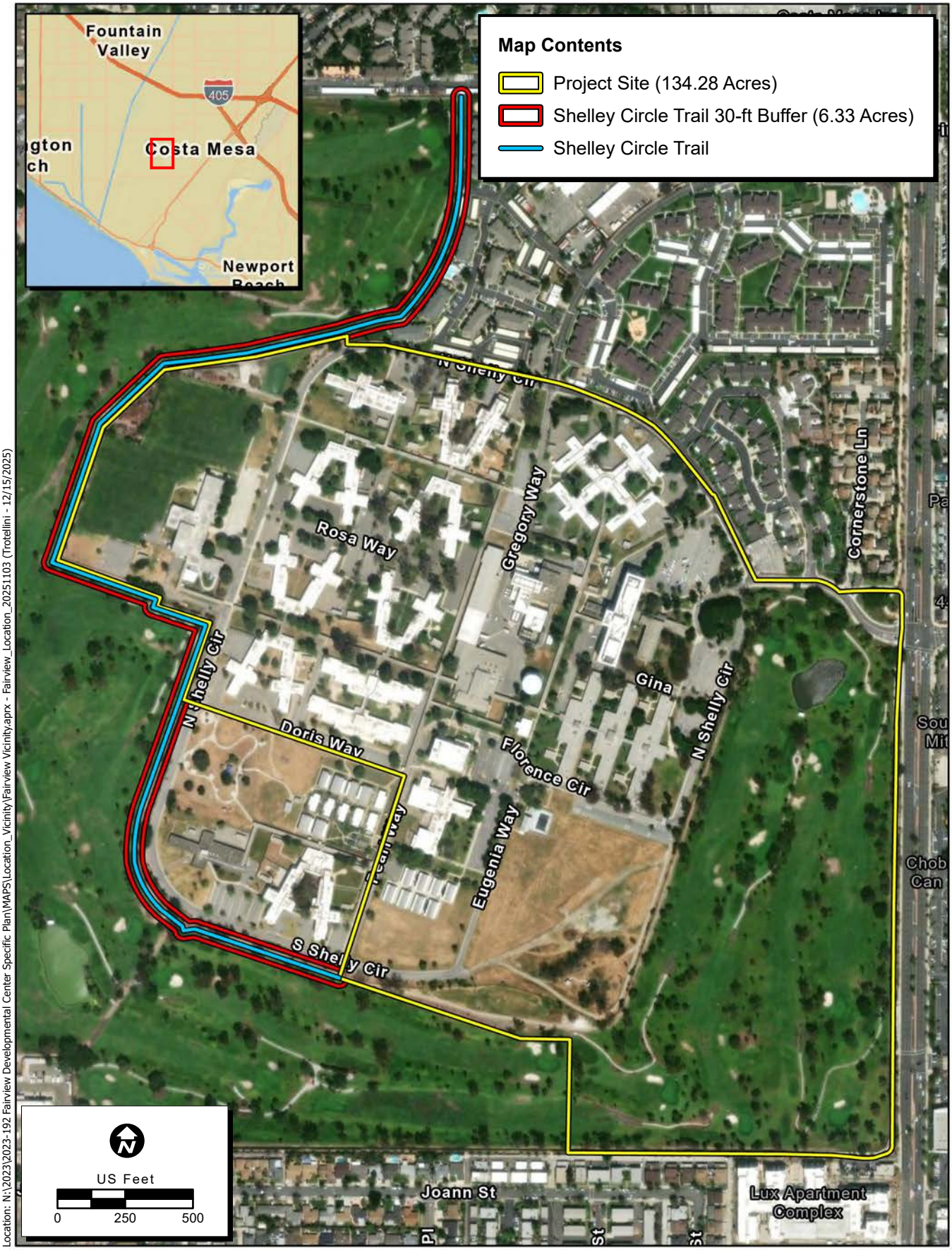
1.0 INTRODUCTION

This report presents the results of a Noise Impact Assessment prepared for the Fairview Developmental Center Specific Plan Project (Project) in the City of Costa Mesa (City), Orange County, California. The Proposed Project involves adoption and implementation of the Fairview Developmental Center Specific Plan (Specific Plan) to allow redevelopment of the former Fairview Developmental Center property as a mixed-use residential community with associated commercial uses, open space amenities, and circulation improvements. This analysis evaluates potential short-term and long-term noise impacts associated with implementation of the Specific Plan, including construction activities, roadway improvements, and long-term operational conditions such as traffic, on-site activity, and mechanical equipment. The assessment compares predicted project-related noise levels to applicable standards and guidelines contained in the City of Costa Mesa General Plan Noise Element and Municipal Code. The purpose of this report is to determine whether implementation of the Specific Plan could result in significant noise impacts, to quantify anticipated noise exposure levels, and to identify mitigation measures, where necessary, to ensure consistency with applicable regulations and compatibility with surrounding land uses.

1.1 Location and Setting

The Project Site is located at 2501 Harbor Boulevard in the City of Costa Mesa, California. The Project Site encompasses approximately 95 acres of the former Fairview Developmental Center property. The site is located west of Harbor Boulevard and is predominantly surrounded by the Costa Mesa Country Club, which wraps around the Project Site to the west, south, and east with residential uses to the north (see Figure 1-1).

The site is currently developed with existing buildings associated with the former Fairview Developmental Center, along with internal paved roadways, parking areas, landscaped areas, and open space. The broader surrounding area is urbanized. Land uses in the vicinity include the Costa Mesa Country Club golf course immediately adjacent to much of the site, with residential and commercial uses located primarily to the east across Harbor Boulevard and to the north across Shelley Circle. A Department of General Services emergency operations center is located on the broader Fairview property near the southern portion of the site and will remain in operation. The Project Site is located approximately 1.5 miles south of Interstate 405, 1.3 miles west of State Route 55, 2.6 miles north of State Route 1, and approximately 2.5 miles southwest of John Wayne Airport.



Location: N:\2023\2023-192 Fairview Developmental Center Specific Plan\MAPS\Location_Vicinity\Fairview Vicinity.aprx - Fairview_Location_20251103 (Trotellini - 12/15/2025)

Map Date: 12/12/2025

Sources: ESRI, Vantor (2023)

Figure 1-1. Project Location

1.2 Project Description

The Proposed Project consists of adoption and implementation of the Fairview Developmental Center Specific Plan, which would establish a comprehensive land use and development framework to allow redevelopment of the former Fairview Developmental Center property as a mixed-use residential community. The Specific Plan would guide long-term redevelopment of the site through establishment of permitted land uses, development standards, circulation improvements, open space requirements, and infrastructure improvements.

The Specific Plan is intended to facilitate development of a new neighborhood community that integrates residential uses with supporting commercial, recreational, and open space amenities. The development program would include a substantial residential component, neighborhood-serving commercial uses, publicly accessible open space areas, pedestrian and bicycle infrastructure, and roadway access improvements. The Specific Plan provides flexibility in the precise configuration, intensity, and phasing of development, with final site layouts and building designs subject to future discretionary approvals consistent with the adopted plan.

Residential development under the Specific Plan would include a minimum of approximately 2,300 dwelling units, with a potential maximum buildout of up to 4,000 dwelling units. A range of housing types would be permitted, including townhomes, courtyard-style units, multi-family residential buildings, and mid-rise and high-rise residential structures of up to approximately 12 stories. The housing program is intended to accommodate a variety of household types and income levels, including very low-income, low-income, moderate-income, and above-moderate-income units, as well as permanent supportive housing and senior living options.

In addition to residential uses, the Specific Plan would allow development of up to approximately 35,000 square feet of commercial space. Commercial uses would primarily consist of neighborhood-serving retail, restaurants, cafés, small-format grocery stores, pharmacies, medical and professional offices, fitness studios, childcare facilities, and similar community-oriented services. Commercial development may occur in standalone buildings or in mixed-use configurations integrated with residential buildings.

The Specific Plan also includes provision of publicly accessible open space and recreational amenities. A minimum of approximately 14 acres of open space would be provided, which may include neighborhood parks, plazas, trails, paseos, gathering areas, and other passive or active recreational features. These open space areas are intended to serve both Project residents and the broader community.

The Project would establish two primary vehicular access points to serve the site. The existing access connection at Fairview Drive on the northeast portion of the property would remain in use. A new secondary access roadway would be constructed to connect the southeastern portion of the site to Harbor Boulevard. In addition, an emergency-only access connection would be constructed from Merrimac Way, a privately maintained roadway located west of the site. This emergency access would include a gated entry designed to remain closed except during emergency response events.

Construction of the Harbor Boulevard access would require development of a new roadway segment extending through a portion of the adjacent Costa Mesa Country Club property. Implementation of this

connection would necessitate physical modification and reconfiguration of up to six existing golf course holes within an area of approximately 45 acres to accommodate roadway alignment, grading, and associated infrastructure. The Project also includes construction of the Shelley Circle Trail, a multi-use path that would extend along the eastern boundary of the site and continue offsite to connect with Tanager Drive. The offsite segment would be approximately 4,650 linear feet in length and constructed as an 8- to 10-foot-wide paved, two-way path designed for pedestrian and bicycle use.

Development under the Specific Plan would occur over time in multiple phases, subject to future subdivision and site plan approvals. The Specific Plan establishes the regulatory framework for redevelopment but does not prescribe the precise sequencing or construction schedule of individual components.

2.0 ENVIRONMENTAL NOISE AND GROUNDBORNE VIBRATION ANALYSIS

2.1 Fundamentals of Noise and Environmental Sound

2.1.1 Addition of Decibels

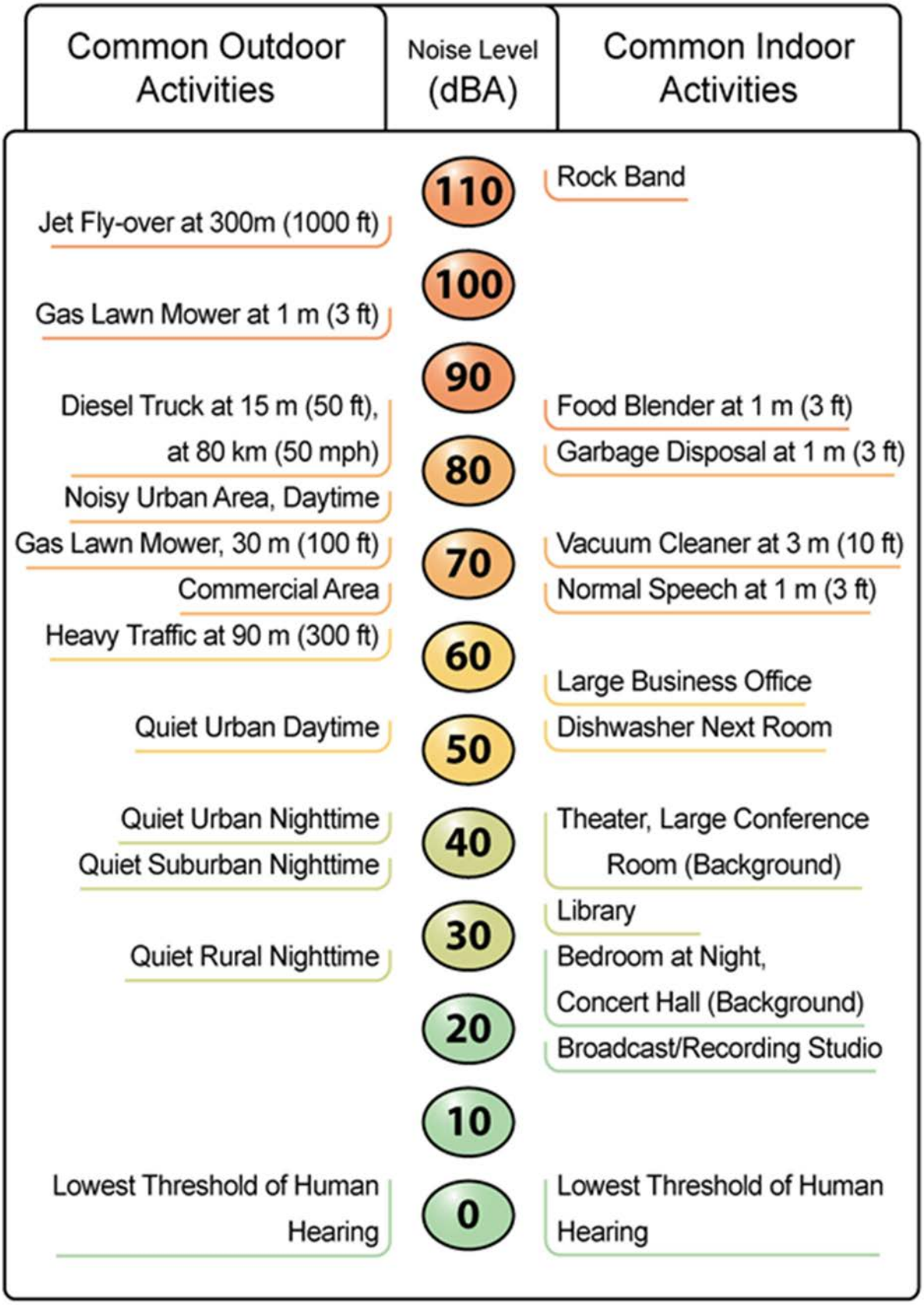
The decibel (dB) scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted (dBA), an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be three dB higher than one source under the same conditions. For example, a 65-dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by three dB). Under the decibel scale, three sources of equal loudness together would produce an increase of five dB.

Typical noise levels associated with common noise sources are depicted in Figure 2-1.

2.1.2 Noise Descriptors

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include the Equivalent Noise Level (L_{eq}) as well as the Day-Night Average Noise Level (L_{dn}) and Community Noise Equivalent Level (CNEL). The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL are measures of community noise. Each is applicable to this analysis and defined as follows:

- *L_{eq}* is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- *L_{dn}* is a 24-hour average L_{eq} with a 10-dBA "weighting" added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
- *CNEL* is a 24-hour average L_{eq} with a 5-dBA weighting during the hours of 7:00 pm to 10:00 pm and a 10-dBA weighting added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the evening and nighttime, respectively.



Source: California Department of Transportation (Caltrans) 2020b

Figure 2-1. Common Noise Levels

Table 2-1 provides a list of other common acoustical descriptors.

Table 2-1. Common Acoustical Descriptors

Descriptor	Definition
Decibel (dB)	A unit describing the amplitude of 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. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micropascals (or 20 micronewtons per square meter), where 1 pascal is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micropascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hertz (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sounds are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level (dBA)	The sound pressure level in decibels is measured on a sound level meter using the A-weighting 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 frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level (L_{eq})	The average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L01, L10, L50, L90	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day-Night Average Noise Level (L_{dn} or DNL)	A 24-hour average L_{eq} with a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
Community Noise Equivalent Level (CNEL)	A 24-hour average L_{eq} with a 5 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content, as well as the prevailing ambient noise level.

The A-weighted decibel sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the

variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about ±1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source. Close to the noise source, the models are accurate to within about ±1 to 2 dBA.

2.1.3 Sound Propagation and Attenuation

Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB (dBA) for each doubling of distance from a stationary or point source (Federal Highway Administration [FHWA] 2017a). Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 dBA for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (FHWA 2017a). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dBA per doubling of distance is normally assumed. For line sources, an overall attenuation rate of three dB per doubling of distance is assumed (FHWA 2017a).

Noise levels may also be reduced by intervening structures; generally, a single row of detached buildings between the receptor and the noise source reduces the noise level by about five dBA (FHWA 2006), while a solid wall or berm generally reduces noise levels by 5 to 10 dBA (FHWA 2017b). According to the FHWA (2017b), noise barriers can reduce noise levels by 15 dBA in certain instances, yet this level of noise reduction is very difficult to achieve. To achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the “line of sight” between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend lengthwise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver.

The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (California Department of Transportation [Caltrans] 2002). The exterior-to-interior reduction of newer residential units is generally 30 dBA or more (Harris Miller, Miller & Hanson Inc. 2006). Generally, in exterior noise environments ranging from 60 dBA CNEL to 65 dBA CNEL, interior noise levels can typically be maintained below 45 dBA, a typical residential interior noise standard, with the incorporation of an adequate forced air mechanical ventilation system in each residential building, and standard thermal-pane residential windows/doors with

a minimum rating of Sound Transmission Class (STC) 28. (STC is an integer rating of how well a building partition attenuates airborne sound. In the U.S., it is widely used to rate interior partitions, ceilings, floors, doors, windows, and exterior wall configurations). In exterior noise environments of 65 dBA CNEL or greater, a combination of forced-air mechanical ventilation and sound-rated construction methods is often required to meet the interior noise level limit. Attaining the necessary noise reduction from exterior to interior spaces is readily achievable in noise environments experiencing less than 75 dBA CNEL with proper wall construction techniques following California Building Code (CBC) methods, the selections of proper windows and doors, and the incorporation of forced-air mechanical ventilation systems.

2.1.4 Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL or L_{dn} is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in A-weighted noise levels (dBA), the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response would be expected. An increase of 5 dBA is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

2.1.5 Effects of Noise on People

2.1.5.1 Hearing Loss

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

The Occupational Safety and Health Administration has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over eight hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

2.1.5.2 Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes of annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation between noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources.

2.2 Fundamentals of Environmental Groundborne Vibration

2.2.1 Vibration Sources and Characteristics

Sources of earthborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or manmade causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions).

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the Peak Particle Velocity (PPV); another is the Root Mean Square (RMS) velocity. The Peak Particle Velocity (PPV) is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

PPV is generally accepted as the most appropriate descriptor for evaluating the potential for building damage. For human response, however, an average vibration amplitude is more appropriate because it takes time for the human body to respond to the excitation (the human body responds to an average vibration amplitude, not a peak amplitude). Because the average particle velocity over time is zero, the RMS amplitude is typically used to assess human response. The RMS value is the average of the amplitude squared over time, typically a 1-second period.

Table 2-2 displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high-noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. For instance, heavy-duty trucks generally generate groundborne vibration velocity levels of 0.006 PPV at 50 feet under typical circumstances, which as identified in Table 2-2 is considered very unlikely to cause damage to buildings of any type. Common sources for groundborne vibration are planes, trains, and construction activities such as earthmoving which requires the use of heavy-duty earth moving equipment.

Table 2-2. Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration Levels

Peak Particle Velocity (inches/second)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effect on Buildings
0.006–0.019	64–74	Range of threshold of perception	Vibrations unlikely to cause damage of any type
0.08	87	Vibrations readily perceptible	Threshold at which there is a risk of architectural damage to extremely fragile historic buildings, ruins, ancient monuments
0.10	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities	Threshold at which there is a risk of architectural damage to fragile buildings. Virtually no risk of architectural damage to normal buildings
0.25	94	Vibrations may begin to annoy people in buildings	Threshold at which there is a risk of architectural damage to historic and some old buildings
0.30	96	Vibrations may begin to feel severe to people in buildings	Threshold at which there is a risk of architectural damage to older residential structures
0.50	103	Vibrations considered unpleasant by people subjected to continuous vibrations	Threshold at which there is a risk of architectural damage to new residential structures and Modern industrial/commercial buildings

Source: California Department of Transportation 2020b

3.0 EXISTING ENVIRONMENTAL NOISE SETTING

3.1 Noise-Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in adverse risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as historic sites, hotels, schools, health care centers, libraries, churches, senior homes, recreational areas, and cemeteries are also commonly considered sensitive to increases in exterior noise levels. The nearest noise-sensitive receptors to the Project Site include existing residential land uses located immediately north of the Project boundary across Shelley Circle. Additional noise-sensitive receptors in the vicinity include residential neighborhoods located east of the site across Harbor Boulevard, residential land uses located south of the site along Joann Street, and Estancia High School, located southwest of the Project Site across Placentia Avenue.

3.1.1 Existing Ambient Noise Environment

The existing ambient noise environment in the vicinity of the Specific Plan Area is dominated by roadway traffic, with secondary contributions from surrounding residential land uses. Consistent with the City of Costa Mesa General Plan Noise Element, roadway traffic on arterial and collector roadways represents the primary source of ambient noise within the City. In the Project Area, traffic along Harbor Boulevard, Fair Drive, Placentia Avenue, Joann Street, and Shelley Circle largely defines existing ambient noise conditions. Additional stationary noise sources in the area include routine residential activities, such as dogs barking, landscaping equipment, and other neighborhood related noise. Institutional land uses, including Estancia High School located southwest of the Project Site across Placentia Avenue, as well as nearby commercial land uses, also contributes periodic noise associated with daily operations and outdoor activities.

The Project Site is located in an area of Costa Mesa predominantly consisting of residential land uses, which are considered noise-sensitive receptors. As a result, the existing ambient noise environment reflects typical conditions for an urban residential area, where baseline sound levels are influenced primarily by roadway traffic with intermittent contributions from nearby land uses.

3.1.2 Existing Ambient Noise Measurements

The Project Site is located in the City of Costa Mesa and is generally bounded by the Costa Mesa Country Club to the west, south, and east, with Harbor Boulevard and Tanager Drive located beyond. Residential uses are located to the north across Shelley Circle. In order to quantify existing ambient noise levels in the Project Area, ECORP Consulting, Inc. conducted a series of short-term (15-minute) noise measurements during daytime hours in 2023 and 2025 to characterize typical ambient noise conditions at locations influenced by nearby roadways and surrounding land uses. These short-term measurements are representative of existing noise exposure in areas adjacent to the Project Site during the daytime (see Appendix A). Additionally, ECORP Consulting, Inc. conducted long-term noise measurements (24-hour) on

the Project Site in 2023 to determine the noise experienced on the site from the existing noise environment. The average noise levels at each location are listed in Table 3-1.

Conducting noise measurements in multiple years allows for a more representative characterization of the existing noise environment by accounting for potential variations in traffic volumes, activity patterns, and short-term fluctuations that may occur over time. Multi-year monitoring helps confirm the consistency of dominant noise sources in the Project vicinity.

Table 3-1. Existing Ambient Noise Measurements

Location Number	Location	CNEL dBA	L_{eq} dBA	L_{min} dBA	L_{max} dBA	Time
2023 Short-Term Noise Measurements						
ST 1	On a parkway northeast of the intersection of Shelley Circle and Fair Drive.	N/A	57.5	45.2	68.3	10:22 a.m. – 10:37 a.m.
ST 2	On a parkway northeast of the intersection of Florence Circle, Eugenia Way, and Pearl Way.	N/A	50.6	46.4	61.6	10:41 a.m. – 10:56 a.m.
ST 3	North of Shelley Circle and west of a parking lot.	N/A	64.3	44.7	66.3	10:59 a.m. – 11:14 a.m.
ST 4	North of an unnamed road and approximately 40 feet west of Shelley Circle.	N/A	48.0	43.2	63.6	11:17 a.m. – 11:32 a.m.
ST 5	Southwest of the intersection between Shelly Circle and Gregory Way.	N/A	56.1	43.2	76.8	11:36 a.m. – 11:54 a.m.
2023 Long-Term Noise Measurements						
LT 1	On the southeast corner of the Project Site.	52.7	48.7	35.2	80.4	9:25 a.m. – 9:25 a.m.
LT 2	On the northwest corner of the Project Site	54.7	51.9	38.5	86.9	9:47 a.m. – 9:47 a.m.
2025 Short-Term Noise Measurements						
ST 1	Located at the northwest corner of the intersection of North Shelly Circle and Merrimac Way/Gregory Way.	N/A	57.1	40.4	76.8	1:37 p.m. – 1:52 p.m.
ST 2	Near driveway of the residence at 2501 Christopher Lane.	N/A	53.4	40.3	67.1	2:09 p.m. – 2:24 p.m.
ST 3	Located on the north side of Harbor Boulevard, in front of Pacific Auto Center at 2524 Harbor Boulevard.	N/A	75.8	58.4	86.7	3:15 p.m. – 3:30 p.m.
ST 4	Located south of Fair Drive, approximately 70-feet west of Carnegie Avenue.	N/A	70.3	48.3	83.4	2:43 p.m. – 2:58 p.m.

Table 3-1. Existing Ambient Noise Measurements

Location Number	Location	CNEL dBA	L_{eq} dBA	L_{min} dBA	L_{max} dBA	Time
ST 5	Approximately 130-feet north of the intersection of Joann Street and Fountain Way, at the bike path entrance near 610 Joann Street.	N/A	50.4	42.1	68.4	3:45 p.m. – 4:00 p.m.

Notes: dBA = A-weighted decibels; N/A = Not Applicable
CNEL is a 24-hour average noise metric that incorporates a 10 dBA weighting applied to noise occurring during the nighttime hours of 10:00 p.m. to 7:00 a.m. and a 5 dBA weighting applied to noise occurring during the evening hours of 7:00 p.m. to 10:00 p.m., to account for increased noise sensitivity during these periods. L_{eq} is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. L_{min} is the minimum noise level during the measurement period and L_{max} is the maximum noise level during the measurement period.

Source: All short-term and long-term noise measurements conducted in 2023, as well as the short-term noise measurements conducted in 2025, were collected using the Larson Davis LxT SE sound level meter, which satisfies the American National Standards Institute for general environmental noise measurement instrumentation. Prior to each monitoring event, the instrument was calibrated in accordance with manufacturer specifications using a Larson Davis CAL200 Class I acoustic calibrator. See Appendix A for noise measurement outputs.

As shown in Table 3-1, ambient noise levels measured at and near the Project Site range from approximately 48.0 dBA L_{eq} to 75.8 dBA L_{eq} during short-term daytime noise measurements, with the higher levels observed at measurement locations adjacent to Harbor Boulevard. Long-term noise measurements recorded CNEL values ranging from approximately 52.7 dBA to 54.7 dBA. The predominant noise sources in the Project vicinity include vehicular traffic on nearby arterial and local roadways, including Harbor Boulevard, Fair Drive, and Shelley Circle, with intermittent contributions from local residential activities occurring in the Project Area.

3.1.3 Existing Roadway Noise Levels

Existing roadway noise levels were calculated for the roadway segments in the Project vicinity. This task was accomplished using the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) (Appendix B) and traffic volumes provided by Fehr and Peers (2026). The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (energy rates) used in the FHWA model have been modified to reflect average vehicle noise rates identified for California by Caltrans. The Caltrans data shows that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels. The average daily noise levels along these roadway segments are presented in Table 3-2.

Table 3-2. Existing Roadway Noise Levels

Roadway Segment	CNEL at 100 Feet	Distance to CNEL Contour (feet)[1, 2]			
		70 dBA	65 dBA	60 dBA	55 dBA
Adams Avenue					
Between Mesa Verde Drive East and Harbor Boulevard	**64.7**	-	93	296	+500
Victoria Street					
Between Mesa Verde Drive East and Harbor Boulevard	**65.6**	-	114	360	+500
West 19th Street					
Between Meyer Place and Park Avenue	**62.3**	-	54	171	+500
Harbor Boulevard					
Between Gisler Avenue and Nutmeg Place	**68.3**	-	213	+500	+500
Between Adams Avenue and Merrimac Way	**64.5**	-	90	284	+500
Between Fair Drive and Wilson Street	**66.3**	-	133	420	+500
Between West Bay Street and Ford Road	**67.0**	-	158	500	+500
Newport Boulevard					
Between West 18th Street and Harbor Boulevard	**71.3**	134	422	+500	+500
Fair Drive					
Between Fordham Drive and Loyola Road	**62.5**	-	57	180	+500
Between Vanguard Way and Newport Boulevard	**64.2**	-	84	264	+500

Source: Traffic noise levels were calculated using the FHWA Highway Noise Prediction Model in conjunction with traffic volumes provided by Fehr and Peers (2026). Refer to Attachment B for traffic noise modeling assumptions and results.

[1]Distance to CNEL contours do not account for the noise attenuation attributable to intervening structures.

[2] All contour distances from fully developed areas are capped at 500 feet from roadway centerlines.

As shown, the existing traffic generated noise level on Project vicinity roadways currently ranges from 62.3 dBA CNEL to 71.3 dBA CNEL at a distance of 100 feet from the centerline. As previously described, CNEL is a 24-hour average noise metric that incorporates a 10 dBA weighting applied to noise occurring during the nighttime hours of 10:00 p.m. to 7:00 a.m. and a 5 dBA weighting applied to noise occurring during the evening hours of 7:00 p.m. to 10:00 p.m., to account for increased noise sensitivity during these

periods. It should be noted that the modeled noise levels depicted in Table 3-2 differ from the short-term measurement levels in Table 3-1 because the short-term measurements represent noise levels at various locations around the Project Area as well as noise generated by non-transportation sources. The short-term measurements are also reported in a different noise metric (e.g., short-term noise measurements are the L_{eq} values and traffic noise levels are reported in CNEL).

4.0 REGULATORY FRAMEWORK

4.1 Federal

4.1.1 Federal Transit Administration

The Federal Transit Administration (FTA) provides a guidance manual that contains procedures for predicting and assessing noise and vibration impacts of proposed transit projects. This manual acknowledges that noise and vibration are among the primary concerns of the surrounding communities. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the surrounding land use. The FTA provides guidelines that are typically considered applicable criteria for construction noise assessments in a California Environmental Quality Act (CEQA) analysis.

4.1.2 Federal Interagency Committee on Noise (FICON)

The FICON thresholds of significance assist in the evaluation of increased traffic noise. The 2000 FICON findings provide guidance as to the significance of changes in ambient noise levels due to transportation noise sources. FICON recommendations are based on studies that relate aircraft and traffic noise levels to the percentage of persons highly annoyed by the noise. FICON's measure of substantial increase for transportation noise exposure is as follows:

- If the existing ambient noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.) are less than 60 dBA CNEL and the project creates a readily perceptible 5 dBA CNEL or greater noise level increase, or
- If the existing noise levels range from 60 to 65 dBA CNEL and the project creates a barely perceptible 3 dBA CNEL or greater noise level increase, or
- If the existing noise levels already exceed 65 dBA CNEL and the project creates a community noise level increase of greater than 1.5 dBA CNEL.

4.2 State

4.2.1 California Building Code

The State of California provides a minimum standard for building design through Title 24, Part 2, of the California Code of Regulations, commonly referred to as the CBC. The CBC is updated every three years. It is generally adopted on a jurisdiction-by-jurisdiction basis, subject to further modification based on local conditions.

The State of California's noise insulation standards for non-residential uses are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 11, California Green Building Standards Code (CALGreen). CALGreen noise standards are applied to new or renovation construction projects in California to control interior noise levels resulting from exterior noise sources. Future individual projects may use either the prescriptive method (Section 5.507.4.1) or the performance method (5.507.4.2)

to show compliance. Under the prescriptive method, a project must demonstrate transmission loss ratings for the wall and roof-ceiling assemblies and exterior windows when located within a noise environment of 65 dBA CNEL or higher. Under the performance method, a project must demonstrate that interior noise levels do not exceed 50 dBA $L_{eq(1hr)}$.

4.2.2 California Department of Transportation

In 2020, Caltrans published the Transportation and Construction Vibration Manual (2020b). The manual provides general guidance on vibration issues associated with the construction and operation of projects concerning human perception and structural damage. Table 2-2 above presents recommendations for levels of vibration that could result in damage to structures exposed to continuous vibration.

4.2.3 State of California General Plan Guidelines

The State of California regulates vehicular and freeway noise affecting classrooms, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land-use compatibility criteria. The State of California General Plan Guidelines (State of California 2003), published by the Office of Planning and Research, also provides guidance for the acceptability of projects within specific CNEL/L_{dn} contours. The guidelines discuss how ambient noise should influence land use and development decisions and includes a table of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable uses at different noise levels. 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 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. The General Plan Guidelines provide cities with recommended community noise and land use compatibility standards that can be adopted or modified at the local level based on conditions and types of land uses specific to that jurisdiction.

4.3 Local

4.3.1 City of Costa Mesa General Plan Noise Element

The Noise Element of the City of Costa Mesa General Plan provides goals and policies focused on creating a local noise environment that contributes to positive community health and minimizes exposure of residents to adverse noise conditions. By identifying noise-sensitive land uses and establishing compatibility guidelines for land use and noises, noise considerations will influence the general distribution, location, and intensity of future land uses. The result is that effective land use planning and mitigation can alleviate the majority of noise problems. The City aims to monitor and regulate noise and noise sources that will help maintain the conditions that contribute to the local quality of life.

Tabel N-2 of the City's General Plan Nosie Element provides interior and exterior noise standards for residential land uses. Exterior residential noise standards establish allowable noise levels of 55 dBA during daytime hours (7:00 a.m. to 11:00 p.m.) and 50 dBA during nighttime hours (11:00 p.m. to 7:00 a.m.). Interior residential noise standards allow 55 dBA during daytime and evening hours and 45 dBA during

nighttime hours. Additionally, Table N-3 establishes land use compatibility standards for residential land uses. The Noise Element identifies normally acceptable community noise levels for residential land uses as ranging from 50 dBA CNEL to 60 dBA CNEL.

The Noise Element sets various goals and policies that would apply to projects within the City of Costa Mesa. The following policy provisions are applicable to the Proposed Project:

Goal N-1: *Noise Hazards and Conditions*: The City of Costa Mesa aims to protect residents, local workers, and property from injury, damage, or destruction from noise hazards and to work toward improved noise abatement.

- **Objective N-1A:** Control noise levels within the City for the protection of residential areas, park areas, and other sensitive land uses from excessive and unhealthful noise.
    - **Policy N-1.1:** Enforce the maximum acceptable exterior noise levels for residential areas at 65 CNEL.
    - **Policy N-1.2:** Give full consideration to the existing and projected noise environment when considering alterations to the City's circulation system and Master Plan of Highways.
    - **Policy N-1.4:** Ensure that appropriate site design measures are incorporated into residential developments, when required by an acoustical study, to obtain appropriate exterior and interior noise levels. When necessary, require field testing at the time of project completion to demonstrate compliance.
    - **Policy N-1.5:** Apply the standards contained in Title 24 of the California Code of Regulations as applicable to the construction of all new dwelling units.

Goal N-2: *Noise and Land Use Compatibility*: Integrate the known impacts of excessive noise on aspects of land use planning and siting of residential and non-residential projects.

- **Objective N-2A:** Plan for the reduction in noise impacts on sensitive receptors and land uses.
    - **Policy N-2.1:** Require the use of sound walls, berms, interior noise insulation, double-paned windows, and other noise mitigation measures, as appropriate, in the design of new residential or other new noise sensitive land uses that are adjacent to arterials, freeways, or adjacent to industrial or commercial uses.
    - **Policy N-2.2:** Require, as a part of the environmental review process, that full consideration be given to the existing and projected noise environment.
    - **Policy N-2.4:** Require that all proposed projects are compatible with adopted noise/land use compatibility criteria.
    - **Policy N-2.5:** Enforce applicable interior and exterior noise standards.
    - **Policy N-2.6:** Allow a higher exterior noise level standard for infill projects in existing residential areas adjacent to major arterials if it can be shown that there are no feasible

mechanisms to meet the exterior noise levels. The interior standard of 45 dBA CNEL shall be enforced for any new residential project.

- **Policy N-2.7:** Encourage effective site planning in mixed-use areas that provides the optimal distance between source of excessive sound and residents.
- **Policy N-2.8:** Require new mixed-use developments to site loading areas, parking lots, driveways, trash enclosures, mechanical equipment, and other noise sources away from the residential portion of the development and adjacent established residential development.
- **Policy N-2.9:** Limit hours and/or require attenuation of commercial/entertainment operations adjacent to residential and other noise sensitive uses in order to minimize excessive noise to these receptors.

4.3.2 City of Costa Mesa Municipal Code

The City's Municipal Code regulations with respect to noise are included in Title 13, Chapter XIII of the Municipal Code. The Noise Regulations provide noise standards and restrictions within the City. Section 13-279 exempts construction-related noise, provided that construction activities occur between 7:00 a.m. and 7:00 p.m., Monday through Friday, and 9:00 a.m. and 6:00 p.m. on Saturdays. Construction activities are prohibited on Sundays and on the following federal holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. Additionally, Section 13-280 and Section 13-281 present exterior and interior noise standards for residential land uses. These standards are presented in Table 4-1 and Table 4-2.

Table 4-1. Residential Exterior Noise Standards

Noise Level	Time Period
55 dBA	7:00 a.m. - 11:00 p.m.
50 dBA	11:00 p.m. - 7:00 a.m.

Notes: dBA = A-weighted decibels

(1) It is unlawful for any person at any location within the City to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other residential property, either within or outside the city, to exceed:

1.) The noise standard for a cumulative period of more than 30 minutes in any hour;

2.) The noise standard plus five dBA for a cumulative period of more than 15 minutes in any hour;

3.) The noise standard plus 10 dBA for a cumulative period of more than five minutes in any hour;

4.) The noise standard plus 15 dBA for a cumulative period of more than one minute in any hour; or

5.) The noise standard plus 20 dBA for any period of time.

(2) In the event the ambient noise level exceeds any of the first four noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

Table 4-1. Residential Exterior Noise Standards	
Noise Level	**Time Period**

(3) The exterior noise standards shown in Table 4-1 shall not apply to the following exterior areas of multi-family residential development or live/work units located within a mixed-use overlay district where the base zoning district is nonresidential, approved pursuant to a master plan, and subject to the land use regulations of an urban plan: private balconies or patios regardless of size; private or community roof decks/roof terraces; internal courtyards and landscaped walkways that do not include resident-serving, active recreational uses such as community pool, spa, tennis courts, barbeque, and picnic areas.

Source: City of Costa Mesa 2025

Table 4-2. Residential Interior Noise Standards	
Noise Level	**Time Period**
55 dBA	7:00 a.m. - 11:00 p.m.
45 dBA	11:00 p.m. - 7:00 a.m.

Notes: dBA = A-weighted decibels

(1) It is unlawful for any person at any location within the City to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level when measured within any other dwelling unit on any residential property, either within or outside the city, to exceed:

1.) The interior noise standard for a cumulative period of more than five minutes in any hour;

2.) The interior noise standard plus five dBA for a cumulative period of more than one minute in any hour; or

3.) The interior noise standard plus 10 dBA for any period of time.

(2) In the event the ambient noise level exceeds either of the first two noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the third noise limit category the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

Source: City of Costa Mesa 2025

5.0 IMPACT ASSESSMENT

5.1 Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act Guidelines Appendix G thresholds of significance. The Project would result in a significant noise-related impact if it would result in the:

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

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

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

For the purposes of this analysis, potential Project construction noise is compared to the allowable hours of construction mandated by Title 13, Chapter XIII, Section 13-279 of the City's Municipal Code. The City does not regulate vibrations associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans (2020b) recommended standard of 0.3 inch per second PPV with respect to the prevention of structural damage for older residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings. The City has not established a transportation noise threshold; however, Policy N-1.1 seeks to limit noise exposure in residential neighborhoods to 65 dBA CNEL. As shown in Table 3-2, existing transportation noise levels along roadways in the Project vicinity already equate to or exceed 65 dBA CNEL without the Proposed Project. Therefore, potential increases in transportation-related noise are evaluated using the FICON recommendations for assessing traffic noise increases, as discussed in detail in Section 4.1.2 of this report. Onsite operational noise generated as a result of future development instigated by the Project is compared to the City's maximum allowable exterior and interior noise standards identified in Table 4-1 and Table 4-2. The City does not regulate vibrations associated with operations. However, a discussion of vibration is included for full disclosure purposes.

Developing new sensitive land uses near sources of noise emissions could expose persons that inhabit these sensitive land uses to potential noise levels that exceed the City's sound level standards. However, the purpose of this environmental evaluation is to identify the significant effects of the Proposed Project on the environment, not the significant effects of the environment on the Proposed Project. As a result of the California Supreme Court decision regarding the assessment of the environment's impacts on projects (California Building Industry Association v. Bay Area Air Quality Management District, 62 Cal. 4th 369 (No. S 213478) issued December 17, 2015), it is generally no longer the purview of the CEQA process to evaluate the impact of existing environmental conditions on any given project. Therefore, CEQA does not require an analysis of the potential environmental effects from siting sensitive receptors near existing sources. However, for informational and disclosure purposes, and to demonstrate consistency with the

City's General Policy N-2.4, which requires that all proposed projects be compatible with adopted noise/land use compatibility criteria, this analysis evaluates land use compatibility for the Specific Plan Project Area. Consistent with General Plan Policy N-2.4, land use compatibility is evaluated using the long-term ambient noise measurements presented in Table 3-1, which represent existing 24-hour CNEL noise conditions and provide the basis for assessing the compatibility of proposed land uses with the surrounding noise environment.

5.2 Methodology

This is a program-level analysis that considers the potential impacts from the Specific Plan Project by assessing the potential development and activities that may occur under it. The proposed Specific Plan Project does not propose specific development projects but, for the purposes of environmental review, establishes the potential buildout of the Specific Plan, which represents the maximum feasible development that can reasonably occur throughout the Proposed Project Area. This analysis of the existing and future noise environments is based on noise prediction modeling and empirical observations. To capture the potential impact of future development under the Proposed Project, this analysis utilizes the baseline existing conditions described above and analyzes the impacts of urban development.

Predicted construction noise levels associated with the potential development allowed under the Project are calculated utilizing the FHWA's Roadway Construction Noise Model (2006). Groundborne vibration levels associated with construction-related activities for the Project have been evaluated utilizing typical groundborne vibration levels associated with construction equipment. Potential groundborne vibration impacts related to structural damage and human annoyance were evaluated, taking into account the distance from construction activities to nearby structures and typically applied criteria for structural damage and human annoyance.

Roadside noise levels were calculated for the same roadways analyzed under existing conditions. Transportation-source noise levels in the Project vicinity were calculated using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108) and traffic volumes provided by Fehr and Peers (2026). Onsite stationary source noise levels associated with the Project have been modeled with typical noise sources found at nonresidential land uses which are expected to be the primary contributors to operational stationary noise. Modeled noise levels are based on reference noise levels. Reference noise levels are collected from field noise measurements and other published sources from similar types of activities and are then used to estimate noise levels expected with the Project's non-transportation noise sources. The reference noise levels are used to represent a worst-case noise environment as noise levels from area and point sources that could potential occur with the Specific Plan Area (e.g., drive-thru queue, drive-thru speaker, parking lot activity) can vary throughout the day.

5.3 Impact Analysis

5.3.1 Would the Project Result in Short-Term Construction-Generated Noise in Excess of City Standards?

5.3.1.1 Onsite Construction Noise

Under the proposed Specific Plan, the primary source of temporary noise within the Project Area would be construction activities associated with development projects and activities. Construction activities would involve both off-road construction equipment (e.g., excavators, dozers, cranes, etc.) and transport of workers and equipment to and from construction sites. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., site preparation, excavation, paving). Noise generated by construction equipment, including earth movers, pile drivers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive land uses in the vicinity of the construction site.

Construction noise is currently an intermittent source of temporary noise within Costa Mesa. Since specific future projects within the Specific Plan are unknown at this time, it is conservatively assumed that the construction areas associated with these future projects could be located within 50 feet of sensitive land uses. As depicted in Table 5-1, noise levels generated by individual pieces of construction equipment typically range from approximately 74.0 dBA to 101.3 dBA L_{max} at 50 feet and 67.7 dBA to 94.3 dBA L_{eq} at 50 feet. Average hourly noise levels associated with construction projects can vary, depending on the activities performed. Short-term increases in vehicle traffic, including worker commute trips and haul truck trips, may also result in temporary increases in ambient noise levels at nearby receptors. During each stage of construction, a different mix of equipment would operate, and noise levels would vary based on the amount of equipment on-site and the location of the activity. Construction noise levels drop off at a rate of about 6 dBA per doubling of distance between the noise source and the receptor. Intervening structures or terrain would result in lower noise levels at distant receivers.

Table 5-1. Reference Construction Equipment Noise Levels (50 feet from source)

Equipment	Typical Noise Level (dBA) at 50 Feet from Source	
	L_{max}	L_{eq}
Aerial Lift	74.7	67.7
Air Compressor	77.7	73.7

Table 5-1. Reference Construction Equipment Noise Levels (50 feet from source)		
Backhoe	77.6	73.6
Blasting	94.0	73.0
Boring Jack (Power Unit)	83.0	80.0
Boring Jack (Horizontal)	82.0	76.0
Chain Saw	83.7	76.7
Compactor (Ground)	83.2	76.2
Concrete Mixer Truck	78.8	74.8
Concrete Mixer (Vibratory)	80.0	73.0
Concrete Pump Truck	81.4	79.4
Concrete Saw	89.9	82.6
Crane	80.6	72.6
Dozer	81.7	77.7
Drill Rig	84.4	77.4
Drill Rig Truck	79.1	72.2
Drum Mixer	80.0	77.0
Dump Truck	76.5	72.5
Excavator	80.7	76.7
Front End Loader	79.1	75.1
Generator	80.6	77.6
Gradall	83.4	79.4
Grader	85.0	81.0
Hydraulic Break Ram	90.0	80.0
Impact Hammer/Hoe Ram (Mounted)	90.3	83.3
Jackhammer	88.9	81.9
Other Equipment	85.0	82.0

Table 5-1. Reference Construction Equipment Noise Levels (50 feet from source)		
Pavement Scarifier	89.5	82.5
Paver	77.2	74.2
Pile Driver (Impact)	101.3	94.3
Pile Driver (Vibratory)	100.8	93.8
Pneumatic Tools	85.2	82.2
Pumps	80.9	77.9
Rock Drill	81.0	74.0
Roller	80.0	73.0
Scraper	83.6	79.6
Tractor	84.0	80.0
Truck (Flat Bed)	74.3	70.3
Truck (Pick Up)	75.0	71.0
Vacuum Street Sweeper	81.6	71.6
Welder	74.0	70.0

Source: FHWA 2006

The nearest noise-sensitive receptors to the Project Site include existing residential land uses located immediately north of the Project boundary across Shelley Circle. Additional noise-sensitive receptors in the vicinity include residential neighborhoods located east of the site along Harbor Boulevard, residential land uses located south of the site along Joann Street, and Estancia High School, located southwest of the Project Site across Placentia Avenue. As previously mentioned, the Municipal Code's Title 13, Chapter XIII, Section 13-279 exempts construction-related noise, provided that construction activities occur between 7:00 a.m. and 7:00 p.m., Monday through Friday, and 9:00 a.m. and 6:00 p.m. on Saturdays. Construction activities are prohibited on Sundays and on the following federal holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. In order to remain compliant with the City's regulations, future construction under the Project would be required to follow these construction guidelines. The City does not promulgate a numeric threshold pertaining to the noise associated with construction. This is due to the fact that construction noise is temporary, short term, intermittent in nature, and would cease on completion of the Project.

In order to minimize potential temporary construction noise impacts to nearby noise-sensitive receptors, the following mitigation measures shall apply to all future development allowed under the Specific Plan.

Mitigation Measures

NOI-1: All future development allowed under the Fairview Developmental Center Specific Plan shall be required to implement the following construction noise control measures:

- All future development allowed under the Specific Plan shall restrict construction activities to the noise exempt hours established in the City of Costa Mesa Municipal Code, Title 13, Chapter XIII, Section 13-279, which exempts construction noise generated between 7:00 a.m. and 7:00 p.m., Monday through Friday, and 9:00 a.m. to 6:00 p.m. on Saturdays from noise standards. Construction activities associated with all future development shall be prohibited on Sundays and the following federal holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.
- All future development allowed under the Specific Plan shall require that all construction equipment, fixed or mobile, be equipped with properly operating and maintained mufflers and other manufacturer recommended noise attenuation devices.
- All future development allowed under the Specific Plan shall require that construction equipment be shut off when not in use, to the extent feasible.
- All future development allowed under the Specific Plan shall locate construction staging areas, material stockpiles, and stationary construction equipment as far as feasible from existing noise-sensitive receptors.
- All future development allowed under the Specific Plan shall, where feasible, position stationary construction equipment so that noise emissions are directed away from nearby noise-sensitive receptors.

Timing/Implementation: During construction of all future development allowed under the Specific Plan

Monitoring/Enforcement: City of Costa Mesa Planning and Code Enforcement Divisions

With adherence to the Municipal Code requirements and implementation of Mitigation Measure NOI-1, temporary construction noise impacts associated with future development under the Fairview Development Center Specific Plan would be reduced to a less than significant level.

5.3.2 Would the Project Result in a Substantial Permanent Increase in Ambient Noise Levels in Excess of City Standards during Operations?

As previously described, noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise-sensitive and may warrant unique measures for protection from intruding noise. The nearest noise-sensitive receptors to the Project Site include existing residential land uses located immediately north of the Project boundary across Shelley Circle. Additional noise-sensitive receptors in the vicinity include residential neighborhoods located east of the site across Harbor Boulevard, residential land uses located south of the

site along Joann Street, and Estancia High School, located southwest of the Project Site across Placentia Avenue.

5.3.2.1 Project Land Use Compatibility

Buildout of the Specific Plan under the Proposed Project could result in siting sensitive uses (e.g., residential) near major sources of noise and vibration (roadways, commercial uses, etc.). Developing new sensitive land uses near sources of noise emissions could expose persons that inhabit these sensitive land uses to potential noise levels that exceed the City's sound level standards. However, the purpose of this environmental evaluation is to identify the significant effects of the Proposed Project on the environment, not the significant effects of the environment on the Proposed Project. As a result of the California Supreme Court decision regarding the assessment of the environment's impacts on projects (California Building Industry Association v. Bay Area Air Quality Management District, 62 Cal. 4th 369 (No. S 213478) issued December 17, 2015), it is generally no longer the purview of the CEQA process to evaluate the impact of existing environmental conditions on any given project. Therefore, CEQA does not require an analysis of the potential environmental effects from siting sensitive receptors near existing sources. However, for informational and disclosure purposes, and to demonstrate consistency with the City's General Policy N-2.4, which requires that all proposed projects be compatible with adopted noise/land use compatibility criteria, this analysis evaluates land use compatibility for the Specific Plan Project Area.

The proposed Fairview Developmental Center Specific Plan Project Area is located in the City of Costa Mesa on a previously developed site in a very developed area of the City. The City's General Plan Noise Element provides policy guidance to minimize noise impacts within the community and establishes noise control measures for the operational phases of land use projects. By defining noise-sensitive areas and setting compatibility guidelines, noise considerations will help shape the distribution, location, and intensity of future land uses. This approach ensures that effective land use planning and project design can mitigate most noise related issues.

A fundamental noise planning strategy is to ensure that proposed noise-sensitive land uses are compatible with the existing and projected noise environment. The City of Costa Mesa General Plan Noise Element establishes goals, objectives, and policies intended to protect residents and other sensitive receptors from excessive noise exposure while integrating noise considerations into land use planning decisions.

Table N-3 of the City's General Plan Noise Element establishes land use compatibility criteria for residential land uses based on community noise exposure levels expressed in CNEL. The Noise Element identifies normally acceptable community noise levels for residential land uses as ranging from 50 dBA CNEL to 60 dBA CNEL. As summarized in Table 3-1, long-term noise measurements conducted on the Project Site recorded CNEL values of approximately 52.7 dBA and 54.7 dBA. These measured noise levels fall within the range identified by the Noise Element as normally acceptable for residential land uses and indicate that the existing noise environment is generally compatible with the residential uses proposed under the Specific Plan.

The Proposed Project would redevelop the site with a mix of residential and neighborhood-serving commercial uses. Consistent with General Plan Goals N-1 and N-2 and Objectives N-1A and N-2A, the Specific Plan incorporates site planning and development standards intended to minimize noise exposure to sensitive receptors. Policies N-1.4, N-2.1, N-2.7, and N-2.8 require effective site design and the strategic placement of buildings, loading areas, parking areas, driveways, trash enclosures, and mechanical equipment to reduce noise exposure to residential areas. In addition, Policy N-1.5 requires compliance with Title 24 of the California Code of Regulations to ensure acceptable interior noise levels within new residential units. While the Specific Plan establishes a planning level framework for redevelopment, future development projects within the Plan area would be subject to discretionary review and environmental evaluation pursuant to Policy N-2.2. As part of this review, project level noise analyses would be required, as appropriate, to assess compliance with applicable interior and exterior noise standards and land use compatibility criteria, consistent with Policies N-2.4 and N-2.5. Where necessary, project specific noise attenuation measures such as site design, building orientation, architectural treatments, and noise barriers would be implemented to ensure compatibility with surrounding noise conditions.

In summary, noise levels on the Project Site fall within the City's normally acceptable range for residential land uses, and adherence to the City of Costa Mesa General Plan Noise Element policies would ensure that future development under the Specific Plan would be compatible with the existing and projected noise environment. Therefore, impacts related to noise and land use compatibility would be less than significant.

5.3.2.2 Project Operational Offsite Traffic Noise

Future traffic noise levels throughout the project vicinity (i.e., vicinity roadway segments that traverse noise sensitive land uses) were modeled based on traffic volumes provided by Fehr and Peers (2026) to determine future roadway noise levels under cumulative conditions. Table 5-2, Project Traffic Noise Impacts, shows the calculated off-site roadway noise levels under the Cumulative Year (2045) With Project scenario compared to both Existing Year (2025) Without Project noise levels and Cumulative Year (2045) Without Project noise levels. The Proposed Project's contribution to traffic noise is represented by the difference between the Cumulative Year (2045) With Project scenario and the Cumulative Year (2045) Without Project scenario. The increase in the differences is evaluated consistent with FICON recommendation for evaluating the impact of increased traffic noise. The Project would be considered to result in a significant impact if it exceeded the FICON recommended thresholds for both scenarios.

The FICON recommended thresholds are as follows:

- If the existing ambient noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.) are less than 60 dBA CNEL and the project creates a readily perceptible 5 dBA CNEL or greater noise level increase, or
- If the existing noise levels range from 60 to 65 dBA CNEL and the project creates a barely perceptible 3 dBA CNEL or greater noise level increase, or
- If the existing noise levels already exceed 65 dBA CNEL and the project creates a community noise level increase of greater than 1.5 dBA CNEL.

Table 5-2. Project Traffic Noise Impacts

Roadway Segment	CNEL at 100 Feet			Increase Between Existing and 2045 With Project	Increase Between 2045 With Project and 2045 Without Project	Standard	Exceed Both Standard?
	Existing	2045 No Project	2045 with Project				
Adams Avenue							
Between Mesa Verde Drive East and Harbor Boulevard	**64.7**	**64.5**	**64.8**	+0.1	+0.3	*>3*	**No**
Victoria Street							
Between Mesa Verde Drive East and Harbor Boulevard	**65.6**	**65.6**	**65.8**	+0.2	+0.2	*>1.5*	**No**
West 19th Street							
Between Meyer Place and Park Avenue	**62.3**	**63.8**	**63.8**	+1.5	+0.0	*>3*	**No**
Harbor Boulevard							
Between Gisler Avenue and Nutmeg Place	**68.3**	**68.7**	**69.4**	+1.1	+0.7	*>1.5*	**No**
Between Adams Avenue and Merrimac Way	**64.5**	**65.6**	**67.1**	+2.6	+1.5	*>3*	**No**
Between Fair Drive and Wilson Street	**66.3**	**66.6**	**67.5**	+1.2	+0.9	*>1.5*	**No**
Between West Bay Street and Ford Road	**67.0**	**68.0**	**68.2**	+1.2	+0.2	*>1.5*	**No**
Newport Boulevard							
Between West 18th Street and Harbor Boulevard	**71.3**	**71.6**	**71.6**	+0.0	+0.0	>1.5	**No**
Fair Drive							
Between Fordham Drive and Loyola Road	**62.5**	**64.7**	**65.9**	+3.4	+1.2	*>3*	**No**

Table 5-2. Project Traffic Noise Impacts							
Between Vanguard Way and Newport Boulevard	**64.2**	**65.3**	**66.3**	+2.1	+1.0	*>3*	**No**

Source: Traffic noise levels were calculated using the FHWA Highway Noise Prediction Model in conjunction with traffic volumes provided by Fehr and Peers (2026). Refer to Appendix B for traffic noise modeling assumptions and results.

As shown in Table 5-2, the roadway segment on Fair Drive between Fordham Drive and Loyola Road would increase by over 3 dBA CNEL between existing conditions and future buildout conditions with the Proposed Project. However, the Proposed Project's contribution to noise levels at this segment would not exceed 3dBA CNEL but only contribute a 1.2 dBA CNEL increase; the remaining increase can be attributed to growth in traffic from other future projects. Table 5-2 also shows that the project's contribution to traffic noise levels would be less than 2 dBA CNEL and would not exceed applicable thresholds for all roadway segments studied. The difference in noise levels between the Cumulative Year (2045) With Project and Cumulative Year (2045) Without Project scenarios does not exceed the applicable threshold at any roadway segments studied. Therefore, traffic noise impacts would be less than significant.

5.3.2.3 Project Operational Stationary Noise

Implementation of the Fairview Developmental Center Specific Plan would result in a predominantly residential development, with neighborhood-serving commercial uses incorporated to support the community. While residential uses are not typically associated with substantial stationary noise sources, the commercial components of the Project have the potential to generate the highest levels of operational stationary noise. Potential stationary noise sources associated with commercial uses include heating, ventilation, and air conditioning (HVAC) equipment, refrigeration and mechanical equipment, parking lot activity, loading and service operations, and, where applicable, emergency backup generators. Accordingly, the analysis of onsite stationary noise sources focuses on representative noise sources associated with the proposed commercial uses, which are expected to represent the louder noise sources under Project operations. Table 5-3 identifies noise levels generally associated with common commercial stationary noise sources.

Table 5-3. Reference Stationary Noise Levels (at the Source)	
Stationary Noise Source	**L_{eq}**
Commercial Car Wash[a]	79.1 dBA
Drive Thru Activity (speaker) [b]	89.1 dBA
Gasoline Dispensing Station [c]	64.7 dBA
Generators [d]	75.0 dBA

Table 5-3. Reference Stationary Noise Levels (at the Source)	
HVAC Mechanical Equipment [e]	56.8 dBA
Parking Garage [f]	52.6 dBA
Regional Shopping Center Parking Lot [g]	61.1 dBA
Small Parking Lot [h]	53.2 dBA
Tire and Lube Service Station [i]	62.3 dBA
Truck Backup Beeper [j]	79.0 dBA
Truck Yard/Warehouse [k]	62.4 dBA

Notes:

a. The average of two noise measurements conducted at commercial carwashes in 2019 and 2022.

b. The average of six noise measurements conducted within fast food restaurant drive thru while drive thru speaker in use.

c. The average of five noise measurements conducted within the fuel canopy of gasoline dispensing stations in 2019 and 2021.

d. Generac Mobile Diesel Generator Set Specification Sheet 2020.

e. One noise measurement conducted at an operating HVAC unit in 2017.

f. One noise measurement conducted within a parking garage in 2019.

g. One noise measurement conducted within a Safeway parking lot in 2019.

h. The average of three noise measurements conducted within a strip mall parking lot in 2022, hotel parking lot in 2021, and medical facility parking lot in 2020.

i. The average of two noise measurements conducted at a Big O Tires in 2019 and a Jiffy Lube in 2022.

j. City of San Jose 2014 Midpoint at 237 Loading Dock Noise Study.

k. The average of five noise measurements conducted at four truck yards and one distribution center in 2021.

The City of Costa Mesa General Plan Noise Element contains policy provisions that protect against substantial exposure to non-transportation noise and require the integration of noise considerations into land use planning decisions to minimize noise impacts associated with new development, including stationary noise sources. General Plan Policy N-2.2 requires that, as part of the environmental review process, full consideration be given to the existing and projected noise environment. In addition, Policy N-2.5 requires enforcement of applicable interior and exterior noise standards.

General Plan Policies N-1.4 and N-2.1 further require that appropriate site design and noise mitigation measures be incorporated into new residential or other noise-sensitive land uses, where necessary, to achieve acceptable interior and exterior noise levels. Accordingly, future development under the Specific Plan would be subject to City review and, where applicable, would be required to prepare project level acoustical analyses to demonstrate compliance with the Noise Element and Municipal Code noise standards. Noise generated by new or modified non-transportation noise sources would be required to be controlled so as not to exceed applicable noise standards at nearby residential and other noise-sensitive land uses (Table 4-1 and Table 4-2).

The mitigation available to reduce noise from non-transportation noise sources generally fall into three main categories: source control, path control, and receptor control. Examples of source control mitigation measures include the use of quieter machinery, if available, and ensuring regular maintenance to replace worn components. Limiting the hours of operating the noise source, particularly during the nighttime hours and weekends, can also mitigate noise impacts on noise-sensitive residential land uses. Another example of source control noise mitigation is the installation of acoustically treated enclosures around a noise source and/or housing noise machinery in buildings to contain the generated noise. An example of a non-transportation noise-reducing path control mitigation measure includes the strategic placement of a barrier between the noise source and receptor. As previously described in Section 2.1.3, of this Chapter, a solid wall or berm generally reduces noise levels by 5 to 10 dBA (FHWA 2017b). To achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the "line of sight" between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend lengthwise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver. Other examples of path control noise mitigation include the establishment of distance/buffer zones as well as the positioning of buildings or other structures to shield sensitive areas from noise sources. Lastly, receptor control mitigation involves noise-reducing measures at the at the noise receptor. Examples of this form of mitigation include the installation of advanced building sound insulation involving windows, doors, and walls.

In summary, the City of Costa Mesa General Plan Noise Element, including Policies N-1.4, N-2.1, N-2.4, and N-2.5, requires that noise generated by new or modified non-transportation noise sources be controlled through appropriate site design and mitigation measures so as not to exceed applicable interior and exterior noise standards at residential and other noise-sensitive land uses. Compliance with these General Plan policies would ensure that future development and activities under the Fairview Developmental Center Specific Plan would result in a less than significant impact related to stationary noise sources.

5.3.3 Would the Project Expose Structures to Substantial Groundborne Vibration during Construction?

Under the proposed Specific Plan, the primary source of groundborne vibration within the Project Area would be construction activities associated with development projects and activities. Construction vibration is a potential occurrence within City and would continue to be so regardless of whether the Specific Plan is adopted. Future construction activities under the Specific Plan would occur within the Project Area and will most likely require the use of off-road equipment known to generate some degree of vibration. Receptors sensitive to vibration include structures (especially older masonry structures), people (especially residents, the elderly, and the sick), and equipment (e.g., magnetic resonance imaging equipment, high resolution lithographic, optical and electron microscopes). Regarding the potential

effects of groundborne vibration to people, except for long-term occupational exposure, vibration levels rarely affect human health.

Construction activities that generate excessive vibration, such as blasting, would not be expected to occur from future development due to the topography of the Project Site, which is relatively flat and devoid of rock outcroppings. The majority of construction equipment used during future construction allowed by the Project would not be situated at any one location during construction activities, but rather spread throughout a construction site and at various distances from sensitive receptors. Since specific future projects under the proposed Specific Plan are unknown at this time, it is conservatively assumed that the construction areas associated with these future projects could be located within 50 feet of sensitive structures. The primary vibration-generating activities would occur during grading, placement of underground utilities, and construction of foundations. Table 5-4 shows the typical vibration levels produced by construction equipment at 50 feet.

Table 5-4. Representative Vibration Source Levels for Construction Equipment

Equipment	Peak Particle Velocity at 50 Feet (inches per second)	Vibration Level Vibration Velocity at 50 Feet (VdB)
Pile Driver (Impact)	0.225	95
Pile Driver (Sonic)	0.059	84
Vibratory Roller	0.073	85
Hoe Ram	0.031	78
Large Bulldozer	0.031	78
Caisson Drilling	0.031	78
Loaded Trucks	0.026	77
Jackhammer	0.012	70
Small Bulldozer	0.001	49

Source: Caltrans 2020b

The City does not regulate vibrations associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans (2020b) recommended standard of 0.3 inch per second PPV with respect to the prevention of structural damage for older residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings. As shown in Table 5-4, vibration as a result of future construction activities would not exceed 0.3 PPV at 50 feet. Thus, standard construction activities within the Specific Plan Project Area would not exceed the recommended threshold. Additionally, as previously described the City's

Municipal Code's Title 13, Chapter XIII, Section 13-279 exempts construction-related noise, provided that construction activities occur between 7:00 a.m. and 7:00 p.m., Monday through Friday, and 9:00 a.m. and 6:00 p.m. on Saturdays. Mitigation Measure NOI-1 requires all future development within the Specific Plan to be restricted to these noise-exempt hours. Construction activities are prohibited on Sundays and on the following federal holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. Adherence to the Municipal Code would ensure that vibration exposure is being reduced to minimize temporary construction-related vibration impacts. Construction vibration under the proposed Specific Plan would be less than significant.

5.3.4 Would the Project Expose Structures to Substantial Groundborne Vibration during Operations?

The City of Costa Mesa Municipal Code does not establish a specific numerical standard or threshold for operational groundborne vibration. In the absence of a City adopted vibration criterion, potential operational vibration impacts associated with the Proposed Project are evaluated using Caltrans guidance. Consistent with the construction vibration analysis, the Caltrans Transportation and Construction Vibration Guidance Manual (2020b) recommended threshold of 0.3 inches per second PPV, which is intended to prevent structural damage to older residential buildings, is used as the applicable significance threshold for operational vibration impacts.

The primary potential source of operational groundborne vibration associated with buildout of the Specific Plan would be vehicular traffic, including occasional heavy-duty truck travel associated with the proposed neighborhood serving commercial uses. According to Caltrans guidance, heavy-duty trucks traveling on paved roadways rarely generate vibration amplitudes high enough to cause structural or cosmetic damage. Localized, short duration vibration events may occur where pavement irregularities such as potholes or surface discontinuities are present; however, these events are typically intermittent, last only a few seconds or less, and decrease rapidly with distance from the roadway. As a result, cumulative vibration effects from multiple vehicles are unlikely, as additional trucks increase the frequency of vibration events rather than the magnitude of vibration levels.

The FTA Transit Noise and Vibration Impact Assessment Manual (2018) indicates that heavy-duty trucks traveling at approximately 30 miles per hour typically generate vibration levels on the order of 0.007 inches per second PPV at a distance of 50 feet. Project heavy-duty trucks traversing roadways in the Project Area could potentially drive at speeds greater than 30 miles per hour during operations however, and the FTA provides the following equation to estimate potential vibration levels from heavy-duty trucks traveling at different speeds:

[Adjusted Speed VdB = 20log (speed/speed reference [30 mph])

Assuming average heavy-duty truck speeds of 55 miles per hour along, Project heavy-duty trucks would generate vibration levels of approximately 0.01 inches per second PPV at 50 feet. Therefore, Project-related truck traffic would not surpass 0.3 inches per second

In addition, vibration generated by stationary equipment such as HVAC units, compressors, or emergency generators associated with commercial uses would be limited in intensity and duration and would be

subject to standard equipment design and installation practices intended to minimize vibration transmission. No significant cumulative vibration impact would occur, and no mitigation is required.

5.3.5 Would the Project Expose People Residing or Working on the Project Site to Excessive Airport Noise?

The Project Site is located approximately 2.5 miles southwest of John Wayne Airport. Although the Proposed Project is located within the City of Costa Mesa, the City of Santa Ana General Plan Noise Element (2022) includes Figure N-3, which depicts the adopted John Wayne Airport noise contours based on the most recent Airport Land Use Compatibility planning data. Because these contours extend beyond the City of Santa Ana's jurisdictional boundaries and represent the applicable airport noise planning framework for the surrounding area, Figure N-3 provides a reliable regional reference for evaluating potential airport-related noise exposure. As shown in Figure N-3, the Project Site is located outside of all airport noise contours for John Wayne Airport. Therefore, the Proposed Project would not expose people working or residing on within the Project Area to excess airport noise levels. No impact would occur.

5.3.6 Cumulative Impacts

5.3.6.1 Cumulative Construction Noise

Construction noise impacts primarily affect the areas immediately adjacent to the construction site. Development that could occur with implementation of the proposed Specific Plan Project could be constructed contemporaneously and could result in high noise levels. As discussed above, noise levels generated by individual pieces of construction equipment typically range from approximately 74 dBA to 101.3 dBA L_{max} at 50 feet and 67.7 dBA to 94.3 dBA L_{eq} at 50 feet. The City has established and enforces noise standards for construction activity including the establishment of hours when construction noise is exempt. The Municipal Code's Title 13, Chapter XIII, Section 13-279 exempts construction-related noise, provided that construction activities occur between 7:00 a.m. and 7:00 p.m., Monday through Friday, and 9:00 a.m. and 6:00 p.m. on Saturdays. Construction activities are prohibited on Sundays and on the following federal holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. Therefore, although the potential exists for construction projects under the Proposed Project and other foreseeable development to occur simultaneously and in proximity to one another, construction equipment operations would operate within the constraints of the City's Municipal Code. Therefore, the impact is less than significant.

The potential for a cumulative vibration-related damage impact is minimal as vibration impacts are based on approximate groundborne vibration levels. Thus, worst-case groundborne vibration levels from construction are determined by whichever individual piece of equipment generates the highest vibration levels. Unlike the analysis for average noise levels, in which noise levels of multiple pieces of equipment can be combined to generate a maximum combined noise level, approximate vibration levels do not combine in this manner. Vibration from multiple construction sites, even if they are located close to one another, would not combine to raise the maximum vibration. Therefore, vibration impacts resulting from construction of future development under the Specific Plan would not combine with vibration effects from cumulative projects in the vicinity and the impact would be less than significant.

5.3.6.2 Cumulative Traffic Noise

Cumulative traffic noise levels with Project traffic and without Project traffic are shown in Table 5-2. The Cumulative Year (2045) Without Project scenario represents the growth in traffic levels associated with other projects and growth in the region and excludes the Proposed Project, while the Cumulative Year (2045) With Project accounts for both the growth in traffic from other projects/regional growth and growth associated with the Proposed Project. Therefore, as shown in Table 5-2, the Proposed Project would not contribute to a cumulatively considerable increase in traffic noise at any studied roadway segments. Cumulative traffic noise impacts would be less than significant.

5.3.6.3 Cumulative Onsite Operational Noise

Long-term stationary noise sources associated with the development and activities under the Specific Plan, combined with other cumulative projects, could cause local noise level increases. Noise levels associated with the Proposed Project and cumulative development combined could result in higher noise levels than considered separately. However, as described above, the City's General Plan policies would protect the inhabitants against all forms of noise, including stationary source noise. With implementation and adherence to the previously listed policies, future development under the Proposed Project and cumulative development combined would not create cumulatively considerable stationary noise sources and the impact would be less than significant.

6.0 REFERENCES

Caltrans. 2022. Traffic Census Program. https://dot.ca.gov/programs/traffic-operations/census

_____. 2020a. IS/EA Annotated Outline. http://www.dot.ca.gov/ser/vol1/sec4/ch31ea/chap31ea.htm.

_____. 2020b. Transportation and Construction Vibration Guidance Manual.

_____. 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol

_____. 2002. California Airport Land Use Planning Handbook

Costa Mesa, City of. 2025. City of Costa Mesa Municipal Code.

_____. 2016. City of Costa Mesa General Plan.

Federal Highway Administration. 2017. Construction Noise Handbook. https://www.fhwa.dot.gov/Environment/noise/construction_noise/handbook/handbook02.cfm.

_____. 2017b. Noise Barriers: Technical Considerations and Barrier Effectiveness. https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide05.cfm#:~:text=Effective%20noise%20barriers%20can%20reduce%20noise%20levels%20by,%28usually%20called%20earthberms%29%20or%20from%20high%2C%20vertical%20walls.

_____. 2006. Roadway Construction Noise Model.

Fehr and Peers. 2026. Traffic Volumes.

FTA (Federal Transit Administration). 2018. Transit Noise and Vibration Impact Assessment.

Harris Miller, Miller & Hanson Inc. 2006. Transit Noise and Vibration Impact Assessment, Final Report.

Office of Planning and Research. 2003. State of California General Plan Guidelines.

Santa Ana, City of. 2022. City of Santa Ana General Plan.

LIST OF APPENDICES

Appendix A – Baseline (Existing) Noise Measurements – Project Site and Vicinity

Appendix B – Federal Highway Noise Prediction Model (FHWA-RD-77-108) Outputs – Project Traffic Noise

APPENDIX A

Baseline (Existing) Noise Measurements – Project Site and Vicinity

Location: C:\Users\swinter\OneDrive - ECORP Consulting, Inc\AGNE\Mapping\2023-192 Fairview SP.aprx - Location Map (swinter - 2/25/2026)

Map Date: 2/25/2026

Sources: Esri 2024

Baseline (Existing) Noise Measurements

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Site Number: Long Term 1	
Recorded By: Lindsay Liegler	
Job Number: 2023-192	
Date: 9/25/23 – 9/26/23	
Time: 9:25 a.m. – 9:25 a.m.	
Location: 33.660501, -117.9233854; On the southeast corner of the Project Site	
Source of Peak Noise: Landscaping, distant planes	

Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	CNEL (dB)
48.7	35.2	80.4	52.7

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0005120	12/14/2022	
	Microphone	Larson Davis	377B02	334361	12/14/2022	
	Preamp	Larson Davis	PRMLxT1L	042852	12/14/2022	
	Calibrator	Larson Davis	CAL200	14105	12/14/2022	

Weather Data			
Est.	Duration: 24 hrs		Sky: overcast
	Note: dBA Offset = 0.02		Sensor Height (ft): 4
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	2	66	30.06

Photo of Measurement Location

Site Number: Long Term 2			
Recorded By: Lindsay Liegler			
Job Number: 2023-192			
Date: 9/26/23 – 9/27/23			
Time: 9:47 a.m. – 9:47 a.m.			
Location: 33.6656892, -117.9268052; On the northwest corner of the Project Site			
Source of Peak Noise: Vehicles on Shelley Circle, distant landscaping			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	CNEL (dB)
51.9	38.5	86.9	54.7

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0005120	12/14/2022	
	Microphone	Larson Davis	377B02	334361	12/14/2022	
	Preamp	Larson Davis	PRMLxT1L	042852	12/14/2022	
	Calibrator	Larson Davis	CAL200	14105	12/14/2022	

Weather Data			
Est.	Duration: 24 hrs		Sky: clear
	Note: dBA Offset = 0.00		Sensor Height (ft): 4
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	3	68	30.03

Photo of Measurement Location

Site Number: Short Term 1			
Recorded By: Lindsay Liegler			
Job Number: 2023-192			
Date: 9/27/23			
Time: 10:22 a.m. – 10:37 a.m.			
Location: On a parkway northeast of the intersection of Shelley Circle and Fair Drive			
Source of Peak Noise: Vehicles on roadways, landscaping, and overhead airplanes			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
57.7	45.2	68.3	92.3

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0005120	12/14/2022	
	Microphone	Larson Davis	377B02	334361	12/14/2022	
	Preamp	Larson Davis	PRMLxT1L	042852	12/14/2022	
	Calibrator	Larson Davis	CAL200	14105	12/14/2022	

Weather Data			
Est.	Duration: 15 mins		Sky: clear
	Note: dBA Offset = 0.02		Sensor Height (ft): 3.5
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	3	70	29.92

Photo of Measurement Location

Site Number: Short Term 2			
Recorded By: Lindsay Liegler			
Job Number: 2023-192			
Date: 9/27/23			
Time: 10:41 a.m. – 10:56 a.m.			
Location: On a parkway northeast of the intersection of Florence Circle, Eugenia Way, and Pearl Way.			
Source of Peak Noise: vehicles on the roadways			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
50.6	46.4	61.6	97.3

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0005120	12/14/2022	
	Microphone	Larson Davis	377B02	334361	12/14/2022	
	Preamp	Larson Davis	PRMLxT1L	042852	12/14/2022	
	Calibrator	Larson Davis	CAL200	14105	12/14/2022	

Weather Data			
Est.	Duration: 15 mins		Sky: clear
	Note: dBA Offset = 0.02		Sensor Height (ft): 3.5
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	4	71	29.92

Photo of Measurement Location

Site Number: Short Term 3	
Recorded By: Lindsay Liegler	
Job Number: 2023-192	
Date: 9/27/23	
Time: 10:59 a.m. – 11:14 a.m.	
Location: North of Shelley Circle and west of a parking lot.	
Source of Peak Noise: Nearby construction activities, golf activity, vehicles on the roadway, and overhead airplanes	

Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
64.3	44.7	64.3	98.2

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0005120	12/14/2022	
	Microphone	Larson Davis	377B02	334361	12/14/2022	
	Preamp	Larson Davis	PRMLxT1L	042852	12/14/2022	
	Calibrator	Larson Davis	CAL200	14105	12/14/2022	

Weather Data			
Est.	**Duration:** 15 mins		**Sky:** clear
	Note: dBA Offset = 0.02		**Sensor Height (ft):** 3.5
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	3	70	29.92

Site Number: Short Term 4						
Recorded By: Lindsay Liegler						
Job Number: 2023-192						
Date: 9/27/23						
Time: 11:17 a.m. – 11:32 a.m.						
Location: North of an unnamed road and approximately 40 feet west of Shelley Circle.						
Source of Peak Noise: Vehicles along the roadways, nearby construction activities, and overhead airplane noise						
Noise Data						
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)			
48.0	43.2	63.6	96.5			

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0005120	12/14/2022	
	Microphone	Larson Davis	377B02	334361	12/14/2022	
	Preamp	Larson Davis	PRMLxT1L	042852	12/14/2022	
	Calibrator	Larson Davis	CAL200	14105	12/14/2022	

Weather Data			
Est.	**Duration:** 15 mins		**Sky:** clear
	Note: dBA Offset = 0.02		Sensor Height (ft): 3.5
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	3	70	29.92

Photo of Measurement Location

Site Number: Short Term 5			
Recorded By: Lindsay Liegler			
Job Number: 2023-192			
Date: 9/27/23			
Time: 11:36 a.m. – 11:54 a.m.			
Location: Southwest of the intersection between Shelly Circle and Gregory Way.			
Source of Peak Noise: vehicles on the roadway and nearby construction equipment noise			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
56.1	43.2	76.8	101.2

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0005120	12/14/2022	
	Microphone	Larson Davis	377B02	334361	12/14/2022	
	Preamp	Larson Davis	PRMLxT1L	042852	12/14/2022	
	Calibrator	Larson Davis	CAL200	14105	12/14/2022	

Weather Data			
Est.	Duration: 15 mins		Sky: clear
	Note: dBA Offset = 0.02		Sensor Height (ft): 3.5
	Wind Ave Speed (mph)	Temperature (degrees Fahrenheit)	Barometer Pressure (hPa)
	3	70	29.92

Photo of Measurement Location

Short-Term 15-Minute Noise Measurement Field Data Sheet	
Recorded By: Christopher Uminski	**Date:** 10/20/2025
Site Number: Short Term 1	**Job Number:** 2023-192
Start Time: 13:37	**End Time:** 13:52
Location/Address: Located at the northwest corner of the intersection of North Shelly Circle and Merrimac Way/Gregory Way.	
Primary Noise Source: Vehicles on adjacent roadways.	
Secondary Noise Source: Nearby construction noise.	

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0006133**	**12/12/2025**	
	Microphone	**Larson Davis**	**377B02**	**346688**	**12/10/2025**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**069947**	**12/12/2025**	
	Calibrator	**Larson Davis**	**CAL200**	**17325**	**12/10/2025**	

Calibration Data	
Offset Before Measurement Period	**Offset After Measurement Period**
Calibration Time: 10:46	**Calibration Time:** 16:35
Calibration Offset (+-): 0.2	**Calibration Offset (+-):** 0.07

Weather Data				
Est.	**Sky Conditions:** Clear			
	Avg Wind Speed (mph)	**Max Wind Speed**	**Temperature º F**	**Humidity %**
	2.5	5.6	84.2	43.6

Noise Meter Data Outputs (dBA)			
Leq	**Lmin**	**Lmax**	**CNEL**
57.1	40.4	76.8	57.1

Photo(s) of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.157.s	Computer's File Name	LxT_0006133-20251020 133743-LxT_Data.157.ldbin
Meter	LxT1 0006133	Firmware	2.404
User		Location	
Job Description			
Note			

Measurement

Start Time	2025-10-20 13:37:43	Duration	0:15:00.0		
End Time	2025-10-20 13:52:43	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2025-10-20 10:46:52	Post-Calibration	None	Calibration Deviation	0.0

Results

Overall Metrics

LA_{eq}	57.1 dB		
LAE	86.6 dB	SEA	--- dB
EA	51.3 µPa²h		
EA8	1.6 mPa²h		
EA40	8.2 mPa²h		
LAS_{peak}	89.3 dB	2025-10-20 13:39:58	
LAS_{max}	76.8 dB	2025-10-20 13:39:59	
LAS_{min}	40.4 dB	2025-10-20 13:47:11	
LA_{eq}	57.1 dB		
LC_{eq}	66.6 dB	LC_{eq} - LA_{eq}	9.5 dB
LAI_{eq}	58.4 dB	LAI_{eq} - LA_{eq}	1.3 dB

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LASpk > 135.0 dB	0	0:00:00.0
LASpk > 137.0 dB	0	0:00:00.0
LASpk > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight
	57.1 dB	57.1 dB	--- dB

LDEN	LDay	LEve	LNight
57.1 dB	57.1 dB	--- dB	--- dB

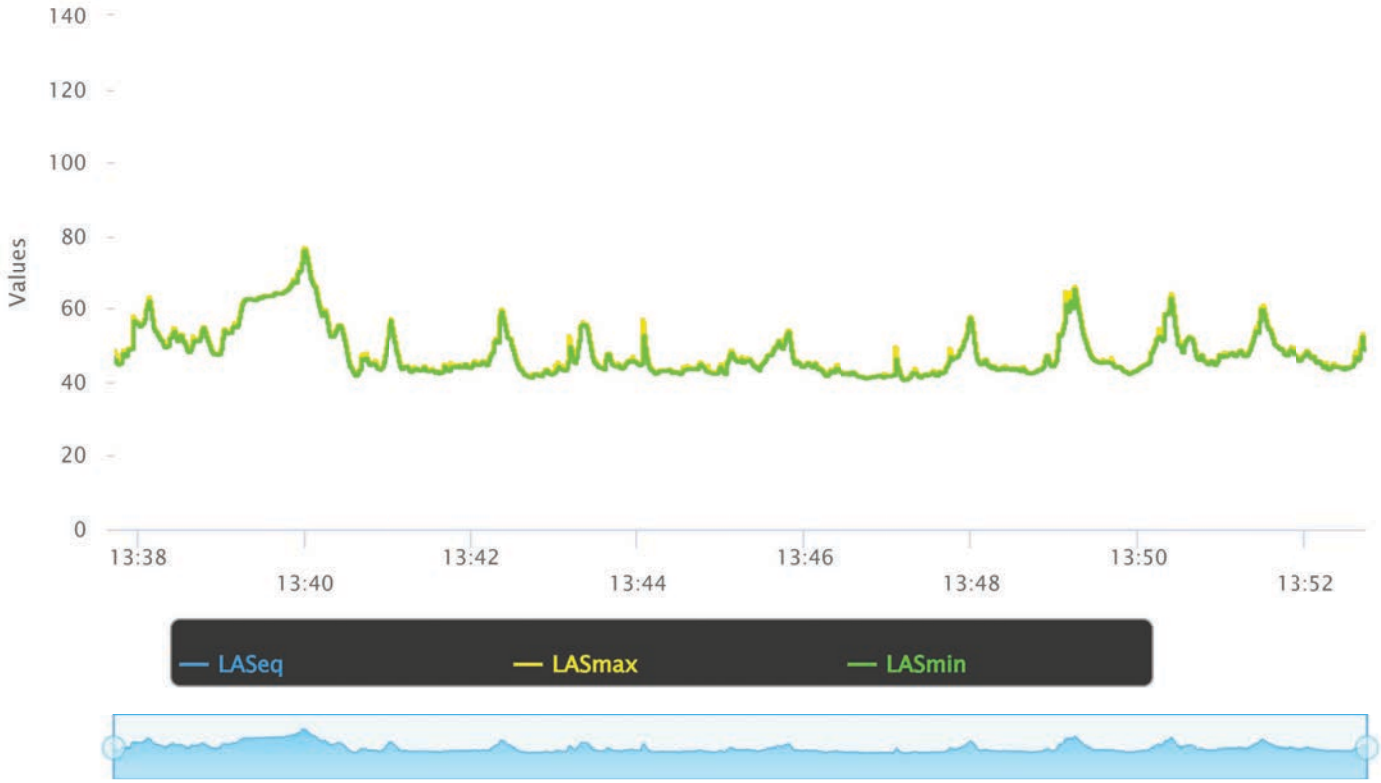
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	57.1 dB		--- dB		--- dB	
$L_{S(max)}$	76.8 dB	2025-10-20 13:39:59	--- dB	None	--- dB	None
$L_{S(min)}$	40.4 dB	2025-10-20 13:47:11	--- dB	None	--- dB	None
$L_{Peak(max)}$	89.3 dB	2025-10-20 13:39:58	--- dB	None	--- dB	None

Overloads	Count	Duration
	0	0:00:00.0

Statistics

LAS 2.0	65.9 dB
LAS 8.0	60.2 dB
LAS 16.7	54.0 dB
LAS 25.0	51.3 dB
LAS 50.0	45.6 dB
LAS 90.0	42.3 dB

Time History



Dark Mode

Short-Term 15-Minute Noise Measurement Field Data Sheet	
Recorded By: Christopher Uminski	**Date:** 10/20/2025
Site Number: Short Term 2	**Job Number:** 2023-192
Start Time: 14:09	**End Time:** 14:24
Location/Address: Near driveway of the residence at 2501 Christopher Lane.	
Primary Noise Source: Vehicles on adjacent roadways.	
Secondary Noise Source: Neighborhood noise.	

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0006133**	**12/12/2025**	
	Microphone	**Larson Davis**	**377B02**	**346688**	**12/10/2025**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**069947**	**12/12/2025**	
	Calibrator	**Larson Davis**	**CAL200**	**17325**	**12/10/2025**	

Calibration Data	
Offset Before Measurement Period	**Offset After Measurement Period**
Calibration Time: 10:46	**Calibration Time:** 16:35
Calibration Offset (+-): 0.2	**Calibration Offset (+-):** 0.07

Weather Data				
Est.	**Sky Conditions:** Clear			
	Avg Wind Speed (mph)	**Max Wind Speed**	**Temperature º F**	**Humidity %**
	2.5	5.6	84.2	43.6

Noise Meter Data Outputs (dBA)			
Leq	**Lmin**	**Lmax**	**CNEL**
53.4	40.3	67.1	53.4

Photo(s) of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.158.s	Computer's File Name	LxT_0006133-20251020 140939-LxT_Data.158.ldbin
Meter	LxT1 0006133	Firmware	2.404
User		Location	
Job Description			
Note			

Measurement

Start Time	2025-10-20 14:09:39	Duration	0:15:00.0		
End Time	2025-10-20 14:24:39	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2025-10-20 10:46:35	Post-Calibration	None	Calibration Deviation	0.0

Results

Overall Metrics

LA_{eq}	53.4 dB		
LAE	82.9 dB	SEA	--- dB
EA	21.9 µPa²h		
EA8	700.1 µPa²h		
EA40	3.5 mPa²h		
LAS_{peak}	90.0 dB	2025-10-20 14:13:08	
LAS_{max}	67.1 dB	2025-10-20 14:13:10	
LAS_{min}	40.3 dB	2025-10-20 14:12:56	
LA_{eq}	53.4 dB		
LC_{eq}	68.0 dB	LC_{eq} - LA_{eq}	14.6 dB
LAI_{eq}	56.1 dB	LAI_{eq} - LA_{eq}	2.7 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LASpk > 135.0 dB	0	0:00:00.0
LASpk > 137.0 dB	0	0:00:00.0
LASpk > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
53.4 dB	53.4 dB	--- dB

LDEN	LDay	LEve	LNight
53.4 dB	53.4 dB	--- dB	--- dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	53.4 dB		--- dB		--- dB	
$L_{S(max)}$	67.1 dB	2025-10-20 14:13:10	--- dB	None	--- dB	None
$L_{S(min)}$	40.3 dB	2025-10-20 14:12:56	--- dB	None	--- dB	None
$L_{Peak(max)}$	90.0 dB	2025-10-20 14:13:08	--- dB	None	--- dB	None

Overloads	Count	Duration
	0	0:00:00.0

Statistics

LAS 2.0	61.1 dB
LAS 8.0	57.2 dB
LAS 16.7	54.1 dB
LAS 25.0	52.6 dB
LAS 50.0	51.2 dB
LAS 90.0	43.9 dB

Short-Term 15-Minute Noise Measurement Field Data Sheet	
Recorded By: Christopher Uminski	**Date:** 10/20/2025
Site Number: Short Term 3	**Job Number:** 2023-192
Start Time: 15:15	**End Time:** 15:30
Location/Address: Located on the north side of Harbor Boulevard, in front of Pacific Auto Center at 2524 Harbor Boulevard.	
Primary Noise Source: Vehicles on Harbor Boulevard.	
Secondary Noise Source: Activity at Pacific Auto Center.	

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0006133**	**12/12/2025**	
	Microphone	**Larson Davis**	**377B02**	**346688**	**12/10/2025**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**069947**	**12/12/2025**	
	Calibrator	**Larson Davis**	**CAL200**	**17325**	**12/10/2025**	

Calibration Data	
Offset Before Measurement Period	**Offset After Measurement Period**
Calibration Time: 10:46	**Calibration Time:** 16:35
Calibration Offset (+-): 0.2	**Calibration Offset (+-):** 0.07

Weather Data				
Est.	**Sky Conditions:** Clear			
	Avg Wind Speed (mph)	**Max Wind Speed**	**Temperature ° F**	**Humidity %**
	2.5	5.6	84.2	43.6

Noise Meter Data Outputs (dBA)			
Leq	**Lmin**	**Lmax**	**CNEL**
75.8	58.4	86.7	75.8

Photo(s) of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.160.s	Computer's File Name	LxT_0006133-20251020 151519-LxT_Data.160.ldbin
Meter	LxT1 0006133	Firmware	2.404
User		Location	
Job Description			
Note			

Measurement

Start Time	2025-10-20 15:15:19	Duration	0:15:00.0		
End Time	2025-10-20 15:30:19	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2025-10-20 10:46:35	Post-Calibration	None	Calibration Deviation	0.0

Results

Overall Metrics

LA_{eq}	75.8 dB		
LAE	105.3 dB	SEA	--- dB
EA	3.8 mPa²h		
EA8	121.7 mPa²h		
EA40	608.3 mPa²h		
LAS_{peak}	114.0 dB	2025-10-20 15:25:06	
LAS_{max}	86.7 dB	2025-10-20 15:25:06	
LAS_{min}	58.4 dB	2025-10-20 15:16:29	
LA_{eq}	75.8 dB		
LC_{eq}	80.6 dB	LC_{eq} - LA_{eq}	4.8 dB
LAI_{eq}	77.6 dB	LAI_{eq} - LA_{eq}	1.8 dB

Exceedances	Count	Duration
LAS > 85.0 dB	2	0:00:04.1
LAS > 115.0 dB	0	0:00:00.0
LASpk > 135.0 dB	0	0:00:00.0
LASpk > 137.0 dB	0	0:00:00.0
LASpk > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight
	75.8 dB	75.8 dB	--- dB

LDEN	LDay	LEve	LNight
75.8 dB	75.8 dB	--- dB	--- dB

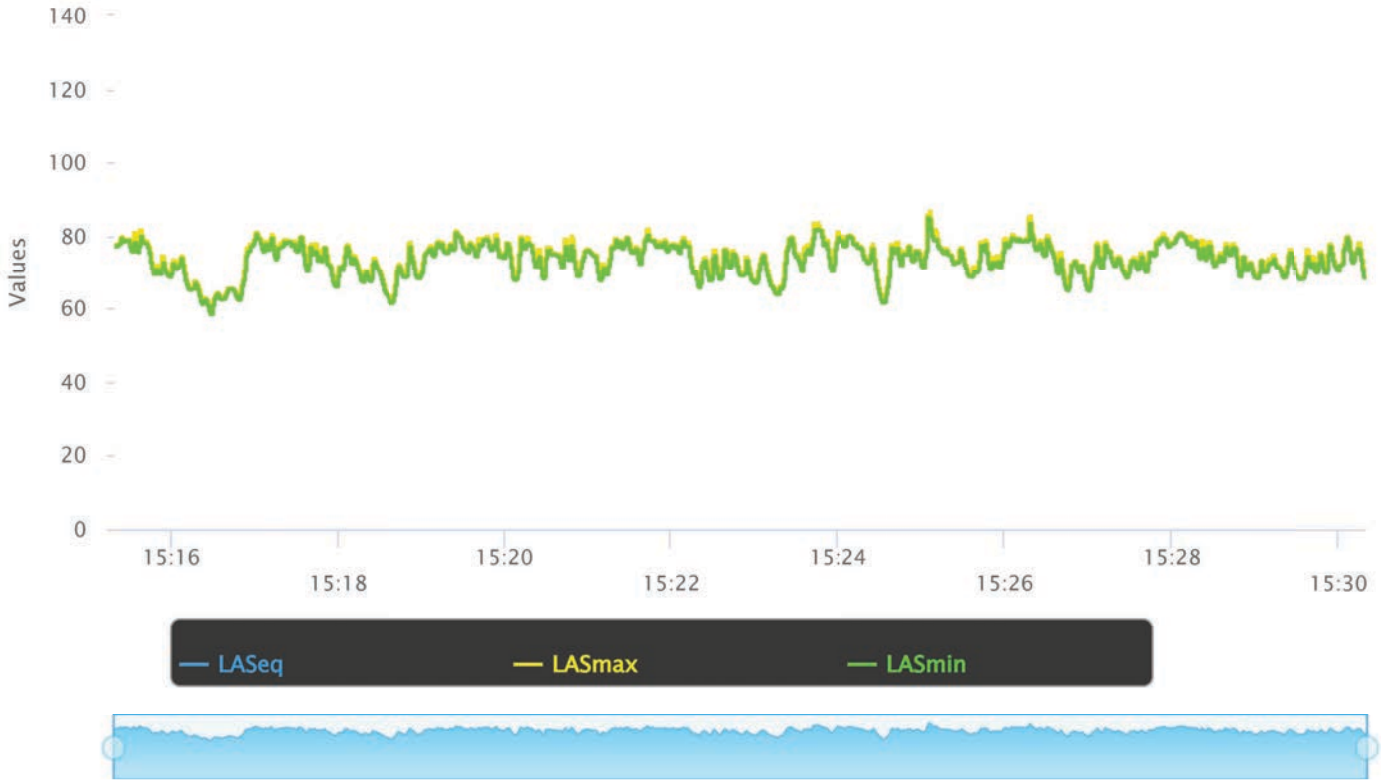
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	75.7 dB		--- dB		--- dB	
$L_{S(max)}$	86.7 dB	2025-10-20 15:25:06	--- dB	None	--- dB	None
$L_{S(min)}$	58.4 dB	2025-10-20 15:16:29	--- dB	None	--- dB	None
$L_{Peak(max)}$	114.0 dB	2025-10-20 15:25:06	--- dB	None	--- dB	None

Overloads	Count	Duration
	0	0:00:00.0

Statistics

LAS 2.0	80.8 dB
LAS 8.0	79.2 dB
LAS 16.7	78.1 dB
LAS 25.0	77.3 dB
LAS 50.0	74.6 dB
LAS 90.0	67.8 dB

Time History



Dark Mode

Short-Term 15-Minute Noise Measurement Field Data Sheet	
Recorded By: Christopher Uminski	**Date:** 10/20/2025
Site Number: Short Term 4	**Job Number:** 2023-192
Start Time: 14:43	**End Time:** 14:58
Location/Address: Located south of Fair Drive, approximately 70-feet west of Carnegie Ave.	
Primary Noise Source: Vehicles on adjacent roadways.	
Secondary Noise Source: Neighborhood noise.	

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0006133**	**12/12/2025**	
	Microphone	**Larson Davis**	**377B02**	**346688**	**12/10/2025**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**069947**	**12/12/2025**	
	Calibrator	**Larson Davis**	**CAL200**	**17325**	**12/10/2025**	

Calibration Data	
Offset Before Measurement Period	**Offset After Measurement Period**
Calibration Time: 10:46	**Calibration Time:** 16:35
Calibration Offset (+-): 0.2	**Calibration Offset (+-):** 0.07

Weather Data				
Est.	**Sky Conditions:** Clear			
	Avg Wind Speed (mph)	**Max Wind Speed**	**Temperature º F**	**Humidity %**
	2.5	5.6	84.2	43.6

Noise Meter Data Outputs (dBA)			
Leq	**Lmin**	**Lmax**	**CNEL**
70.3	48.3	83.4	70.3

Photo(s) of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.159.s	Computer's File Name	LxT_0006133-20251020 144341-LxT_Data.159.ldbin
Meter	LxT1 0006133	Firmware	2.404
User		Location	
Job Description			
Note			

Measurement

Start Time	2025-10-20 14:43:41	Duration	0:15:00.0		
End Time	2025-10-20 14:58:41	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2025-10-20 10:46:35	Post-Calibration	None	Calibration Deviation	0.0

Results

Overall Metrics

LA_{eq}	70.3 dB		
LAE	99.8 dB	SEA	--- dB
EA	1.1 mPa²h		
EA8	34.3 mPa²h		
EA40	171.4 mPa²h		
LAS_{peak}	99.4 dB	2025-10-20 14:53:49	
LAS_{max}	83.4 dB	2025-10-20 14:53:49	
LAS_{min}	48.3 dB	2025-10-20 14:48:19	
LA_{eq}	70.3 dB		
LC_{eq}	77.3 dB	LC_{eq} - LA_{eq}	7.0 dB
LAI_{eq}	71.9 dB	LAI_{eq} - LA_{eq}	1.6 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LASpk > 135.0 dB	0	0:00:00.0
LASpk > 137.0 dB	0	0:00:00.0
LASpk > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
70.3 dB	70.3 dB	--- dB

LDEN	LDay	LEve	LNight
70.3 dB	70.3 dB	--- dB	--- dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	70.3 dB		--- dB		--- dB	
$LS_{(max)}$	83.4 dB	2025-10-20 14:53:49	--- dB	None	--- dB	None
$LS_{(min)}$	48.3 dB	2025-10-20 14:48:19	--- dB	None	--- dB	None
$L_{Peak(max)}$	99.4 dB	2025-10-20 14:53:49	--- dB	None	--- dB	None

Overloads	Count	Duration
	0	0:00:00.0

Statistics

LAS 2.0	77.3 dB
LAS 8.0	74.8 dB
LAS 16.7	72.5 dB
LAS 25.0	70.8 dB
LAS 50.0	66.9 dB
LAS 90.0	57.6 dB

Short-Term 15-Minute Noise Measurement Field Data Sheet	
Recorded By: Christopher Uminski	**Date:** 10/20/2025
Site Number: Short Term 5	**Job Number:** 2023-192
Start Time: 15:45	**End Time:** 16:00
Location/Address: Approximately 130-feet north of the intersection of Joann Street and Fountain Way, at the bike path entrance near 610 Joann Street.	
Primary Noise Source: Vehicles on adjacent roadways.	
Secondary Noise Source: E-Bikes on sidewalk.	

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0006133**	**12/12/2025**	
	Microphone	**Larson Davis**	**377B02**	**346688**	**12/10/2025**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**069947**	**12/12/2025**	
	Calibrator	**Larson Davis**	**CAL200**	**17325**	**12/10/2025**	

Calibration Data	
Offset Before Measurement Period	**Offset After Measurement Period**
Calibration Time: 10:46	**Calibration Time:** 16:35
Calibration Offset (+-): 0.2	**Calibration Offset (+-):** 0.07

Weather Data				
Est.	**Sky Conditions:** Clear			
	Avg Wind Speed (mph)	**Max Wind Speed**	**Temperature º F**	**Humidity %**
	2.5	5.6	84.2	43.6

Noise Meter Data Outputs (dBA)			
Leq	**Lmin**	**Lmax**	**CNEL**
50.4	42.1	68.4	50.4

Photo(s) of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.161.s	Computer's File Name	LxT_0006133-20251020 154545-LxT_Data.161.ldbin
Meter	LxT1 0006133	Firmware	2.404
User		Location	
Job Description			
Note			

Measurement

Start Time	2025-10-20 15:45:45	Duration	0:15:00.0		
End Time	2025-10-20 16:00:45	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2025-10-20 10:46:35	Post-Calibration	None	Calibration Deviation	0.0

Results

Overall Metrics

LA_{eq}	50.4 dB		
LAE	79.9 dB	SEA	--- dB
EA	11.0 µPa²h		
EA8	350.9 µPa²h		
EA40	1.8 mPa²h		
LAS_{peak}	88.8 dB	2025-10-20 15:52:35	
LAS_{max}	68.4 dB	2025-10-20 15:53:54	
LAS_{min}	42.1 dB	2025-10-20 15:58:22	
LA_{eq}	50.4 dB		
LC_{eq}	63.9 dB	LC_{eq} - LA_{eq}	13.5 dB
LAI_{eq}	54.8 dB	LAI_{eq} - LA_{eq}	4.4 dB

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LASpk > 135.0 dB	0	0:00:00.0
LASpk > 137.0 dB	0	0:00:00.0
LASpk > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight
	50.4 dB	50.4 dB	--- dB

LDEN	LDay	LEve	LNight
50.4 dB	50.4 dB	--- dB	--- dB

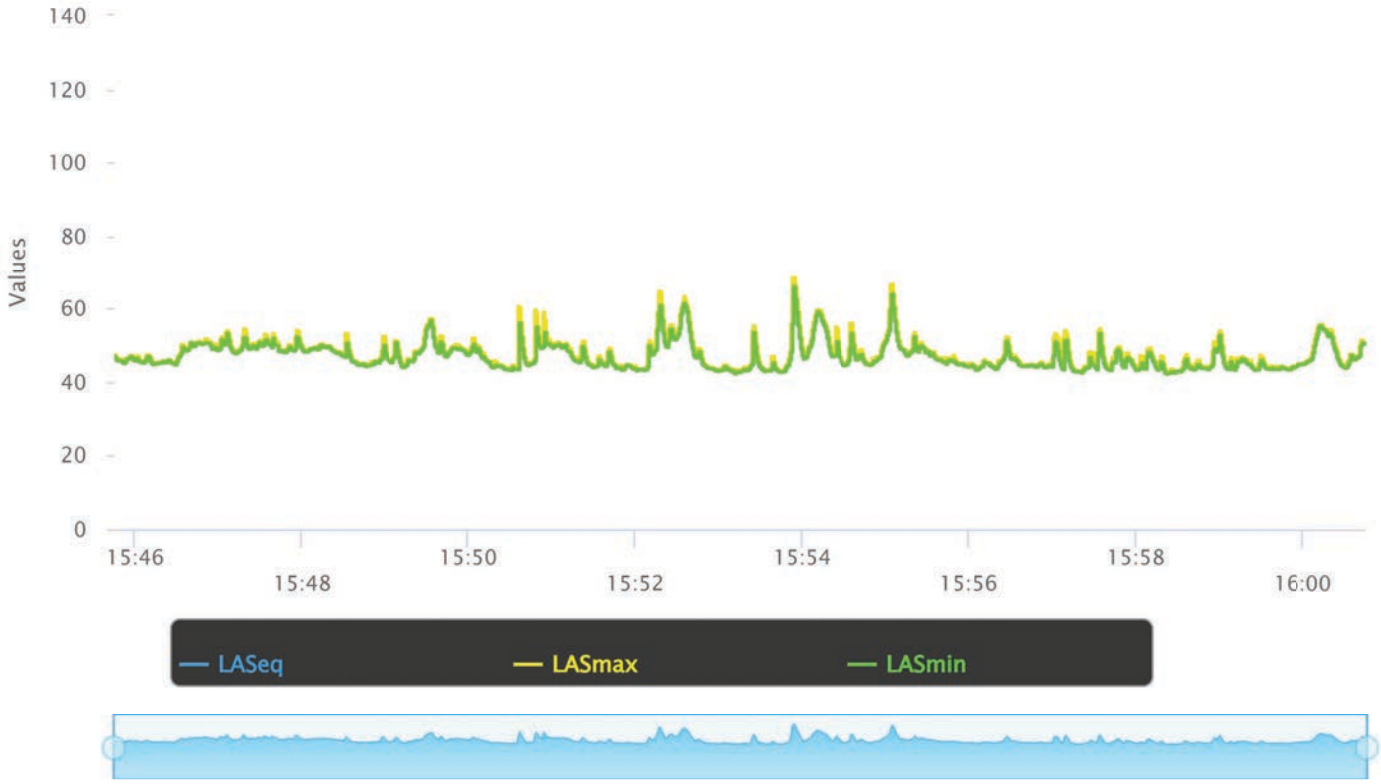
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	50.4 dB		--- dB		--- dB	
$L_{S(max)}$	68.4 dB	2025-10-20 15:53:54	--- dB	None	--- dB	None
$L_{S(min)}$	42.1 dB	2025-10-20 15:58:22	--- dB	None	--- dB	None
$L_{Peak(max)}$	88.8 dB	2025-10-20 15:52:35	--- dB	None	--- dB	None

Overloads	Count	Duration
	0	0:00:00.0

Statistics

LAS 2.0	58.7 dB
LAS 8.0	53.1 dB
LAS 16.7	50.5 dB
LAS 25.0	49.4 dB
LAS 50.0	46.3 dB
LAS 90.0	43.5 dB

Time History



Dark Mode

APPENDIX B

Federal Highway Noise Prediction Model (FHWA-RD-77-108) Outputs – Project Traffic Noise

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2023-192
Project Name: Fairview Development Center Specific Plan Project

Background Information- Existing

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Fehr and Peers 2026
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist
Adams Avenue													
Between Mesa Verde Drive East and Harbor Boulevard	6	15	34,800	35	0	0.5%	0.4%	64.7	-	93	296	935	100
Victoria Street													
Between Pomona Avenue and Harbor Boulevard	4	15	30,120	40	0	0.6%	0.5%	65.6	-	114	360	1,137	100
West 19th Street													
Between Meyer Place and Park Avenue	4	15	26,660	30	0	0.5%	0.5%	62.3	-	54	171	541	100
Harbor Boulevard													
Between Gisler Avenue and Nutmeg Place	8	15	55,450	40	0	0.4%	0.3%	68.3	-	213	673	2,128	100
Between Adams Avenue and Merrimac Way	6	15	24,260	40	0	0.4%	0.4%	64.5	-	90	285	900	100
Between Fair Drive and Wilson Street	6	15	36,500	40	0	0.5%	0.3%	66.3	-	133	422	1,334	100
Between West Bay Street and Ford Road	6	15	40,370	40	0	0.6%	0.5%	67.0	-	159	503	1,590	100
Newport Boulevard													
Between West 18th Street and Harbor Boulevard	7	15	79,080	45	0	0.6%	0.4%	71.3	134	422	1,335	4,223	100
Fair Drive													
Between Fordham Drive and Loyola Road	4	10	12,030	40	0	0.8%	1.3%	62.5	-	57	180	568	100
Between Vanguard Way and Newport Boulevard	4	10	19,260	40	0	0.7%	1.0%	64.2	-	84	265	837	100

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2023-192
Project Name: Fairview Development Center Specific Plan Project

Background Information- 2045 No Project

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Fehr and Peers 2026
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
Adams Avenue												
Between Mesa Verde Drive East and Harbor Boulevard	6	15	35,470	35	0	0.4%	0.3%	64.5	-	90	285	901
Victoria Street												
Between Pomona Avenue and Harbor Boulevard	4	15	31,510	40	0	0.6%	0.4%	65.6	-	116	365	1,155
West 19th Street												
Between Meyer Place and Park Avenue	4	15	37,010	30	0	0.5%	0.5%	63.8	-	75	237	750
Harbor Boulevard												
Between Gisler Avenue and Nutmeg Place	8	15	61,570	40	0	0.4%	0.3%	68.7	-	236	747	2,363
Between Adams Avenue and Merrimac Way	6	15	31,370	40	0	0.4%	0.4%	65.6	-	116	367	1,162
Between Fair Drive and Wilson Street	6	15	40,090	40	0	0.5%	0.3%	66.6	-	146	462	1,460
Between West Bay Street and Ford Road	6	15	46,130	40	0	0.7%	0.9%	68.0	65	204	646	2,042
Newport Boulevard												
Between West 18th Street and Harbor Boulevard	7	15	83,150	45	0	0.6%	0.5%	71.6	144	455	1,438	4,547
Fair Drive												
Between Fordham Drive and Loyola Road	4	10	17,200	40	0	1.0%	1.8%	64.7	-	92	292	924
Between Vanguard Way and Newport Boulevard	4	10	24,040	40	0	0.8%	1.1%	65.3	-	108	342	1,083

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2023-192
Project Name: Fairview Development Center Specific Plan Project

Background Information- 2045 With Project

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Fehr and Peers 2026
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway to Contour: 70 CNEL	65 CNEL	60 CNEL	55 CNEL
Adams Avenue												
Between Mesa Verde Drive East and Harbor Boulevard	6	15	37,480	35	0	0.4%	0.3%	64.8	-	95	301	952
Victoria Street												
Between Pomona Avenue and Harbor Boulevard	4	15	32,520	40	0	0.6%	0.4%	65.8	-	119	377	1,192
West 19th Street												
Between Meyer Place and Park Avenue	4	15	37,010	30	0	0.5%	0.5%	63.8	-	75	237	750
Harbor Boulevard												
Between Gisler Avenue and Nutmeg Place	8	15	71,780	40	0	0.4%	0.3%	69.4	87	275	871	2,754
Between Adams Avenue and Merrimac Way	6	15	43,580	40	0	0.4%	0.4%	67.1	-	162	511	1,617
Between Fair Drive and Wilson Street	6	15	48,550	40	0	0.5%	0.3%	67.5	-	177	561	1,774
Between West Bay Street and Ford Road	6	15	46,930	40	0	0.7%	0.9%	68.2	66	209	660	2,087
Newport Boulevard												
Between West 18th Street and Harbor Boulevard	7	15	83,950	45	0	0.6%	0.5%	71.6	145	459	1,452	4,590
Fair Drive												
Between Fordham Drive and Loyola Road	4	10	22,830	40	0	1.0%	1.8%	65.9	-	123	388	1,226
Between Vanguard Way and Newport Boulevard	4	10	29,670	40	0	0.8%	1.1%	66.3	-	134	423	1,337