Michael Baker INTERNATIONAL

We Make a Difference

MEMORANDUM

To: Patrick Hindmarsh, Michael Baker International

From: Danielle Regimbal, Michael Baker International
Eddie Torres, Michael Baker International

Date: July 28, 2020

Subject: Hyatt Hotel Project – Noise Technical Memorandum

PURPOSE

The purpose of this technical memorandum is to evaluate potential short- and long-term noise and groundborne vibration impacts as a result of the proposed Hyatt Hotel Project (project), located in the City of San José, California.

PROJECT LOCATION

The City of San José (City) is located in the easterly half of the Santa Clara Valley area of Santa Clara County. The City consists of approximately 143 square miles. The City is primarily surrounded by the cities of Milpitas, Los Gatos, Campbell, Saratoga, Cupertino, and Santa Clara.

The proposed Hyatt Hotel Project (project) is approximately 0.39-acre and is located at the southeast corner of West San Carlos and Willard Avenue at 1470 West San Carlos Street (Assessor's Parcel Number [APN]: 277-20-035). Regional access to the project site provided via Interstate 280 (I-280) and I-880. Local access to the project site is provided via West San Carlos Street and Willard Avenue.

EXISTING SITE CONDITIONS

The project site currently consists of a 530-square foot sales office and a 2,061-square foot mechanic shop, as well as a surface parking lot. The topography of the project site is relatively flat with an elevation of approximately 115 feet. According to the *Envision San José 2040 General Plan* (General Plan), the project site is designated as Urban Village (UV). According to the City's Zoning Map, the project site is zoned Commercial Neighborhood (CN). In addition, the project site is located within the Alameda and West San Carlos Street Neighborhood Business District (NBD). The NBD designation consists of a variety of commercial and non-commercial uses that contribute to neighborhood identity by serving as a focus for neighborhood activity. The project site is surrounded by residential uses to the north, east, and south, as well as commercial uses to the west.

PROJECT DESCRIPTION

The hotel would include 105 rooms, two guest lounges, a guest kitchen, bar/café, gym, office, staff room, ancillary storage, and housekeeping facilities. The project would include 75 standard king rooms (331 to 332 square feet), 20 double queen rooms (344 square feet), 5 king suites (441 square feet), and 5 ADA accessible king rooms (374 square feet). In total, the hotel would have 125 guest beds. The project would include a single structure that would consist of six stories reaching a maximum height of approximately 85 feet.

Parking for the proposed project would consist of one Americans with Disability Act (ADA) accessible parking spaces on the ground level (accessible via the proposed driveway on West San Carlos Street), as well as two valet-assisted ADA spaces and 58 standard parking spaces in the basement level (accessible via the proposed driveway on Willard Avenue). The standard parking spaces would be accommodated via 25 vehicle lifts that are able to store two vehicles each and eight valet-parked tandem spaces. The project would construct a new 20-foot sidewalk with new curb and gutter on the north side of the project site (West San Carlos Street) and a 12-foot sidewalk with new curb, gutter, and approach on the west side of the project site (Willard Avenue). Installation of the sidewalk would require replacement of an existing bus stop with shelter along West San Carlos Street.

Project construction would occur over approximately 29 months, beginning in the February 2021. Construction of the project would include the following phases: demolition, grading, paving, building construction, and architectural coating.

The project applicant will prepare a Construction Noise Logistics Plan in accordance with the *Envision San José 2040 General Plan* Policy EC-1.7. IN addition, to reduce construction vibration effects on nearby uses, the project applicant will incorporate the following measures on all grading and building plans and specifications subject to approval of the San José Building Division prior to issuance of a demolition or grading permit (whichever occurs first):

The applicant will ensure construction equipment will not approach the construction buffer zone adjacent to the residential structures adjoining the project site to the east and south. The buffer zone shall be tiered based on distances established in the table below.

Equipment	Nearest Distance of Heavy-Duty Construction Equipment Activity to Eastern and Southern Residential Structures (Feet)	Peak Particle Velocity (in/sec) [1]
Vibratory roller	27	0.187
Large bulldozer	15	0.191
Caisson Drilling	15	0.191
Loaded trucks	14	0.181

As shown in the table above, vibratory rollers shall not operate within 27 feet, large bulldozers and caisson drilling shall not operation with 15 feet, and loaded trucks shall not operate within 14 feet of the residential structures adjoining the project site to the east and south. The buffer zone shall be in enforced between the hours of 7:00 a.m. and 7:00 p.m. pursuant to San José Municipal Code Section 20.100.450, *Hours of Construction Within 500 Feet of a Residential Unit*.

The applicant will utilize a construction vibration monitoring system with the potential to measure low levels of vibration to ensure vibration levels do not exceed the City's 0.2 inch-per-second PPV threshold.

The applicant will conduct sensitivity training to inform construction personnel about the existing sensitive receptors surrounding the project and about methods to reduce noise and vibration.

Alternatively, if the above measures are deemed not to be feasible by the Building Division, the applicant will require by contract specifications that a certified structural engineer and/or geologist be retained to submit evidence that the operation of vibration-generating equipment associated with the project would not result vibration levels exceeding the City's 0.2 inch-per-second PPV threshold. Contract specifications shall be included in the project construction documents, which shall be reviewed by the City prior to issuance of a demolition or grading permit (whichever occurs first). The documents will include provisions for vibration monitoring during the operation of heavy-duty construction equipment, as well as include provisions to ensure vibration levels do not exceed 0.2 inch-per-second PPV at the residences adjoining the project site to the east and south.

FUNDAMENTALS OF SOUND AND ENVIRONMENTAL NOISE

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air and is characterized by both its amplitude and frequency (or pitch). The human ear does not hear all frequencies equally. In particular, the ear de-emphasizes low and very high frequencies. To better approximate the sensitivity of human hearing, the A-weighted decibel scale (dBA) has been developed. Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dBA higher than another is perceived to be twice as loud and 20 dBA higher is perceived to be four times as loud, and so forth. Everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). On this scale, the human range of hearing extends from approximately 3 dBA to around 140 dBA.

There are several metrics used to characterize community noise exposure, which fluctuate constantly over time. One such metric, the equivalent sound level (L_{eq}), represents a constant sound that, over the specified period, has the same sound energy as the time-varying sound. Noise exposure over a longer period is often evaluated based on the Day-Night Sound Level (L_{dn}). This is a measure of 24-hour noise levels that incorporates a 10-dBA penalty for sounds occurring between 10:00 p.m. and 7:00 a.m. The penalty is intended to reflect the increased human sensitivity to noises occurring during nighttime hours, particularly at times when people are sleeping and there are lower ambient noise conditions. Typical L_{dn} noise levels for light and medium density residential areas range from 55 dBA to 65 dBA.

FUNDAMENTALS OF ENVIRONMENTAL GROUNDBORNE VIBRATION

Sources of earth-borne vibrations include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides, etc.) or man-made 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 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.

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. Common sources for groundborne vibration are planes, trains, and construction activities such as earth-moving which requires the use of heavy-duty earth moving equipment. For the purposes of this analysis, a PPV descriptor with units of inches per second is used to evaluate construction-generated vibration for building damage and human complaints.

EXISTING NOISE SETTING

Existing Ambient Noise Levels

In order to quantify existing ambient noise levels in the project area, Michael Baker International conducted three noise measurements in the site vicinity on July 11, 2019; refer to Appendix A, *Noise Data*, and Exhibit 1, *Noise Measurement Locations*. The noise measurement locations are representative of typical existing noise exposure at and immediately adjacent to the site. Ten-minute measurements were taken between 11:00 a.m. and 12:30 p.m. at each location during the day. Short-term (L_{eq}) measurements are considered representative of the noise levels throughout the day. Noise measurements were taken during "off-peak" traffic noise hours (9:00 a.m. through 3:00 p.m.) as this provides a more conservative baseline. During rush hour traffic, vehicle speeds and heavy truck volumes are often low. Free-flowing traffic conditions just before or after rush hour often yield higher noise levels.[1] The average noise levels and sources of noise measured at each location are identified in Table 1, *Noise Measurements*.

Meteorological conditions were clear skies, warm temperatures, with light wind speeds (seven miles per hour), and low humidity. Noise monitoring equipment used for the ambient noise survey consisted of a Larson Davis SoundExpert LxT Class 1 Sound Level Meter equipped with a Type 377B02 pre-polarized microphone. The monitoring equipment complies with applicable requirements of the American National Standards Institute for Type I (precision) sound level meters. Measured noise levels during the daytime measurements ranged from 58.5 to 64.0 dBA L_{eq}.

[1] California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.

Table 1
Noise Measurements

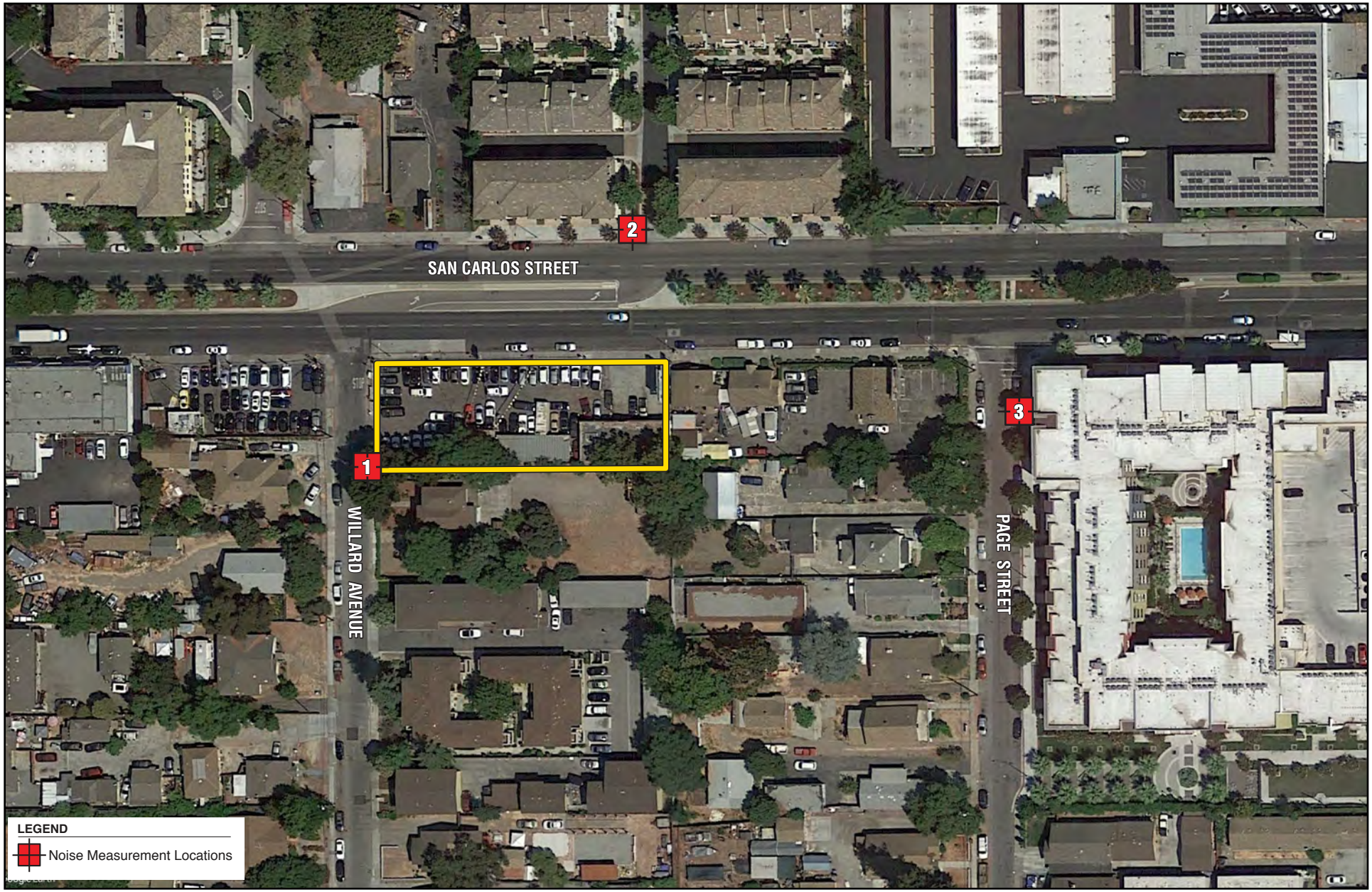
Site No.	Location	L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)	Peak (dBA)	Time
1	San Carlos and Willard Avenue	58.5	44.4	69.5	89.6	11:14 a.m.
2	San Carlos Street and Muller Place	64.0	47.3	74.0	91.8	12:10 a.m.
3	San Carlos Street and Page Street	59.5	46.8	68.6	86.6	11:36 a.m.
Note: dBA = A-weighted decibels; L_{eq} = Equivalent Sound Level; L_{min} = Minimum Sound Level; L_{max} = Maximum Sound Level Refer to Exhibit 1, *Noise Measurement Locations* for a map of the noise measurement locations.						
Source: Michael Baker International, July 11, 2019.						

Existing Stationary Noise Levels

The project area is highly urbanized, consisting of primarily commercial and residential uses. The primary sources of stationary noise in the project vicinity are urban-related activities (i.e., mechanical equipment, parking areas, and pedestrians). The noise associated with these sources may represent a single-event noise occurrence, short-term, or long-term/continuous noise.

Existing Mobile Noise Levels

Vehicle-related mobile noise is the most common source of noise in the site vicinity. The majority of the existing mobile noise in the project area is generated from vehicle sources along West San Carlos Street and Willard Avenue.



Source: Google Earth Pro, November 2019

NOT TO SCALE

Michael Baker INTERNATIONAL

PROJECT SITE

11/19 JN 173047

HYATT HOTEL PROJECT
NOISE TECHNICAL MEMORANDUM

Noise Measurement Locations

Exhibit 1

REGULATORY SETTING

State of California

State Office of Planning and Research

The State Office of Planning and Research's *Noise Element Guidelines* include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The *Noise Element Guidelines* contain a land use compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the CNEL. Table 2, *Land Use Compatibility for Community Noise Environments*, presents guidelines for determining acceptable and unacceptable community noise exposure limits for various land use categories. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

Table 2
Land Use Compatibility for Community Noise Environments

Land Use Category	Community Noise Exposure (L_{dn} or CNEL dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential - Low Density, Single-Family, Duplex, Mobile Homes	50 - 60	55 - 70	70 - 75	75 - 85
Residential - Multiple Family	50 - 65	60 - 70	70 - 75	70 - 85
Transient Lodging - Motel, Hotels	50 - 65	60 - 70	70 - 80	80 - 85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 - 70	60 - 70	70 - 80	80 - 85
Auditoriums, Concert Halls, Amphitheaters	NA	50 - 70	NA	65 - 85
Sports Arenas, Outdoor Spectator Sports	NA	50 - 75	NA	70 - 85
Playgrounds, Neighborhood Parks	50 - 70	NA	67.5 - 75	72.5 - 85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 - 70	NA	70 - 80	80 - 85
Office Buildings, Business Commercial and Professional	50 - 70	67.5 - 77.5	75 - 85	NA
Industrial, Manufacturing, Utilities, Agriculture	50 - 75	70 - 80	75 - 85	NA

Notes: NA: Not Applicable; L_{dn}: average day/night sound level; CNEL: Community Noise Equivalent Level, dBA = A-weighted decibels

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.

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

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

Clearly Unacceptable – New construction or development should generally not be undertaken.

Source: Office of Planning and Research, *State of California General Plan Guidelines - Appendix D, Noise Element Guidelines*, October 2017.

City of San José

Envision San José 2040 General Plan

The Noise Element of the *Envision San José 2040 General Plan* (General Plan), adopted November 1, 2011, establishes noise standards for planning purposes need to examine outdoor and indoor noise levels acceptable for different uses. The standards relate to existing conditions in the City so that they are realistically enforceable and consistent with other General Plan policies. The Noise Element seeks to limit the impacts of noise on residents and employees in two ways. The Noise Element contains standards to determine the suitability of new land uses depending upon the extent of noise exposure in the area. The Noise Element's policies limit the extent of new noise sources that proposed development can add to existing noise levels in the surrounding area and through implementation of the City's Noise Ordinance, which limits what is commonly described as "nuisance noise." The following lists applicable noise goals and targets that apply to the proposed project obtained from the General Plan:

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 Day/Night Average Sound Level (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. 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.*

Table 3, *Land Use Compatibility Guidelines for Community Noise in San José*, provides the range of acceptable noise levels for various land uses in the City, as established by the General Plan.

Table 3
Land Use Compatibility Guidelines for Community Noise in San José

Land Use Category	Exterior Noise Exposure (DNL in dBA)		
	Normally Acceptable	Conditionally Acceptable	Clearly Unacceptable
Residential, Hotels and Motels, Hospitals and Residential Care[1]	50 – 60	60 – 75	75 – 85
Outdoor Sports and Recreation, Neighborhood Parks and Playgrounds	50 – 65	65 – 80	80 – 85
Schools, Libraries, Museums, Meeting Halls, Churches	50 – 60	60 – 75	75 – 85
Office Buildings, Business Commercial, and Professional Offices	50 – 70	70 – 80	80 – 85
Sports Arena, Outdoor Spectator Sports	50 – 70	70 – 80	80 – 85
Public and Quasi-Public Auditoriums, Concert Halls, Amphitheaters	NA	50 – 70	70 – 85
[1] Noise mitigation to reduce interior noise levels pursuant to Policy EC-1.1 is required.			
NA: Not Applicable; Ldn/DNL: average day/night sound level.			
Notes: 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. Conditionally Acceptable - Specific land use may be permitted only after detailed analysis of the noise reduction requirements and needed noise insulation features included in the design. Clearly Unacceptable – New construction or development should not be undertaken.			
Source: City of San José, *Envision San José 2040 General Plan*, amended November 1, 2011.			

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.*

Policy EC-1.4 *Include appropriate noise attenuation techniques in the design of all new General Plan streets projected to adversely impact noise sensitive uses.*

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-1.11 *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.*

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.*

Policy EC-2.3 *Require new development to minimize continuous vibration impacts to adjacent uses during demolition and construction. For sensitive historic structures, including ruins and ancient monuments or building 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 continuous 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

Section 20.100.450, *Hours of Construction Within 500 Feet of a Residential Unit*, of the *San José Municipal Code* (Municipal Code), restricts construction hours within 500 feet of a residential unit to the hours of 7:00 a.m. to 7:00 p.m. Monday through Friday, unless otherwise expressly allowed in a Development Permit or other planning approval.[2]

Section 20.40.600, *Performance Standards*, establishes noise levels not to be exceeded at any property line; refer to Table 4, *Noise Standards* below.

Table 4
Noise Standards

Land Use	Maximum Noise Level in Decibels at Property Line
Commercial or Public/Quasi-Public use adjacent to a property used or zoned for residential purposes	55
Commercial or Public/Quasi-Public use adjacent to a property used or zoned for commercial or other non-residential purposes	60
Source: City of San José, *City of San José Municipal Code*, updated on July 8, 2020.	

NOISE SENSITIVE RECEPTORS

Noise-sensitive land uses are generally considered uses where noise exposure could result in health-related risks to individuals, as well as places where a quiet environment 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 parks, historic sites, cemeteries, and recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are

[2] The Municipal Code does not establish quantitative noise limits for demolition or construction activities occurring in the City.

essential are also considered noise-sensitive land uses. The closest sensitive receptors are residential uses adjoining the project site to the east and south.

CEQA THRESHOLDS

The environmental analysis in this memorandum is based on the CEQA Guidelines Appendix G Initial Study Checklist. The issues presented in the Initial Study Checklist have been utilized as thresholds of significance in this section. Accordingly, a project may have a significant adverse impact related to noise and vibration if it would do any of the following:

- 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 (refer to Impact Statement NOI-1);

- Generation of excessive groundborne vibration or groundborne noise levels (refer to Impact Statement NOI-2); and/or

- 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 (refer to Impact Statement NOI-3).

SIGNIFICANCE OF CHANGES IN TRAFFIC NOISE LEVELS

An off-site traffic noise impact typically occurs when there is a discernable increase in traffic and the resulting noise level exceeds an established noise standard. In community noise considerations, changes in noise levels greater than 3 dBA are often identified as substantial, while changes less than 1 dBA will not be discernible to local residents. In the range of 1 to 3 dBA, residents who are very sensitive to noise may perceive a slight change. In laboratory testing situations, humans are able to detect noise level changes of slightly less than 1 dBA. However, this is based on a direct, immediate comparison of two sound levels. Community noise exposures occur over a long period of time and changes in noise levels occur over years (rather than the immediate comparison made in a laboratory situation). Therefore, the level at which changes in community noise levels become discernible is likely to be some value greater than 1 dB, and 3 dB is the most commonly accepted discernable difference. A 5 dBA change is generally recognized as a clearly discernable difference.

As traffic noise levels at sensitive uses likely approach or exceed the applicable land use compatibility standard (refer to Table 2), a 3 dBA increase as a result of the project is used as the increase threshold for the project. Thus, a project would result in a significant noise impact when a permanent increase in ambient noise levels of 3 dBA occur upon project implementation and the resulting noise level exceeds the applicable exterior standard at a noise sensitive use.

IMPACT ANALYSIS

NOI-1 Would the project result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction Noise Impacts

Construction of the proposed project would occur over approximately 29 months and would include demolition, grading, paving, building construction, and architectural coating. Groundborne noise and other types of construction-related noise impacts would typically occur during excavation activities of the grading phase. This phase of construction has the potential to create the highest levels of noise. Typical noise levels generated by construction equipment are shown in Table 5, *Maximum Noise Levels Generated by Construction Equipment*. It should be noted that the noise levels identified in Table 5 are maximum sound levels (L_{max}), which are the highest individual sound occurring at an individual time period. 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 due to random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts).

Pursuant to Municipal Code Section 20.100.450, construction activities may only occur between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday, unless permission is granted with a development permit or other planning approval. Construction activities are prohibited on the weekends at sites within 500 feet of a residence. These permitted hours of construction are included in the Municipal Code in recognition that construction activities undertaken during daytime hours are a typical part of living in an urban environment and do not cause a significant disruption. The potential for construction-related noise to affect nearby residential receptors would depend on the location and proximity of construction activities to these receptors. Construction would occur throughout the project site and would not be concentrated or confined in the area directly adjacent to sensitive receptors. Therefore, construction noise would be acoustically dispersed throughout the project site and not concentrated in one area near adjacent sensitive uses. It should be noted that the noise levels depicted in Table 5 are maximum noise levels, which would occur sporadically when construction equipment is operated in proximity to sensitive receptors. As construction is proposed up to the project property lines, the nearest sensitive receptors would be located approximately five feet east and south of the of the proposed construction area on the eastern portion of the project site.

Table 5
Maximum Noise Levels Generated by Construction Equipment

Type of Equipment	Acoustical Use Factor[1]	L_{max} at 5 Feet (dBA)	L_{max} at 50 Feet (dBA)
Concrete Saw	20	110	90
Crane	16	101	81
Concrete Mixer Truck	40	99	79
Backhoe	40	98	78
Dozer	40	102	82
Excavator	40	101	81
Forklift	40	98	78
Paver	50	97	77
Roller	20	100	80
Tractor	40	104	84
Water Truck	40	100	80
Grader	40	105	85
General Industrial Equipment	50	105	85
Note: 1 – Acoustical Use Factor (percent): Estimates the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.			
Source: Federal Highway Administration, *Roadway Construction Noise Model (FHWA-HEP-05-054)*, January 2006.			

Given the sporadic and variable nature of project construction and the implementation of time limits specified in the Municipal Code, noise impacts would be reduced to a less than significant level. Additionally, the project would be required to comply with the City's Standard Permit Conditions, which would further reduce the potential for noise impacts. The City's Standard Permit Conditions would be implemented to incorporate best management practices during construction. Compliance with the City's Standard Permit Conditions would further minimize impacts from construction noise as it requires construction equipment to be equipped with properly operating and maintained mufflers and other state required noise attenuation devices. Thus, a less than significant noise impact would result from construction activities. Further, pursuant to General Plan Policy EC-1.7, a project which requires substantial noise generating activities for more than 12 months, within 500 feet of residential uses, must prepare a Construction Noise Logistics Plan. As project construction would occur over approximately 29 months and adjacent to residential uses, the project applicant would be required to prepare a Construction Noise Logistics Plan in compliance with General Plan Policy EC-1.7.

City of San Jose Standard Permit Conditions

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

- Limit construction hours to between 7:00 a.m. and 7:00 p.m., Monday through Friday, unless permission is granted with a development permit or other planning approval. No construction activities are permitted on the weekends at sites within 500 feet of a residence.

- 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 residences bordering the project site.

- Notify all adjacent business, 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.

- 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 uses.

Long-Term Operational Noise Impacts

Mobile Noise

Future development generated by the proposed project would result in additional traffic on adjacent roadways, thereby increasing vehicular noise in the vicinity of existing and proposed land uses. According to the *Highway Traffic Noise Analysis and Abatement Policy and Guidance*, a doubling of traffic volumes

would result in a 3 dB increase in traffic noise levels, which is barely detectable by the human ear.[3] Based on the *Hyatt Place Hotel Local Transportation Analysis* (Transportation Analysis) prepared by Michael Baker International (dated September 24, 2019), the proposed project is projected to generate a total of approximately 764 net new daily trips, which includes approximately 43 net new a.m. peak hour trips and approximately 55 net new p.m. peak hour trips. Table 6, *Existing and Project Peak Hour Traffic Volumes*, depicts existing and project generated peak hour traffic volumes in the project vicinity. As shown in Table 6, the projects peak hour traffic volumes would not double existing peak hour traffic volumes and an increase in traffic noise along local roadways would be imperceptible. Therefore, project-related traffic noise would be less than significant.

Table 6
Existing and Project Peak Hour Traffic Volumes

Segment	Existing	Project	Doubling of Traffic Volumes?
Peak Hour Traffic Volumes			
Buena Vista Avenue/West San Carlos Street	1,869 a.m.	31 a.m.	No
	1,810 p.m.	36 p.m.	No
Willard Avenue/West San Carlos Street	1,893 a.m.	66 a.m.	No
	1,567 p.m.	83 p.m.	No
Meridian Avenue/West San Carlos Street	2,782 a.m.	35 a.m.	No
	3,158 p.m.	47 p.m.	No
Race Street/West San Carlos Street	2,278 a.m.	17 a.m.	No
	2,708 p.m.	22 p.m.	No
Source: Michael Baker International, *Hyatt Place Hotel Local Transportation Analysis*, dated September 24, 2019.			

Stationary Noise

Stationary noise sources associated with the proposed project would include mechanical equipment, slow moving trucks, parking activities, and outdoor gathering areas. These noise sources are typically intermittent and short in duration and would be comparable to existing sources of noise experienced in the site vicinity.

Mechanical Equipment Noise

Typically, mechanical equipment can result in noise levels of approximately 55 dBA at 50 feet from the source. Mechanical equipment (heating, ventilation, and air condition [HVAC], fire and water pump equipment, generator room, etc.) for the project would be located in fully enclosed spaces throughout the proposed hotel building. Therefore, the project would not place mechanical equipment near sensitive receptors (i.e., existing residential adjoining the project site to the east and south). As such, noise from

[3] U.S. Department of Transportation, *Highway Traffic Noise Analysis and Abatement Policy and Guidance*, updated August 24, 2017, https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm, accessed on November 5, 2019.

mechanical equipment would not be perceptible at the closest sensitive receptors. Impacts from mechanical equipment would be less than significant.

Slow-Moving Trucks

The proposed project may involve occasional deliveries and trash/recycling pickups from slow-moving trucks. Typically, a medium 2-axle truck used to make deliveries can generate a maximum noise level of 75 dBA at a distance of 50 feet.[4] These are levels generated by a truck that is operated by an experienced "reasonable" driver with typically applied accelerations. Noise associated with deliveries and trash/recycling pickups would be consistent with the existing noise environment, as these activities already occur at the commercial uses in the surrounding area. Additionally, slow-moving truck noise would be intermittent, short in duration, and would not generate excessive noise levels over an extended period of time. Impacts resulting from truck delivery activities would be less than significant.

Parking Areas

Traffic associated with residential parking areas is typically not of sufficient volume to exceed community noise standards, which are based on a time-averaged scale such as the day-night average sound level (DNL) (or L_{dn}) scale. However, the instantaneous maximum sound levels generated by a car door slamming, engine starting up, and car pass-bys may be an annoyance to adjacent noise-sensitive receptors. Estimates of the maximum noise levels associated with some parking activities are presented in Table 7, *Maximum Noise Levels Generated by Parking Lots*. The project proposes a basement parking area with approximately 60 parking spaces, as well as one ADA space on the first floor. Conversations in parking areas may also be an annoyance to adjacent sensitive receptors. Sound levels of speech typically range from 33 dBA at 48 feet for normal speech to 50 dBA at 50 feet for very loud speech.

Table 7
Maximum Noise Levels Generated by Parking Lots

Noise Source	Maximum Noise Levels at 50 Feet from Source
Car door slamming	61 dBA L_{eq}
Car starting	60 dBA L_{eq}
Car idling	53 dBA L_{eq}
Notes: dBA = A-weighted Decibels; L_{eq} = Equivalent Sound Level Source: Kariel, H. G., *Noise in Rural Recreational Environments*, Canadian Acoustics 19(5), 3-10, 1991.	

It should be noted that parking lot noise are instantaneous noise levels compared to noise standards in the DNL scale, which are averaged over time. As a result, actual noise levels over time resulting from parking lot activities would be far lower. Impacts associated with the basement parking area would be considered minimal since the parking area would be enclosed within a structure. Additionally, as parking lot noise is currently generated on the project site under existing conditions, the proposed first floor parking area would not introduce a new source of noise or increase parking lot noise levels in the project vicinity. Therefore, noise impacts from parking lots would be less than significant.

[4] Measurements taken by Michael Baker International, 2006.

Operational Noise Levels

Pursuant to General Plan Policy EC-1.2, new developments must reduce noise impacts on sensitive land uses. 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.

As depicted in Table 1, ambient noise levels in the project vicinity range from 58.5 to 64.0 dBA. The City's "Normally Acceptable" noise levels for residential land uses range from 50 to 60 dBA; refer to Table 3. As previously discussed, the project would not generate perceptible noise levels above existing conditions for the following noise sources: mobile, mechanical equipment, slow-moving trucks, and parking areas. Therefore, the outdoor gathering areas represent the only new source of noise generated by the proposed project. As noted above, crowd noise at the southern residence would be 52 dBA and crowd noise at the eastern residence would be 34 dBA. Therefore, the project would not generate noise levels above existing conditions (i.e. 58.5 to 64.0 dBA). Thus, impacts would be less than significant in this regard.

Mitigation Measures: No mitigation measures are required

NOI-2 Would the project result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Construction vibration impacts include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. Ordinary buildings that are not particularly fragile would not experience any cosmetic damage (e.g., plaster cracks) at distances beyond 30 feet. This distance can vary substantially depending on the soil composition and underground geological layer between vibration source and receiver. In addition, not all buildings respond similarly to vibration generated by construction equipment. For example, buildings that are constructed with typical timber frames and masonry show that a vibration level of up to 0.2 inch-per-second PPV is considered safe and would not result in any construction vibration damage.[8] The City of San José has a vibration limit of 0.2 inch-per-second PPV for buildings of normal conventional construction (General Plan Policy EC-2.3). Therefore, this evaluation uses the 0.2 inch-per-second PPV vibration limit as established by the City. Typical vibration produced by construction equipment is detailed in Table 8, *Typical Vibration Levels for Construction Equipment*.

Groundborne vibration decreases rapidly with distance. As construction is proposed up to the project property lines, the nearest structures are located approximately five feet east and south of the of the

[8] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

proposed construction area on the eastern portion of the project site. As indicated in Table 8, vibration velocities from typical heavy construction equipment used during project construction would range from 0.033 to 2.348 inch-per-second PPV at five feet from the source of activity, which would exceed the City's 0.2 inch-per-second PPV threshold. Project design features, noted below, would reduce vibration velocities below the City's 0.2 inch-per-second PPV threshold. The project design features are directly related to vibration control, as it requires a qualified professional to prepare construction vibration control plans and to utilize pneumatic impact equipment. As shown in Table 9, *Construction Buffer Zone Vibration Levels*, heavy-duty construction equipment operating outside of the construction buffer zone would not exceed the City's 0.2 inch-per-second PPV threshold. Impacts would be less than significant in this regard.

Table 8
Typical Vibration Levels for Construction Equipment

Equipment	Approximate peak particle velocity at 25 feet (inches/second)[1]	Approximate peak particle velocity at 5 feet (inches/second)[1]
Vibratory roller	0.210	2.348
Large bulldozer	0.089	0.995
Caisson Drilling	0.089	0.995
Loaded trucks	0.076	0.850

Notes:
1. Calculated using the following formula:

$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

where: PPV (equip) = the peak particle velocity in in/sec of the equipment adjusted for the distance
PPV (ref) = the reference vibration level in in/sec from Table 7-4 of the FTA *Transit Noise and Vibration Impact Assessment Manual*
D = the distance from the equipment to the receiver

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

Table 9
Construction Buffer Zone Vibration Levels

Equipment	Nearest Distance of Heavy-Duty Construction Equipment Activity to Eastern and Southern Residential Structures (Feet)	Peak Particle Velocity (in/sec) [1]
Vibratory roller	27	0.187
Large bulldozer	15	0.191
Caisson Drilling	15	0.191
Loaded trucks	14	0.181

Notes:
1. Calculated using the following formula:

$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

where:
PPV (equip) = the peak particle velocity in inch per second of the equipment adjusted for the distance

PPV (ref) = the reference vibration level in inch per second from Table 12-2 of the FTA Transit Noise and Vibration Impact Assessment Guidelines

D = the distance from the equipment to the receiver

Project Design Features

As noted in the project description, the project applicant will incorporate the following measures on all grading and building plans and specifications subject to approval of the San José Building Division prior to issuance of a demolition or grading permit (whichever occurs first):

- The Applicant will ensure construction equipment will not approach the construction buffer zone adjacent to the residential structures adjoining the project site to the east and south. The buffer zone shall be tiered based on distances established in the table below.

Equipment	Nearest Distance of Heavy-Duty Construction Equipment Activity to Eastern and Southern Residential Structures (Feet)	Peak Particle Velocity (in/sec) [1]
Vibratory roller	27	0.187
Large bulldozer	15	0.191
Caisson Drilling	15	0.191
Loaded trucks	14	0.181

  As shown in the table above, vibratory rollers shall not operate within 27 feet, large bulldozers and caisson drilling shall not operation with 15 feet, and loaded trucks shall not operate within 14 feet of the residential structures adjoining the project site to the east and south. The buffer zone shall be in enforced between the hours of 7:00 a.m. and 7:00 p.m. pursuant to San José Municipal Code Section 20.100.450, *Hours of Construction Within 500 Feet of a Residential Unit*.

- The Applicant will utilize a construction vibration monitoring system with the potential to measure low levels of vibration to ensure vibration levels do not exceed the City's 0.2 inch-per-second PPV threshold.

- The Applicant will conduct sensitivity training to inform construction personnel about the existing sensitive receptors surrounding the project and about methods to reduce noise and vibration.

- Alternatively, if the above measures are deemed not to be feasible by the Building Division, the Applicant will require by contract specifications that a certified structural engineer and/or geologist be retained to submit evidence that the operation of vibration-generating equipment associated with the project would not result vibration levels exceeding the City's 0.2 inch-per-second PPV threshold. Contract specifications shall be included in the project construction documents, which shall be reviewed by the City prior to issuance of a demolition or grading permit (whichever occurs first). The documents will include provisions for vibration monitoring during the operation of heavy-duty construction equipment, as well as include provisions to ensure vibration levels do not exceed 0.2 inch-per-second PPV at the residences adjoining the project site to the east and south.

Mitigation Measures: No mitigation measures are required.

NOI-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?

The closest airport is the Norman Y. Mineta San José International Airport, which is located approximately two miles north of the project site. The project site is not within the Norman Y. Mineta San José International Airport influence area where aircraft noise levels are a concern.[9] Thus, the proposed project would not expose people residing or working in the area to excessive noise levels. No impacts would occur in this regard.

Mitigation Measures: No mitigation measures are required.

[9] City of San José, *Envision San José 2040 General Plan Draft Program EIR – Figure 3.3-3, Mineta San José International Airport 2027 Aircraft Noise Contours*, dated June 2011.

REFERENCES

Documents

1. California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, 2013.

2. California Department of Transportation, *Transportation and Construction Vibration Guidance Manual, Table 20*, September 2013.

3. City of San José, *Envision San José 2040 General Plan Draft Program EIR – Figure 3.3-3, Mineta San José International Airport 2027 Aircraft Noise Contours*, dated June 2011.

4. City of San José, *Envision San José 2040 General Plan*, adopted November 1, 2011.

5. City of San José*, City of San José Municipal Code*, October 7, 2019.

6. Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, July 6, 2010.

7. Federal Highway Administration, *Roadway Construction Noise Model User's Guide,* January 2006.

8. Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

9. Harris, Cyril, *Handbook of Noise Control,* 1979.

10. Kariel, H. G., *Noise in Rural Recreational Environments*, Canadian Acoustics 19(5), March 10, 1991.

11. Michael Baker International, *Hyatt Place Hotel Local Transportation Analysis*, September 24, 2019.

12. National Institute on Deafness and Other Communication Disorders, *Noise-Induced Hearing Loss*, https://www.nidcd.nih.gov/sites/default/files/Documents/health/hearing/NoiseInducedHearingLoss.pdf, accessed November 5, 2019.

13. Shad Design Group, *A Planning Application For: Hyatt Place*, dated April 15, 2019.

14. U.S. Department of Transportation, *Highway Traffic Noise Analysis and Abatement Policy and Guidance*, https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm, accessed November 5, 2019.

15. U.S. Environmental Protection Agency, *Noise Effects Handbook – A Desk Reference to Health and Welfare Effects of Noise*, October 1979 (revised July 1981).

Websites / Programs

Google Earth, 2019.

Appendix A
Noise Data

Site Number: 1			
Recorded By: Tanner Wolverton			
Job Number: 173047			
Date: 7/11/19			
Time: 11:14			
Location: San Carlos & Willard Ave, San Jose			
Source of Peak Noise: Traffic on San Carlos			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
58.5	44.4	69.5	89.6

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	Larson Davis	M7700060 rev C	0003788		
	Microphone	PCB Piezotonics	377B02	141553	8/15/18	
	Preamp	PCB Piezotonics	PMR LxT	028037	8/14/18	
	Calibrator	Larson Davis	Cal200	11166	8/14/18	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Sunny
	Note: dBA Offset =0.9		**Sensor Height (ft):** 5ft
	Wind Ave Speed (mph / m/s)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (inches)**
	7mph	76 F	30 inHG

Notes

11:14 Music from construction crew truck
11:14 Backing up sound/alarm sound
11:19 Jack Hammering (265 feet from location)
11:21 Employee spoke to me near meter
11:22 Jack Hammering

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	Liv_Data.003	Computer's File Name	SLM_0003788_Liv_Data_003.00.ldbin
Meter	LxT SE		
Firmware	2.302		
User	Tanner Wolverton	Location	
Description	Hyatt		
Note			
Start Time	2019-07-11 11:13:03	Duration	0:10:00.0
End Time	2019-07-11 11:23:03	Run Time	0:10:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	58.5 dB		
LAE	86.2 dB	SEA	--- dB
EA	46.8 µPa²h		
LA_{peak}	89.6 dB	2019-07-11 11:20:50	
LAS_{max}	69.5 dB	2019-07-11 11:20:49	
LAS_{min}	44.4 dB	2019-07-11 11:14:45	
LA_{eq}	58.5 dB		
LC_{eq}	68.6 dB	LC_{eq} - LA_{eq}	10.1 dB
LAI_{eq}	60.7 dB	LAI_{eq} - LA_{eq}	2.2 dB

Exceedances

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

Community Noise

LDN	LDay	LNight
58.5 dB	58.5 dB	0.0 dB

LDEN	LDay	LEve	LNight
58.5 dB	58.5 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	58.5 dB		68.6 dB		--- dB	
$L_{S(max)}$	69.5 dB	2019-07-11 11:20:49	--- dB		--- dB	
$L_{S(min)}$	44.4 dB	2019-07-11 11:14:45	--- dB		--- dB	
$L_{Peak(max)}$	89.6 dB	2019-07-11 11:20:50	--- dB		--- dB	

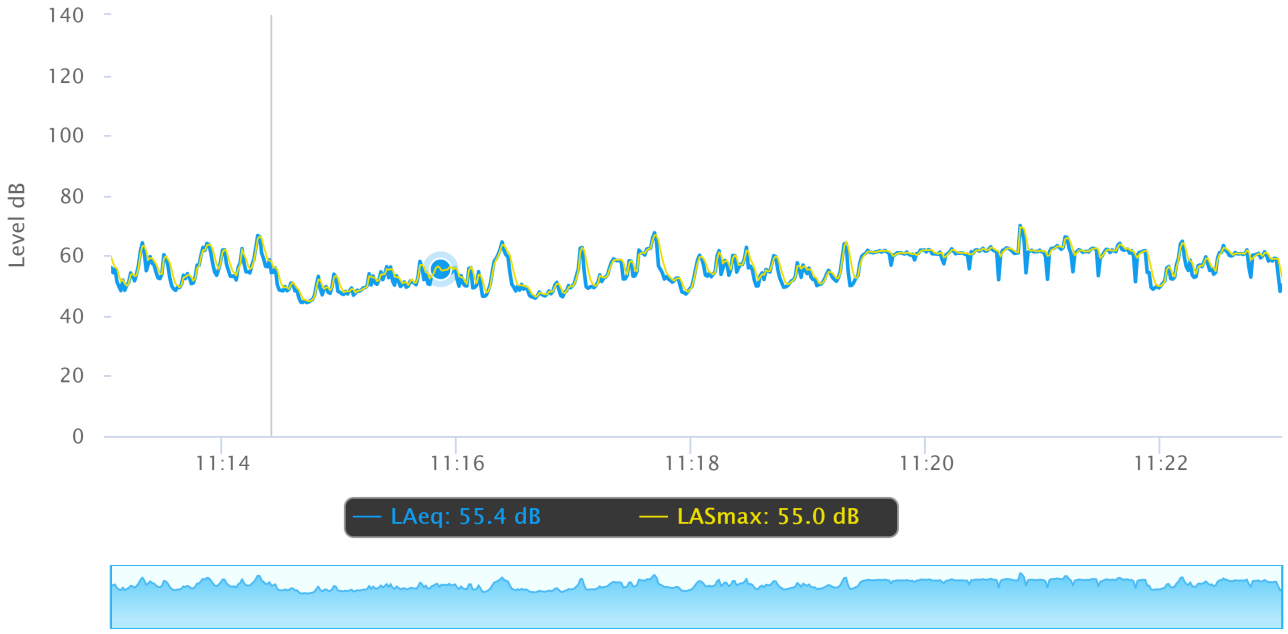
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	62.5 dB
LAS 10.0	61.7 dB
LAS 33.3	59.7 dB
LAS 50.0	56.2 dB
LAS 66.6	53.2 dB
LAS 90.0	49.2 dB

Time History



Site Number: 2			
Recorded By: Tanner Wolverton			
Job Number: 173047			
Date: 7/11/19			
Time: 12:10			
Location: San Carlos St & Muller Pl, San Jose			
Source of Peak Noise: Traffic on San Carlos			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
64	47.3	74	91.8

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	Larson Davis	M7700060 rev C	0003788		
	Microphone	PCB Piezotonics	377B02	141553	8/15/18	
	Preamp	PCB Piezotonics	PMR LxT	028037	8/14/18	
	Calibrator	Larson Davis	Cal200	11166	8/14/18	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Sunny
	Note: dBA Offset =0.9		**Sensor Height (ft):** 5ft
	Wind Ave Speed (mph / m/s)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (inches)**
	8mph	78 F	30 inHG

Notes

12:17 Jack Hammering (until measurement stops) Jack Hammer 250 feet from location

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	Liv_Data.005	Computer's File Name	SLM_0003788_Liv_Data_005.00.ldbin
Meter	LxT SE		
Firmware	2.302		
User	Tanner Wolverton	Location	
Description			
Note			
Start Time	2019-07-11 12:10:54	Duration	0:10:00.0
End Time	2019-07-11 12:20:54	Run Time	0:10:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	64.0 dB		
LAE	91.8 dB	SEA	--- dB
EA	166.3 µPa²h		
LA_{peak}	91.8 dB	2019-07-11 12:17:36	
LAS_{max}	74.0 dB	2019-07-11 12:17:36	
LAS_{min}	47.3 dB	2019-07-11 12:14:41	
LA_{eq}	64.0 dB		
LC_{eq}	71.1 dB	LC_{eq} - LA_{eq}	7.2 dB
LAI_{eq}	64.9 dB	LAI_{eq} - LA_{eq}	0.9 dB

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

Community Noise	LDN	LDay	LNight
	64.0 dB	64.0 dB	0.0 dB

	LDEN	LDay	LEve	LNight
	64.0 dB	64.0 dB	--- dB	--- dB

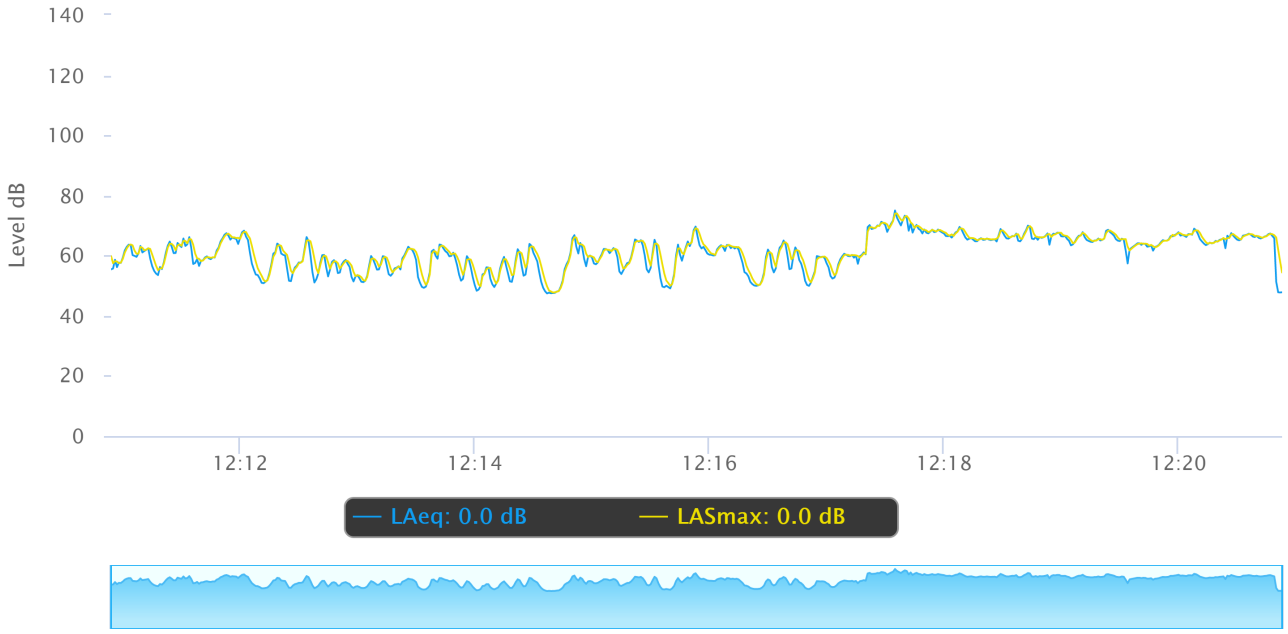
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	64.0 dB		71.1 dB		--- dB	
$L_{S(max)}$	74.0 dB	2019-07-11 12:17:36	--- dB		--- dB	
$L_{S(min)}$	47.3 dB	2019-07-11 12:14:41	--- dB		--- dB	
$L_{Peak(max)}$	91.8 dB	2019-07-11 12:17:36	--- dB		--- dB	

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	68.8 dB
LAS 10.0	67.4 dB
LAS 33.3	64.8 dB
LAS 50.0	61.8 dB
LAS 66.6	59.0 dB
LAS 90.0	53.3 dB

Time History



Site Number: 3			
Recorded By: Tanner Wolverton			
Job Number: 173047			
Date: 7/11/19			
Time: 11:36			
Location: San Carlos St & Page St, San Jose			
Source of Peak Noise: Traffic on San Carlos			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
59.5	46.8	68.6	86.6

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	Larson Davis	M7700060 rev C	0003788	xx	
	Microphone	PCB Pieztonics	377B02	141553	8/15/18	
	Preamp	PCB Pieztonics	PMR LxT	028037	8/14/18	
	Calibrator	Larson Davis	Call200	11166	8/14/18	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Sunny
	Note: dBA Offset =0.9		**Sensor Height (ft):** 5ft
	Wind Ave Speed (mph / m/s)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (inches)**
	7mph	76 F	30 inHG

Notes

11:36 Alarm Noise
11:38 Banging metal from construction crew
11:39 Jack Hammering (320 feet from location)
11:44 Jack Hammering stops

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	Liv_Data.004	Computer's File Name	SLM_0003788_Liv_Data_004.00.ldbin
Meter	LxT SE		
Firmware	2.302		
User	Tanner Wolverton	Location	
Description			
Note			
Start Time	2019-07-11 11:35:50	Duration	0:10:00.0
End Time	2019-07-11 11:45:50	Run Time	0:10:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	59.5 dB		
LAE	87.3 dB	SEA	--- dB
EA	59.9 µPa²h		
LA_{peak}	86.6 dB	2019-07-11 11:38:58	
LAS_{max}	68.6 dB	2019-07-11 11:39:11	
LAS_{min}	46.8 dB	2019-07-11 11:44:49	
LA_{eq}	59.5 dB		
LC_{eq}	70.4 dB	LC_{eq} - LA_{eq}	10.9 dB
LAI_{eq}	60.8 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
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
59.5 dB	59.5 dB	0.0 dB

LDEN	LDay	LEve	LNight
59.5 dB	59.5 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	59.5 dB		70.4 dB		--- dB	
$L_{S(max)}$	68.6 dB	2019-07-11 11:39:11	--- dB		--- dB	
$L_{S(min)}$	46.8 dB	2019-07-11 11:44:49	--- dB		--- dB	
$L_{Peak(max)}$	86.6 dB	2019-07-11 11:38:58	--- dB		--- dB	

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	64.4 dB
LAS 10.0	63.3 dB
LAS 33.3	59.7 dB
LAS 50.0	57.7 dB
LAS 66.6	55.5 dB
LAS 90.0	51.4 dB