2470 Alvin Avenue Mixed-Use Development Project

Noise and Vibration Study

prepared for

City of San José
Department of Planning, Building and Code Enforcement
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April 2024

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1 Project Description and Impact Summary

1.1 Introduction

This study analyzes the potential noise and vibration impacts associated with the construction and operation of the proposed 2470 Alvin Avenue Mixed-Use Development Project (hereafter referred to as "proposed project" or "project") located in the City of San José (City), California. Rincon Consultants, Inc. (Rincon) prepared this study under contract to the project applicant StudioCurrent, for the City of San José in support of the environmental documentation being prepared pursuant to the California Environmental Quality Act (CEQA). Table 1 provides a summary of project impacts.

Table 1 Summary of Project Impacts

Impact Statements	Level of Significance
Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Less than significant impact.
Would the project result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	Less than significant impact
For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	No impact

1.2 Project Summary

Project Location

The project site is located at 2470 Alvin Avenue in the City of San José on the western edge of the East San José neighborhood, encompassing approximately 0.93 acres at Assessor's Parcel Number (APN) 670-02-02. The project site is located approximately 1,200 feet east of the interchange of Bayshore Freeway (US 101) and Tully Road and is situated directly north of the intersection of Alvin Avenue and Burdette Drive.

Figure 1 shows the regional location of the project site and Figure 2 depicts the project boundary. Currently, the site contains a single-story commercial office building and surface parking lot. Access to the site is currently available via entrances on Alvin Avenue and Burdette Drive.

Figure 1 Regional Location

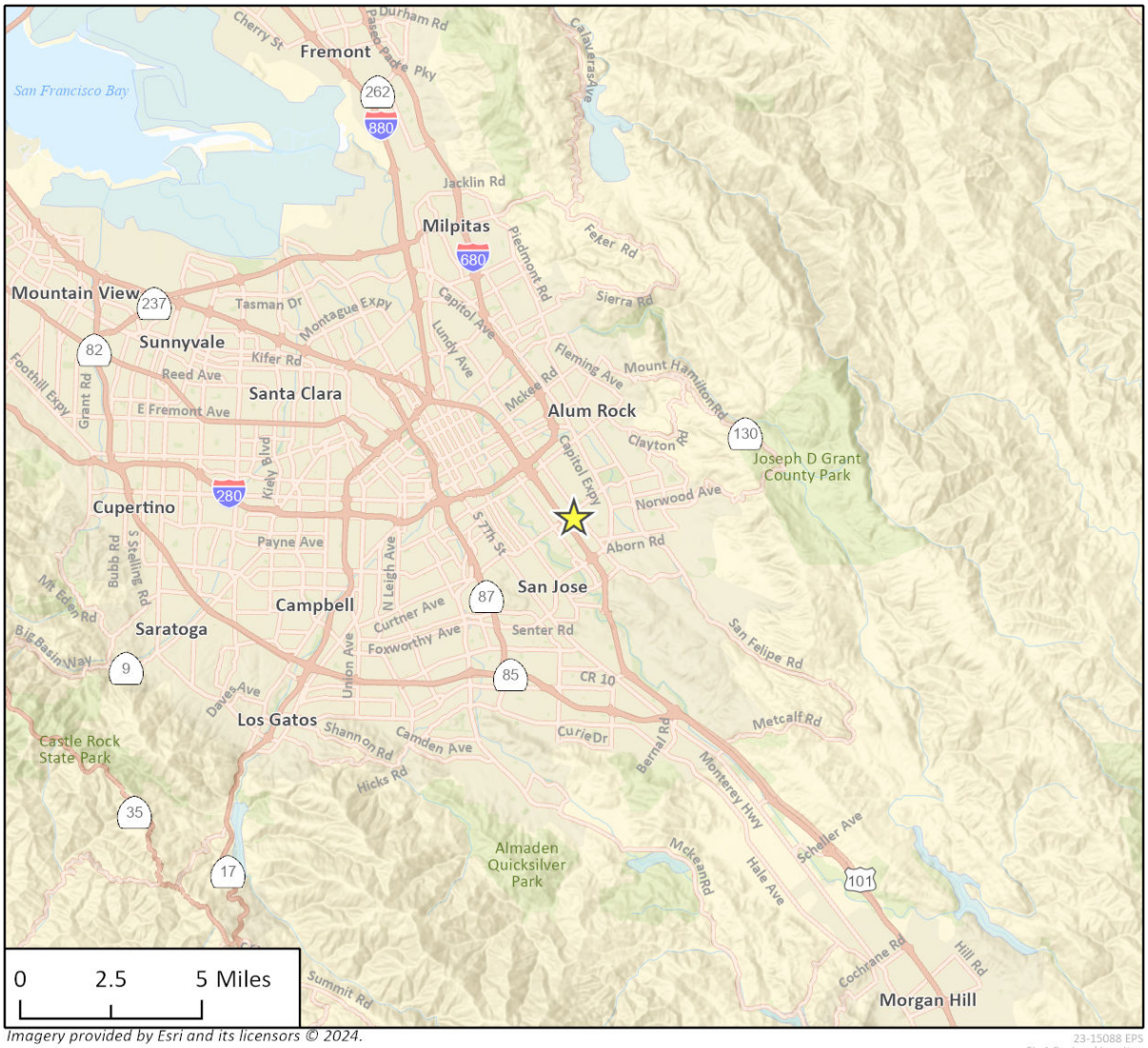

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Fig 1 Regional Location

Project Location

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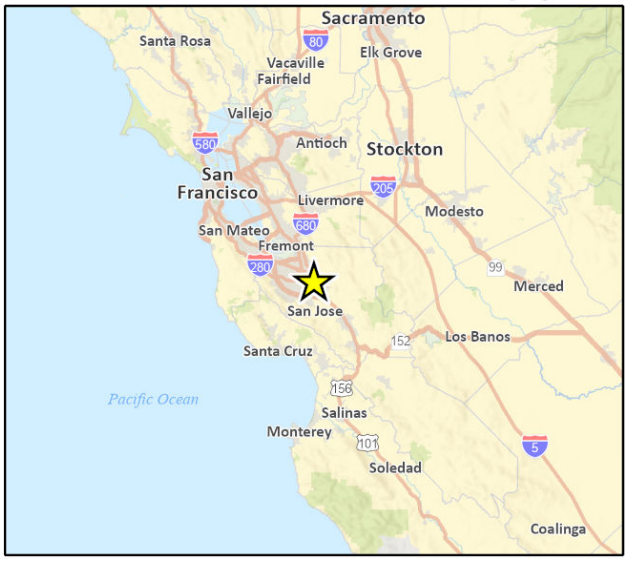

Figure 2 Project Boundary

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Fig 2 Project Location

Project Description

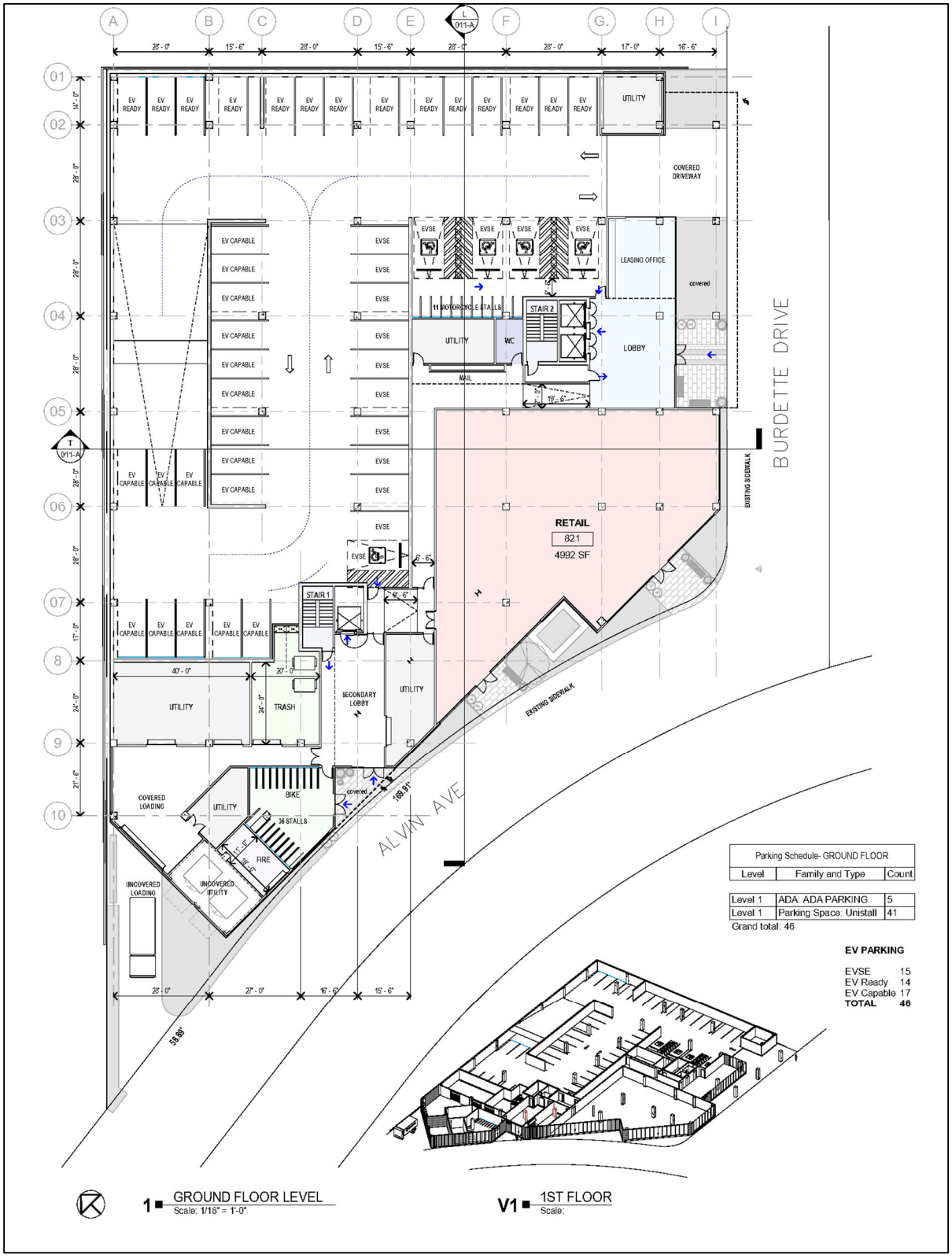
The project would include demolition of the existing onsite building and associated infrastructure (existing parking lot, utilities, internal pedestrian sidewalks, and landscaping and trees) and construction of an eight-story mixed-use building containing approximately 4,992 square feet of commercial/retail space, a leasing office and lobby, utility and storage rooms, a trash room, and a bike storage and repair area on Floor 1 and a total of 138 residential units (consisting of a mix of studio, one-bedroom, and two-bedroom layouts) on Floors 2–8. The proposed building would also include an attached parking structure on Floors 1–3, accessible on the ground floor via Burdette Drive. Amenity spaces would be located on Floors 2–3.

Private open space would be provided via private balconies, while common open space would be provided via outdoor deck areas on Floors 4 and 8. Landscaping would consist of trees and shrubs in planters and be provided on the ground floor along Alvin Avenue and Burdette Drive and on the outdoor deck areas on Floors 4 and 8. The project would have a density of 5.36 dwelling units per acre. The proposed site plan for the project is shown in Figure 3.

Construction

Construction activities include demolition, site preparation, grading, building construction, paving, and architectural coating. Construction of the project is anticipated to take approximately one year, beginning in June 2024 and ending in June 2025. Construction would primarily take place five days a week, occurring between the hours of 7:00 a.m. to 4:00 p.m. Monday through Friday. No blasting or pile driving activities would be performed.

Figure 3 Project Site Plan



2 Background

2.1 Overview of Sound Measurement

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

Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels so that they are consistent with the human hearing response, which is most sensitive to frequencies around 4,000 Hertz (Hz) and less sensitive to frequencies around and below 100 Hz (Kinsler, et. al. 1999). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used to measure earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dBA; dividing the energy in half would result in a 3 dBA decrease (Crocker 2007).

Human perception of noise has no simple correlation with sound energy: the perception of sound is not linear in terms of dBA or in terms of sound energy. Two sources do not "sound twice as loud" as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease (i.e., twice the sound energy); that a change of 5 dBA is readily perceptible; and that an increase (or decrease) of 10 dBA sounds twice (or half) as loud (Crocker 2007).

Sound changes in both level and frequency spectrum as it travels from the source to the receptor. The most obvious change is the decrease in level as the distance from the source increases. The manner by which noise reduces with distance depends on factors such as the type of sources (e.g., point or line, the path the sound will travel, site conditions, and obstructions). Noise levels from a point source typically attenuate, or drop off, at a rate of 6 dBA per doubling of distance (e.g., construction, industrial machinery, ventilation units). Noise from a line source (e.g., roadway, pipeline, railroad) typically attenuates at about 3 dBA per doubling of distance (Caltrans 2013). The propagation of noise is also affected by the intervening ground, known as ground absorption. A hard site, such as a parking lot or smooth body of water, receives no additional ground attenuation and the changes in noise levels with distance (drop-off rate) result from simply the geometric spreading of the source. An additional ground attenuation value of 1.5 dBA per doubling of distance applies to a soft site (e.g., soft dirt, grass, or scattered bushes and trees) (Caltrans 2013). Noise levels may also be reduced by intervening structures; the amount of attenuation provided by this "shielding" depends on the size of the object and the frequencies of the noise levels. Natural terrain features such as hills and dense woods, and man-made features such as buildings and walls, can significantly alter noise levels. Generally, any large structure blocking the line of sight will provide at least a 5 dBA reduction in source noise levels at the receptor (Federal Highway Administration [FHWA] 2011). Structures can substantially reduce exposure to interior noise as well. The FHWA's guidelines indicate that modern building construction generally provides an exterior-to-interior noise level reduction of 20 to 35 dBA with closed windows.

The impact of noise is not a function of loudness alone. The time of day when noise occurs, and the duration of the noise are also important factors of project noise impact. Most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors have been developed. One of the most frequently used noise metrics is the equivalent noise level (L_{eq}); it considers both duration and sound power level. L_{eq} is defined as the single steady A-weighted level equivalent to the same amount of energy as that contained in the actual fluctuating levels over time.

Noise that occurs at night tends to be more disturbing than that which occurs during the day. Community noise is usually measured using Day-Night Average Level (L_{dn}), which is the 24-hour average noise level with a +10 dBA penalty for noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. It is also measured using CNEL, which is the 24-hour average noise level with a +5 dBA penalty for noise occurring from 7:00 p.m. to 10:00 p.m. and a +10 dBA penalty for noise occurring from 10:00 p.m. to 7:00 a.m. (Caltrans 2013). Noise levels described by L_{dn} and CNEL usually differ by about 1 dBA. The relationship between the peak-hour L_{eq} value and the L_{dn}/CNEL depends on the distribution of traffic during the day, evening, and night.

2.2 Vibration

Groundborne vibration of concern in environmental analysis consists of the oscillatory waves that move from a source through the ground to adjacent structures. The number of cycles per second of oscillation makes up the vibration frequency, described in terms of Hz. The frequency of a vibrating object describes how rapidly it oscillates. The normal frequency range of most groundborne vibration that can be felt by the human body starts from a low frequency of less than 1 Hz and goes to a high of about 200 Hz (Crocker 2007).

While people have varying sensitivities to vibrations at different frequencies, in general they are most sensitive to low-frequency vibration. Vibration in buildings, such as from nearby construction activities, may cause windows, items on shelves, and pictures on walls to rattle. Vibration of building components can also take the form of an audible low-frequency rumbling noise, referred to as groundborne noise. Groundborne noise is usually only a problem when the originating vibration spectrum is dominated by frequencies in the upper end of the range (60 to 200 Hz), or when foundations or utilities, such as sewer and water pipes, physically connect the structure and the vibration source (Federal Transit Administration [FTA] 2018). Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors. The primary concern of vibration is that it can be intrusive and annoying to building occupants and vibration-sensitive land uses.

Vibration amplitudes are usually expressed in peak particle velocity (PPV), which is normally described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used in monitoring of blasting vibration and other construction activities because it is related to the stresses that are experienced by buildings (Caltrans 2020).

2.3 Sensitive Receptors

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. The Envision San José 2040 General Plan defines noise-sensitive land uses as residential, hotels, motels, hospitals, residential care, outdoor sports and recreation, neighborhood parks and playgrounds, schools, libraries, museums, meeting halls, churches, public and quasi-public auditoriums, concert halls, and amphitheaters (City of San José 2011a). Vibration-sensitive receptors are similar to noise sensitive receptors, however, also include buildings where vibrations may interfere with vibration-sensitive equipment such as laboratories or medical facilities.

Sensitive receptors near the site include the Tafatolu Congregational Church to the southeast and the Mission de la Casa Nursing and Rehabilitation Center to the south of the project site.

2.4 Project Noise Setting

The most prominent source of noise in the project site vicinity is vehicular traffic on Alvin Avenue, Burdette Drive, Tully Road, and US 101. To characterize ambient noise levels in the project vicinity, two short-term (15-minute) and one long-term (24-hour) noise level measurements were conducted on February 8–9, 2024. The noise measurement locations are shown on Figure 4. Short-term noise measurement (ST) 1 was conducted at the southeastern corner of the project boundary near the intersection of Alvin Avenue and Burdette Drive to capture noise levels attributable to these roadways, while ST 2 was conducted at the northwestern corner of the project site to determine general ambient noise levels at this location. Long-term noise measurement (LT) 1 was conducted at the southwestern project boundary to capture noise levels attributable to Alvin Avenue.

Table 2 and Table 3 summarize the results of the short-term and long-term noise measurements, respectively. Table 4 lists the recorded traffic volumes observed during the short-term noise measurements.

Table 2 Short-Term Noise Level Measurement Results

Measurement Location	Measurement Location	Sample Times[1]	Approximate Distance to Primary Noise Source	L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)
ST 1	Southeastern corner of project site, near the intersection of Alvin Ave and Burdette Dr	12:21 – 12:36 a.m.	Approximately 40 feet to Burdette Dr centerline	60.7	50.4	75.4
ST 2	Northwestern corner of project site	12:38 – 12:53 p.m.	Approximately 190 feet to Burdette Dr centerline	55.7	45.8	66.6

Note: dBA = A-weighted decibels; L_{eq} = equivalent noise level; L_{min} = minimum noise level, L_{max} = maximum noise level

[1] All short-term noise measurements were collected on February 8, 2024.

Table 3 Long-Term Noise Level Measurement Results

Sample Time	dBA L_{eq}	Sample Time	dBA L_{eq}
24-hour Measurement – February 8–9, 2024			
1:00 PM	63	1:00 AM	57
2:00 PM	67	2:00 AM	58
3:00 PM	67	3:00 AM	60
4:00 PM	65	4:00 AM	64
5:00 PM	65	5:00 AM	64
6:00 PM	64	6:00 AM	66
7:00 PM	64	7:00 AM	66
8:00 PM	64	8:00 AM	65
9:00 PM	62	9:00 AM	66
10:00 PM	63	10:00 AM	64
11:00 PM	61	11:00 AM	63
12:00 AM	59	12:00 PM	79
24-hour Noise Level (dBA DNL)			**70.2**

dBA = A-weighted decibels; L_{eq} = equivalent noise level; DNL = day-night equivalent noise level

See Figure 4 for approximate noise measurement locations; see Appendix A for graphical measurement results.

Table 4 Traffic Counts During On-site Noise Measurements

Measurement	Roadway	Traffic	Autos	Medium Trucks	Heavy Trucks
ST 1	Burdette Dr	15-minute count	61	1	1
		One-hour equivalent	244	4	4
Percent			**97%**	**1.5%**	**1.5%**

Figure 4 Noise Measurement Locations

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23-15081 Noise
Fig X Noise Measurement Locations

2.5 Regulatory Setting

Federal

United States Department of Housing and Urban Development (HUD)

The United States Department of Housing and Urban Development (HUD) has set exterior and interior noise goals in Title 24 of the Code of Federal Regulations, Part 51 (24 CFR Part 51). HUD specifies desirable maximum exterior and interior noise standards of 65 and 45 dBA DNL, respectively, for residential units developed under HUD funding. (These levels are also generally accepted by the State of California.). It is assumed that standard construction of residential dwellings typically provides a minimum exterior-to-interior noise reduction of 20 dBA with the windows closed.

State

California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires each county and city to adopt a General Plan that includes a Noise Element prepared per guidelines adopted by the Governor's Office of Planning and Research. The purpose of the Noise Element is to limit the exposure of the community to excessive noise levels. CEQA requires all known environmental effects of a project to be analyzed, including environmental noise impacts.

2022 California Building Code

The California Building Code is Title 24 of the California Code of Regulations. The 2022 California Building Code Part 2, Volume 1, Chapter 12, Section 1206.4, *Allowable interior noise levels*, requires that interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric is evaluated as either the L_{dn} or the CNEL, consistent with the noise element of the local general plan.

Local

Envision San José 2040 General Plan

The City's General Plan establishes interior and exterior noise thresholds for different land uses within the City and vibration thresholds during demolition and construction. The following policies and actions are applicable to the project (City of San José 2011a):

Goal EC-1: Community Noise Levels and Land Use Compatibility. Minimize the impact of noise on people through noise reduction and suppression techniques, and through appropriate land use policies.

Policy EC-1.1 Locate new development in areas where noise levels are appropriate for the proposed uses. Consider federal, state and City noise standards and guidelines as a part of new development review. Applicable standards and guidelines for land uses in San José include:

Interior Noise Levels

The City's standard for interior noise levels in residences, hotels, motels, residential care facilities, and hospitals is 45 dBA DNL. Include appropriate

site and building design, building construction and noise attenuation techniques in new development to meet this standard. For sites with exterior noise levels of 60 dBA DNL or more, an acoustical analysis following protocols in the City-adopted California Building Code is required to demonstrate that development projects can meet this standard. The acoustical analysis shall base required noise attenuation techniques on expected *Envision General Plan* traffic volumes to ensure land use compatibility and General Plan consistency over the life of this plan.

Exterior Noise Levels

The City's acceptable exterior noise level objective is 60 dBA DNL or less for residential and most institutional land uses (Table EC-1 [reproduced herein as Table 5]). The acceptable exterior noise level objective is established for the City, except in the environs of the San José International Airport and the Downtown, as described below:

- For new multi-family residential projects and for the residential component of mixed-use development, use a standard of 60 dBA DNL in usable outdoor activity areas, excluding balconies and residential stoops and porches facing existing roadways. Some common use areas that meet the 60 dBA DNL exterior standard will be available to all residents. Use noise attenuation techniques such as shielding by buildings and structures for outdoor common use areas. On sites subject to aircraft overflights or adjacent to elevated roadways, use noise attenuation techniques to achieve the 60 dBA DNL standard for noise from sources other than aircraft and elevated roadway segments.
- For single family residential uses, use a standard of 60 dBA DNL for exterior noise in private usable outdoor activity areas, such as backyards.

Policy EC-1.2 Minimize the noise impacts of new development on land uses sensitive to increased noise levels (Categories 1, 2, 3 and 6) by limiting noise generation and by requiring use of noise attenuation measures such as acoustical enclosures and sound barriers, where feasible. The City considers significant noise impacts to occur if a project would:

- Cause the DNL at noise sensitive receptors to increase by five dBA DNL or more where the noise levels would remain "Normally Acceptable"; or
- Cause the DNL at noise sensitive receptors to increase by three dBA DNL or more where noise levels would equal or exceed the "Normally Acceptable" level.

Policy EC-1.3 Mitigate noise generation of new nonresidential land uses to 55 dBA DNL at the property line when located adjacent to existing or planned noise sensitive residential and public/quasi-public land uses.

Table 5 Land Use Compatibility Guidelines for Community Noise in San José

Land Use Category	Exterior Noise Exposure (dBA DNL)		
	Normally Acceptable[1]	Conditionally Acceptable[2]	Unacceptable[3]
Residential, Hotels and Motels, Hospitals, and Residential Care[4]	50-60	60-75	>75
Outdoor Sports and Recreation, Neighborhood Parks and Playgrounds	50-65	65-80	>80
Schools, Libraries, Museums, Meeting Halls, Churches	50-60	60-75	>75
Office Buildings, Business Commercial, and Professional Offices	50-70	70-80	>80
Sports Arena, Outdoor Spectator Sports	50-70	70-80	>80
Public and Quasi-Public Auditoriums, Concert Halls, Amphitheaters	NA	50-70	>70

Notes:

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

[2] Conditionally Acceptable: Specified land use may be permitted only after detailed analysis of the noise reduction requirements and needed noise insulation features included in the design.

[3] Unacceptable: New construction or development should generally not be undertaken because mitigation is usually not feasible to comply with noise element policies.

[4] Noise mitigation to reduce interior noise levels pursuant to Policy EC-1.1 is required.

dBA = A-weighted sound pressure level; DNL = Day-Night Average Level

Source: City of San José 2011a

Policy EC-1.7 Require construction operations within San José to use best available noise suppression devices and techniques and limit construction hours near residential uses per the City's Municipal Code. The City considers significant construction noise impacts to occur if a project located within 500 feet of residential uses or 200 feet of commercial or office uses would:

- Involve substantial noise generating activities (such as building demolition, grading, excavation, pile driving, use of impact equipment, or building framing) continuing for more than 12 months.

For such large or complex projects, a construction noise logistics plan that specifies hours of construction, noise and vibration minimization measures, posting or notification of construction schedules, and designation of a noise disturbance coordinator who would respond to neighborhood complaints will be required to be in place prior to the start of construction and implemented during construction to reduce noise impacts on neighboring residents and other uses.

Policy EC-1.9 Require noise studies for land use proposals where known or suspected loud intermittent noise sources occur which may impact adjacent existing or planned land uses. For new residential development affected by noise from heavy rail, light rail, BART or other single-event noise sources, implement mitigation so that recurring maximum instantaneous noise levels do not exceed 50 dBA L_{max} in bedrooms and 55 dBA L_{max} in other rooms.

Policy EC-1.10 Monitor Federal legislative and administrative activity pertaining to aircraft noise for new possibilities for noise-reducing modifications to aircraft engines beyond existing Stage 3 requirements. Encourage the use of quieter aircraft at the San José International Airport.

Policy EC-1.11 Require safe and compatible land uses within the Mineta International Airport noise zone (defined by the 65 CNEL contour as set forth in State law) and encourage aircraft operating procedures that minimize noise.

Policy EC-1.12 Encourage the Federal Aviation Administration to enforce current cruise altitudes that minimize the impact of aircraft noise on land use.

Action EC-1.13 Update noise limits and acoustical descriptors in the Zoning Code to clarify noise standards that apply to land uses throughout the City.

Action EC-1.14 Require acoustical analyses for proposed sensitive land uses in areas with exterior noise levels exceeding the City's noise and land use compatibility standards to base noise attenuation techniques on expected Envision General Plan traffic volumes to ensure land use compatibility and General Plan consistency.

Goal EC-2: Vibration. Minimize vibration impacts on people, residences, and business operations.

Policy EC-2.1 Near light and heavy rail lines or other sources of ground-borne vibration, minimize vibration impacts on people, residences, and businesses through the use of setbacks and/or structural design features that reduce vibration to levels at or below the guidelines of the Federal Transit Administration. Require new development within 100 feet of rail lines to demonstrate prior to project approval that vibration experienced by residents and vibration sensitive uses would not exceed these guidelines.

Policy EC-2.2 Require new sources of ground-borne vibration, such as transit along fixed rail systems or the operation of impulsive equipment, to minimize vibration impacts on existing sensitive land uses to levels at or below the guidelines of the Federal Transit Administration.

Policy EC-2.3 Require new development to minimize vibration impacts to adjacent uses during demolition and construction. For sensitive historic structures, including ruins and ancient monuments or buildings that are documented to be structurally weakened, a continuous vibration limit of 0.08 in/sec PPV (peak particle velocity) will be used to minimize the potential for cosmetic damage to a building. A vibration limit of 0.20 in/sec PPV will be used to minimize the potential for cosmetic damage at buildings of normal conventional construction. Equipment or activities typical of generating continuous vibration include but are not limited to: excavation equipment; static compaction equipment; vibratory pile drivers; pile-extraction equipment; and vibratory compaction equipment. Avoid use of impact pile drivers within 125 feet of any buildings, and within 300 feet of historical buildings, or buildings in poor condition. On a project-specific basis, this distance of 300 feet may be reduced where warranted by a technical study by a qualified professional that verifies that there will be virtually no risk of

cosmetic damage to sensitive buildings from the new development during demolition and construction. Transient vibration impacts may exceed a vibration limit of 0.08 in/sec PPV only when and where warranted by a technical study by a qualified professional that verifies that there will be virtually no risk of cosmetic damage to sensitive buildings from the new development during demolition and construction.

City of San José Municipal Code

The City of San José regulates noise through the City's Zoning Ordinance contained in Chapter 20 of the San José Municipal Code (SJMC). SJMC Section 20.30.700 establishes noise standards for residential zoning districts. The sound pressure level generated by any residential use shall not exceed 55 dBA L_{max} at the property line, except upon issuance and in compliance with a special use permit.

Section 20.100.450 limits the hours of construction on sites within 500 feet of a residential land use between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday and does not allow construction at any time on weekends.

3 Methodology and Significance Thresholds

3.1 Methodology

Construction Noise

Construction noise was estimated using the FHWA Roadway Construction Noise Model (RCNM) (FHWA 2006). RCNM predicts construction noise levels for a variety of construction operations based on empirical data and the application of acoustical propagation formulas. Using RCNM, construction noise levels were estimated at noise-sensitive receptors near the project site. RCNM provides reference noise levels for standard construction equipment, with an attenuation rate of 6 dBA per doubling of distance for stationary equipment.

Variation in power imposes additional complexity in characterizing the noise source level from construction equipment. Power variation is accounted for by describing the noise at a reference distance from the equipment operating at full power and adjusting it based on the duty cycle of the activity to determine the L_{eq} of the operation (FHWA 2006). Each phase of construction has a specific equipment mix depending on the work to be carried out during that phase. Each phase also has its own noise characteristics; some have higher continuous noise levels than others, and some have high-impact noise levels. A detailed list of construction equipment was not available at the time of this analysis; therefore, the construction equipment list was based on the California Emissions Estimator Model (CalEEMod) default values for a project of this type and size, developed as part of the analysis for the project.

Construction activity would result in temporary noise in the project area, exposing surrounding sensitive receptors to increased noise levels. The project would involve demolition, site preparation, grading, building construction, paving, and architectural coating. Construction noise would typically be higher during the heavier periods of initial construction (i.e., demolition and grading) and would be lower during the later construction phases. Construction equipment is typically dispersed in various areas of the site, with only a limited amount of equipment operating near a given location at a particular time. The FTA *Transit Noise and Vibration Impact Assessment* (FTA 2018) document recommends evaluating construction noise impacts from the center of the construction site, stating that the distance variable in its recommended construction noise calculation "assumes that all equipment operates at the center of the project." Therefore, it is a common, industry-standard practice to analyze average construction noise from the center of the site because this is the approximate center of where noise would be generated as equipment moves around the site throughout the workday. In accordance with FTA recommendations, construction noise for all phases was analyzed from the center of the site.

Construction activities occurring within 500 feet of a residential unit would only be permitted to occur between the hours of 7:00 a.m. and 7:00 p.m. on Monday through Friday pursuant to Section 20.100.450 of the SJMC. Construction noise is typically loudest during activities that involve excavation and moving soil, such as site preparation and grading. Noise levels from each phase of construction were modeled in RCNM based on the equipment list provided by the applicant.

Construction Vibration

The project does not include any substantial vibration sources associated with operation. Thus, construction activities have the greatest potential to generate ground-borne vibration affecting nearby sensitive receptors, especially during grading and paving of the project site. Neither blasting nor pile driving would be required for construction of the project, therefore the greatest source of vibration during construction would be a roller used during the paving phase. Construction vibration estimates are based on vibration levels reported by the FTA (FTA 2018). Table 6 shows typical vibration levels generated by various pieces of construction equipment used in the assessment of construction vibration (FTA 2018).

Table 6 Vibration Levels Generated by Typical Construction Equipment

Equipment	PPV at 25 feet (in/sec)
Vibratory Roller	0.21
Large Bulldozer	0.089
Loaded Trucks	0.076
Small Bulldozer	0.003

PPV = peak particle velocity; in/sec = inches per second

Source: FTA 2018

Onsite Stationary Operational Noise

The noise sources generated by operation of the project following construction are anticipated to be those typical of mixed-use development projects, such as heating, ventilation, and air conditioning (HVAC) equipment, use of recreational outdoor spaces (private balconies and outdoor deck areas), delivery trucks, trash hauling, and landscape maintenance. The primary noise generators would be the HVAC units, which would be located on the rooftop of the proposed multifamily building and located as close as approximately 10 feet from the edge of the rooftop. A typical HVAC system generates noise levels ranging up to 72 dBA at a distance of 3 feet.

Offsite Traffic Noise

Noise affecting the project site is primarily due to traffic on Alvin Avenue, Burdette Drive, Tully Road, and US 101. Project traffic noise increases were estimated using the project trip generation estimates provided by Hexagon Transportation Consultants, Inc. and average daily traffic (ADT) volumes on Alvin Avenue published by the City of San José. Per the trip generation estimates, the project is anticipated to generate 141 daily trips (Hexagon Transportation Consultants, Inc. 2024). Per the City of San José, the ADT on Alvin Avenue is 5,514 (City of San José 2015).

Onsite Land Use Compatibility

As a result of the Supreme Court decision regarding the assessment of the environment's impacts on projects (California Building Industry Association (CBIA) v. Bay Area Air Quality Management District (BAAQMD), 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 a proposed project. However, this environmental analysis considers the potential impacts of the environment on the project to determine compliance with the City of San José's exterior and interior noise requirements for new development.

Implementation of the project would introduce new residential uses that would be exposed to noise from surrounding transportation sources, primarily roadways. As a result, residents within the future project may be exposed to noise levels that exceed the City's land use compatibility guidelines for noise, shown in Table 5 above.

As part of the 2040 General Plan EIR, future (year 2035) traffic noise contours throughout the City were developed and presented in Figure 3.3-2 of the EIR. Based on this figure, the project site would be approximately located at the 70 dBA DNL noise contour. This is supported by the onsite noise measurements described in Section 2.4 of this study, which determined the existing noise level at the project site to be 70 dBA DNL as well. Noise at the project site is dominated primarily by traffic on US 101 and other major arterials such as Tully Road and South King Road. It should be noted that the noise contours shown on Figure 3.3-2 do not account for shielding provided by topography, existing buildings, or other intervening structures that may reduce noise at nearby receptors (City of San José 2011b). Existing traffic noise contours in the 2040 General Plan generally align with the future contour predictions, with noise generated primarily by major highways and arterials. Therefore, future noise levels at the project site may exceed those outlined in the City's land use compatibility guidelines. General Plan policies EC-1.1 and EC-1.9 and Actions EC-1.13 and EC-1.14 would reduce noise levels at new, proposed uses.

Policy EC-1.1 sets interior and exterior noise standards and requires that new development be located in areas where noise levels are appropriate for the proposed uses. Policy EC-1.9 requires noise studies for land use proposals where known or suspected loud intermittent noise sources may impact adjacent planned land uses and to implement mitigation to reduce noise levels. Action EC-1.13 calls for the City to update noise limits and acoustical descriptors in the Zoning Code to clarify noise standards that apply to land uses throughout the City. Action EC-1.14 requires acoustical analyses for proposed sensitive land uses in areas with exterior noise levels exceeding the City's noise and land use compatibility standards.

The application of the policies and actions outlined in the 2040 General Plan would ensure that siting, design, and construction standards for new residential developments facilitated by the Housing Element would avoid or minimize noise impacts to acceptable levels of noise exposure.

Aviation Noise

The airport noise contours for the San José International Airport (SJC) and Reid-Hillview Airport (RHV) were used to determine potential impacts associated with aviation-related noise upon the project site.

3.2 Significance Thresholds

Appendix G of the CEQA Guidelines states noise impacts of the project would be significant if the project would:

a) Generate 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.
b) Generate excessive groundborne vibration or groundborne noise levels.
c) For a project located within the vicinity of a private airstrip or an airport or public use airport, expose people residing or working in the project area to excessive noise levels.

Construction Noise

A significant noise impact would occur if construction-related noise would temporarily increase ambient noise levels at sensitive receivers. The City of San José considers large or complex projects involving substantial noise-generating activities and lasting more than 12 months significant when within 500 feet of residential land uses or within 200 feet of commercial land uses or offices. Based on information provided by the applicant, construction may last up to approximately 13 months, beginning in June 2024 and lasting until June 2025.

Construction Vibration

A significant impact would be identified if construction of the project would generate excessive vibration levels at surrounding receivers. Groundborne vibration levels exceeding 0.08 in/sec PPV would have the potential to result in cosmetic damage to historic buildings, and groundborne vibration levels exceeding 0.2 in/sec PPV would have the potential to result in cosmetic damage to normal buildings.

Onsite Stationary Operational Noise

The City has adopted exterior noise standards in the SJMC and the General Plan Noise Element regulating operational stationary noise sources in the City. The proposed project would result in a significant impact if noise from the project's stationary operational noise sources (i.e., HVAC equipment) exceeds 55 dBA L_{eq} at the property line.

Offsite Traffic Noise

Traffic noise generated by implementation of the project is governed by Policy EC-1.2 of the Envision San José 2040 General Plan (Section 0, *Envision San José 2040 General Plan*). A significant permanent noise impact would occur if the project would:

- Cause the DNL at noise-sensitive receptors to increase by 5 dBA DNL or more where the noise levels would remain "Normally Acceptable" (up to 60 dBA DNL); or
- Cause the DNL at noise-sensitive receptors to increase by 3 dBA DNL or more where noise levels would equal or exceed the "Normally Acceptable" level (equal to or more than 60 dBA DNL)

Exposure to Aviation Noise

A significant noise impact would be identified if the project would expose people residing or working in the project area to excessive aviation noise levels.

4 Impact Analysis

Threshold 1:	Would the project expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Impact N-1 COMPLIANCE WITH CITY STANDARD PERMIT CONDITIONS WOULD RESULT IN CONSTRUCTION NOISE IMPACTS THAT ARE LESS THAN SIGNIFICANT. OPERATIONAL STATIONARY NOISE WOULD NOT EXCEED THE NOISE LIMIT SPECIFIED IN THE SJMC AT THE PROJECT PROPERTY LINE. ADDITIONALLY, EXTERIOR NOISE LEVELS IN THE PROJECT'S PROPOSED OUTDOOR USE SPACES WOULD NOT EXCEED THE CITY'S LIMIT FOR OUTDOOR ACTIVITY AREAS. THEREFORE, NOISE IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Construction

The City of San José does not currently have any established quantitative noise standards for construction noise, however according to the City's General Plan, a project would have a significant impact if it would generate substantial noise continuing for more than 12 months within 500 feet of a residence or 200 feet of a commercial or office use, or would not use best available suppression devices and techniques. The project would be located within 200 feet of commercial land uses to the northeast, south, and northwest, and may last up to approximately 13 months.

For informational purposes, Table 7 presents the expected noise levels at the closest sensitive receptors from construction activity occurring at the center of the project site based on the conservatively assumed combined use of all construction equipment during each phase of construction. As shown in Table 7, construction noise would range between 55 dBA L_{eq} (8-hour) and 78 dBA L_{eq} (8-hour).

Table 7 Estimated Noise Levels at Sensitive Receptors by Construction Phase

Construction Phase	dBA L_{eq} (8-hour)						
	Dental Office to the north	USPS building to the northwest	Doctors' Offices to the northeast	Tafatolu Congregational Church to the southeast	Dental Office to the south	Mission de la Casa Nursing and Rehabilitation Center to the south	Woodside Apartments to the southeast
Distance (feet)	*400*	*150*	*240*	*165*	*165*	*290*	*590*
Demolition	70	78	74	77	77	72	66
Site Preparation	68	76	72	76	76	71	64
Grading	68	76	72	76	76	71	64
Building Construction	67	75	71	75	75	70	63
Paving	69	78	73	77	77	72	66
Architectural Coating	58	66	62	66	66	61	55

Notes:

[1] Distances to each sensitive receptor were assumed to be from the center of the construction site, per FTA guidance on construction noise calculations (FTA 2018).

Source: Roadway Construction Noise Model (RCNM). See Appendix B for modeling outputs.

Due to the proximity of construction activity relative to nearby commercial and residential uses and the duration of project construction, per City of San José General Plan Policy EC-1.7, construction noise impacts associated with the project would need to use best available suppression devices and techniques, or a potentially significant impact would occur. As a result, the project would comply with the following mitigation measure:

Mitigation Measure

MM NOI-1: Construction-Related Noise. Noise minimization measures shall include, but are not limited to, the following:

- Pile driving is prohibited.
- Limit construction to the hours of 7:00 a.m. to 7:00 p.m. Monday through Friday for any on-site or off-site work within 500 feet of any residential unit. Construction outside of these hours may be approved through a development permit based on a site-specific "construction noise mitigation plan" and a finding by the Director of Planning, Building and Code Enforcement that the construction noise mitigation plan is adequate to prevent noise disturbance of affected residential use.
- Construct solid plywood fences around ground level construction sites adjacent to operational businesses, residences, or other noise-sensitive land uses.
- Equip all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Prohibit unnecessary idling of internal combustion engines.
- Locate stationary noise-generating equipment such as air compressors or portable power generators as far as possible from sensitive receptors. Construct temporary noise barriers to screen stationary noise-generating equipment when located near adjoining sensitive land uses.

- Utilize "quiet" air compressors and other stationary noise sources where technology exists.
- Control noise from construction workers' radios to a point where they are not audible at existing businesses or residences bordering the project site.
- Notify all adjacent businesses, residences, and other noise-sensitive land uses of the construction schedule, in writing, and provide a written schedule of "noisy" construction activities to the adjacent land uses and nearby residences.
- If complaints are received or excessive noise levels cannot be reduced using the measures above, erect a temporary noise control blanket barrier along surrounding building facades that face the construction sites.
- Designate a "disturbance coordinator" who shall be responsible for responding to any complaints about construction noise. The disturbance coordinator shall determine the cause of the noise complaint (e.g., bad muffler, etc.) and shall require that reasonable measures be implemented to correct the problem. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

Compliance with the above mitigation measure would result in construction noise impacts that are less than significant.

Onsite Stationary Operational Noise

The primary on-site operational noise source from the project would be from HVAC units located on the rooftop of the proposed building. Rooftop HVAC units would be located as close as approximately 10 feet from the edge of the rooftop and 84 feet above the ground. Detailed mechanical specifications for the future HVAC systems are not available at this stage of project design, therefore noise levels produced by typical HVAC equipment were used, which are 72 dBA at a distance of 3 feet. At the property line – located a total distance of approximately 95 feet away from the nearest rooftop HVAC equipment– noise levels from HVAC equipment would attenuate to approximately 42 dBA. Note that this is a conservative analysis, as it does not account for acoustical shielding from the rooftop parapet walls. Although a conservative assumption of stationary noise from HVAC units would be approximately 42 dBA at the project site property line, mitigation measure NOI-2 is included to ensure operational noise impacts would be less than significant.

Mitigation Measure

MM NOI-2: Prior to issuance of any building permits and during final building design, the project applicant shall prepare a detailed acoustical study to evaluate the potential noise generated by building mechanical equipment and demonstrate the necessary noise control to meet the City's 55 dBA DNL goal. Noise control features such as sound attenuators, baffles, and barriers shall be identified, if required, and evaluated to demonstrate that mechanical equipment noise would not exceed 55 dBA DNL at noise-sensitive locations around the project site. The noise control features identified by the study shall be incorporated into the project prior to issuance of a building permit. The detailed acoustical study demonstrating that mechanical equipment would not exceed 55 dBA DNL at adjacent sensitive receptors shall be signed by a qualified noise consultant and submitted to the Director of Planning, Building, and Code Enforcement, or Director's designee, prior to the issuance of a building permit.

Compliance with the above mitigation measure would result in construction noise impacts that are less than significant.

Offsite Traffic Noise

The project would not make substantial alterations to nearby roadway alignments or substantially change the vehicle classification mix on surrounding roadways. Therefore, the primary factor affecting off-site noise levels would be increased traffic volumes on Alvin Avenue. As stated in Section 3.1, *Offsite Traffic Noise*, the project is anticipated to generate 141 new daily vehicle trips (Hexagon Transportation Consultants, Inc. 2024). As stated previously in Section 3.1, Offsite Traffic Noise, the ADT volumes on Alvin Avenue would increase from 5,514 vehicles to 5,655 vehicles due to project-generated traffic. This increase in traffic on Alvin Avenue would result in a noise increase of approximately 0.1 dBA DNL. This would not exceed the 3.0 dBA DNL threshold identified in the Envision San José 2040 General Plan for significant, permanent noise impacts. Therefore, noise increases due to project-generated traffic would be less than significant.

Onsite Land Use Compatibility

The primary source of exterior noise at the project site is vehicular traffic along Alvin Avenue. As shown in Section 2.4, the existing noise level at the project site is approximately 70 dBA DNL at the approximate location of the multifamily building footprint nearest Alvin Avenue. This noise level categorizes the property within the "Conditionally Acceptable" range for residential land uses; therefore, the proposed project would be consistent with the City's exterior noise limit compatibility standards.

Standard building construction practices typically provide an exterior-to-interior noise reduction of 25 dBA. Using this assumption, interior noise levels in the residential units closest to Alvin Avenue would be 45 dBA DNL, which meets the City's required interior limit of 45 dBA DNL. Therefore, the project would be consistent with the City's interior noise limit compatibility standards.

Additionally, per Policy EC-1.1 of the Envision San José 2040 General Plan, noise levels in usable outdoor activity areas – excluding balconies and residential stoops and porches – must meet 60 dBA DNL. The proposed project would include the following outdoor activity areas: an outdoor deck on the 2nd Floor, a podium courtyard on the 4th Floor, and an outdoor deck on the 8th Floor. Per the elevation drawings, a ten-foot-tall glass guardrail would be present on the edge of the 2nd Floor facing Alvin Avenue, while four-foot-tall glass guardrails would be present on the edge of the 4th and 8th Floors facing Alvin Avenue. Accounting for the heights of these glass guardrails and the noise reduction they would provide, noise levels in the 2nd Floor outdoor deck would reach up to approximately 53 dBA DNL, noise levels in the 4th Floor podium courtyard would reach up to approximately 59 dBA DNL, and noise levels in the 8th Floor outdoor deck would reach up to approximately 60 dBA DNL. Therefore, noise levels in the 2nd, 4th, and 8th Floor outdoor activity areas would be maintained at or below the applicable noise limit for outdoor activity areas specified in the City's General Plan.

Threshold 2:	Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Impact N-2 PROJECT CONSTRUCTION WOULD INTERMITTENTLY GENERATE GROUNDBORNE VIBRATION WITHIN AND ADJACENT THE PROJECT SITE; HOWEVER, VIBRATION LEVELS WOULD NOT EXCEED THE CITY'S AND OTHER APPLICABLE STANDARDS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Construction activities known to generate excessive groundborne vibration, such as pile driving, would not be conducted during construction of the project. The greatest anticipated source of vibration during project construction would be a vibratory roller used during paving activities. Based on the project site plan, it is assumed the vibratory roller would be used approximately 70 feet from the nearest off-site structures (Tafatolu Congregational Church to the southeast and the USPS commercial building to the northwest). A vibratory roller generates a vibration level of approximately 0.21 in/sec PPV at a distance of 25 feet, which would result in a vibration level of approximately 0.045 in/sec PPV at the nearest offsite structures located 70 feet away. Therefore, construction activities associated with the project would not generate vibration levels that exceed the San José General Plan vibration limit of 0.20 in/sec PPV for cosmetic damage at buildings of normal conventional construction. Construction vibration impacts would be less than significant.

The project does not include substantial vibration sources associated with operation. Therefore, operational vibration impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Threshold 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?

Impact N-3 THE PROJECT IS NOT LOCATED WITHIN THE VICINITY OF A PRIVATE AIRSTRIP OR AN AIRPORT INFLUENCE AREA. THEREFORE, THE PROJECT WOULD NOT EXPOSE PEOPLE RESIDING OR WORKING IN THE PROJECT AREA TO EXCESSIVE AVIATION-RELATED NOISE AND THE PROJECT WOULD HAVE NO IMPACT.

The closest airports to the project site are the San José International Airport (SJC) and the Reid-Hillview Airport (RHV), which are located approximately 6.25 miles northwest and one mile northeast of the project site, respectively. The project site is not located within the noise contours of either airport (San José Mineta International Airport 2020 and Mead & Hunt, Inc. 2006); therefore, the project would result in no impact related to exposure of future residents and employees to aircraft noise.

Mitigation Measures

No mitigation measures would be required.

5 Conclusion

The project would generate both temporary construction-related noise and long-term noise associated with operation of the project. Compliance with City Standard Permit Conditions and mitigation measure MM NOI-1 would result in construction noise impacts that are less than significant.

The project's operational and stationary noise sources (e.g., HVAC units) would not be unlikely to exceed the City's limit of 55 dBA at the project property line. However, the exact location of the HVAC could affect sound levels at the property line. Implementation of mitigation measure MM NOI-2 would be required. Therefore, stationary operational noise impacts would be less than significant with implementation of mitigation.

Exterior noise levels in the project's proposed outdoor use spaces (2nd Floor outdoor deck, 4th Floor podium courtyard, and 8th Floor outdoor deck) would not exceed the City's limit of 60 dBA DNL for outdoor activity areas. Therefore, noise impacts upon the project's outdoor activity areas would be less than significant.

The project would generate approximately 141 new daily vehicle trips on Alvin Avenue, resulting in a noise increase of up to 0.1 dBA DNL on this roadway. This is well below the significance threshold of 3 dBA DNL, therefore the off-site traffic noise increase would be less than significant.

The project would generate groundborne vibration during construction only. However, groundborne vibration would not exceed the 0.20 in/sec PPV vibration threshold at the nearest offsite structures, and construction-related vibration impacts would be less than significant.

The project site is not located within the noise contours of the nearest airports; therefore, no substantial noise exposure would occur to construction workers, employees, or users of the project from aircraft noise.

Conclusively, the project would result in **less than significant** noise and vibration impacts, either with or without mitigation, depending on the specific impact.

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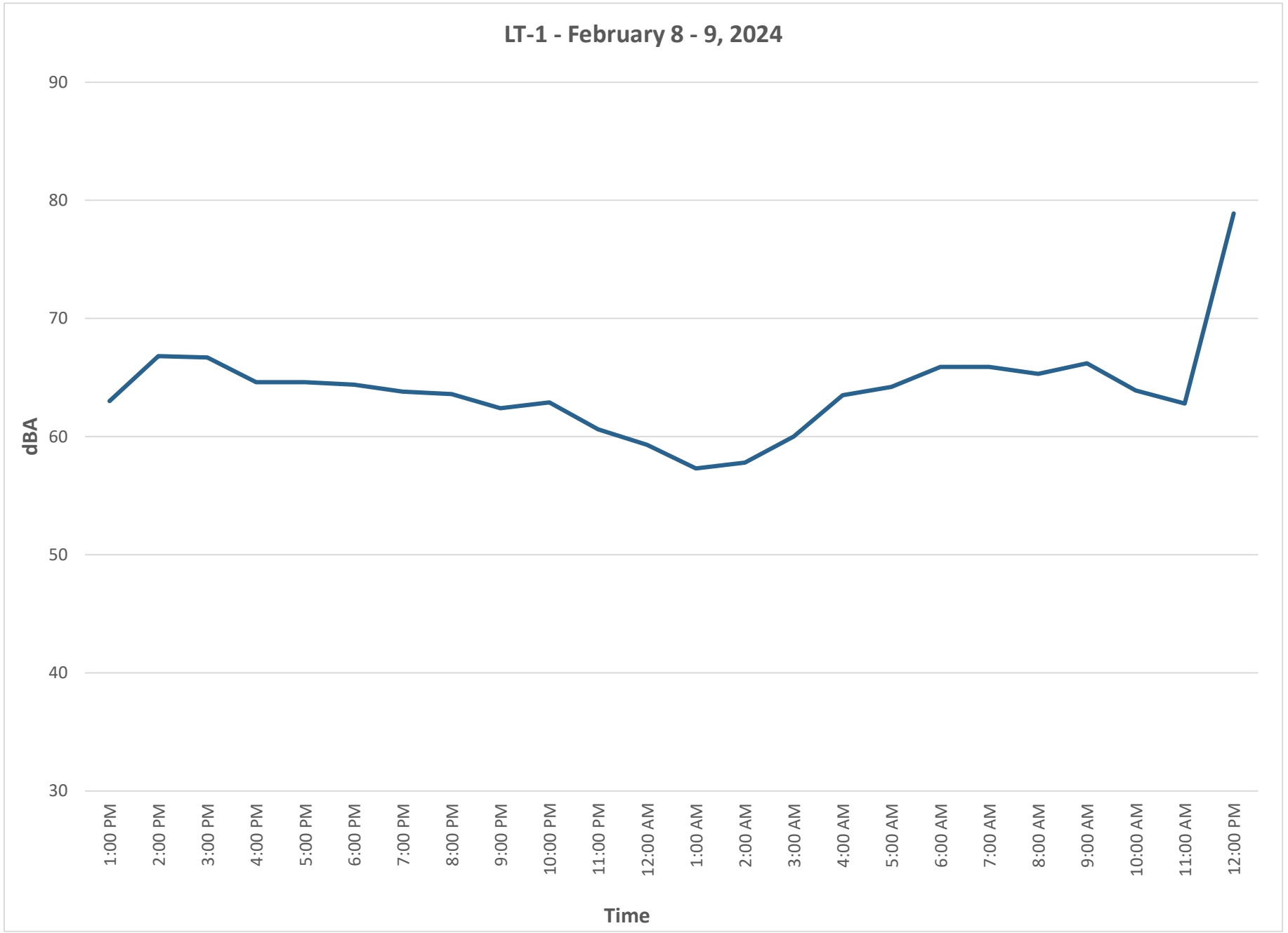
Appendix A

Noise Monitoring Data


LT-1 - February 8 - 9, 2024
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Appendix B

Construction Noise Modeling Results

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 03/27/2024
Case Description: 2740 Alvin Ave

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Demolition	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20	90.0		50.0	0.0
Dozer	No	40	85.0		50.0	0.0
Excavator	No	40	85.0		50.0	0.0
Excavator	No	40	85.0		50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Calculated (dBA)

Equipment	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Concrete Saw	90.0	83.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	90.0	87.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 03/27/2024
Case Description: 2740 Alvin Ave

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Site Preparation	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40	85.0		50.0	0.0
Dozer	No	40	85.0		50.0	0.0
Tractor	No	40	84.0		50.0	0.0
Backhoe	No	40	80.0		50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Calculated (dBA)	Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	85.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 03/27/2024
Case Description: 2740 Alvin Ave

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Grading	Residential	60.0	55.0	50.0

Description	Impact Device	Usage (%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		50.0	0.0
Excavator	No	40	85.0		50.0	0.0
Tractor	No	40	84.0		50.0	0.0
Backhoe	No	40	80.0		50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	85.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 03/27/2024
Case Description: 2740 Alvin Ave

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Building Construction	Residential	60.0	55.0	50.0

Description	Impact Device	Usage (%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16	85.0		50.0	0.0
Generator	No	50	82.0		50.0	0.0
Front End Loader	No	40	80.0		50.0	0.0
Tractor	No	40	84.0		50.0	0.0
Backhoe	No	40	80.0		50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Crane	85.0	77.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	82.0	79.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Total	85.0	84.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 03/27/2024
Case Description: 2740 Alvin Ave

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Paving	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40	85.0		50.0	0.0
Concrete Mixer Truck	No	40	85.0		50.0	0.0
Front End Loader	No	40	80.0		50.0	0.0
Paver	No	50	85.0		50.0	0.0
Roller	No	20	85.0		50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Concrete Mixer Truck	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Mixer Truck	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	85.0	82.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	85.0	78.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Total	85.0	87.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 03/27/2024
Case Description: 2740 Alvin Ave

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Architectural Coating	Residential	60.0	55.0	50.0

Description	Impact Device	Usage (%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40	80.0		50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Calculated (dBA)	Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	80.0	76.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A