4.8 NOISE

This section evaluates onsite development's potential impact to the existing local noise conditions, including temporary construction noise, long-term noise generated by operation of onsite development, and the affect of ambient noise on onsite residents.

4.8.1 Setting

a. Overview of Sound Measurement. Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound power levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz).

The sound pressure level is measured on a logarithmic scale with the 0 dB level based on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound pressure level). Based on the logarithmic scale, a doubling of sound energy is equivalent to an increase of 3 dB, and a sound that is 10 dB less than the ambient sound level has no effect on ambient noise. Because of the nature of the human ear, a sound must be about 10 dB greater than the reference sound to be judged as twice as loud. In general, a 3 dB change in community noise levels is noticeable, while 1-2 dB changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40-50 dBA, while those along arterial streets are in the 50-60+ dBA range. Normal conversational levels are in the 60-65 dBA range, and ambient noise levels greater than 65 dBA can interrupt conversations.

Noise levels typically attenuate (or drop off) at a rate of 6 dB per doubling of distance from point sources such as industrial machinery. Noise from lightly traveled roads typically attenuates at a rate of about 4.5 dB per doubling of distance. Noise from heavily traveled roads typically attenuates at about 3 dB per doubling of distance.

Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, some of these scales consider that the effect of noise upon people is largely dependent upon the total acoustical energy content of the noise, as well as the time of day when the noise occurs.

The duration of sound is important since sounds that occur over a long period of time are more likely to be an annoyance or cause direct physical damage or environmental stress. One of the most frequently used noise metrics that considers both duration and sound power level is the equivalent noise level (Leq). The Leq is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). Typically, Leq is summed over a one-hour period.

The time period in which noise occurs is also important since noise that occurs at night tends to be more disturbing than that which occurs during the daytime. Two commonly used noise metrics – the Day-Night average level (Ldn) and the Community Noise Equivalent Level (CNEL) - recognize this fact by weighting hourly Leqs over a 24-hour period. The Ldn is a 24-hour average noise level that adds 10 dB to actual nighttime (10:00 PM to 7:00 AM) noise levels

to account for the greater sensitivity to noise during that time period. The CNEL is identical to the Ldn, except it also adds a 5 dB penalty for noise occurring during the evening (7:00 PM to 10:00 PM).

A typical noise environment consists of a base of steady ambient noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background noise is the sound from individual local sources. These can vary from an occasional aircraft or train passing by to virtually continuous noise from, for example, traffic on a major highway. Table 4.8-1 illustrates representative noise levels in the environment.

Table 4.8-1
Representative Environmental Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	—110—	Rock Band
Jet Fly-over at 100 feet		
	—100—	
Gas Lawnmower at 3 feet		
	—90—	
		Food Blender at 3 feet
Diesel Truck going 50 mph at 50 feet	—80—	Garbage Disposal at 3 feet
Noisy Urban Area during Daytime		
Gas Lawnmower at 100 feet	—70—	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
Heavy Traffic at 300 feet	—60—	
		Large Business Office
Quiet Urban Area during Daytime	—50—	Dishwasher in Next Room
Quiet Urban Area during Nighttime	—40—	Theater, Large Conference Room (background)
Quiet Suburban Area during Nighttime		
	—30—	Library
Quiet Rural Area during Nighttime		Bedroom at Night, Concert Hall (background)
	—20—	
		Broadcast/Recording Studio
	—10—	
Lowest Threshold of Human Hearing	—0—	Lowest Threshold of Human Hearing

Source: California Department of Transportation, 1998.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day, night, or over a 24-hour period. Ambient noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60–70 dBA range, and high above 70 dBA. Noise levels greater than 85 dBA can cause temporary or permanent hearing loss. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet suburban residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of low to moderate level noise environments are urban residential or semi-commercial areas (typically 55–60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but in many cases people will accept the higher levels associated with more noisy urban residential or residential-commercial areas (60–75 dBA) or dense urban or industrial areas (65–80 dBA).

When evaluating changes in 24-hour community noise levels, a difference of 3 dB is a barely perceptible increase to most people. A 5 dB increase is readily noticeable, while a difference of 10 dBA is generally perceived as a doubling of loudness.

Noise levels from a particular source decline as distance to the receptor increases. Other factors, such as the weather and reflecting or shielding, also help intensify or reduce the noise level at any given location. A commonly used rule of thumb for roadway noise is that for every doubling of distance from the source, the noise level drops off by about 3 dB at acoustically "hard" locations (i.e., the area between the noise source and the receptor is nearly complete asphalt, concrete, hard-packed soil, or other solid materials) and 4.5 dB at acoustically "soft" locations (i.e., the area between the source and receptor is earth or has vegetation, including grass). Noise from stationary or point sources drops off by about 6 dB for every doubling of distance at acoustically hard locations and 7.5 dB at acoustically soft locations. Noise levels may also be reduced by intervening structures. Generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA. The normal noise attenuation within residential structures with open windows is about 17 dB, while the noise attenuation with closed windows is about 25 dB (National Cooperative Highway Research Program Report 117, Highway Noise: A Design Guide for Highway Engineers, 1971).

b. Fundamentals of Environmental Groundborne Vibration. Vibration is sound radiated through the ground. The rumbling sound caused by the vibration of room surfaces is called groundborne noise. The ground motion caused by vibration is measured as particle velocity in inches per second and, in the U.S., is referenced as vibration decibels (VdB).

The background vibration velocity level in residential and educational areas is usually around 50 VdB. The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings.

The general human response to different levels of groundborne vibration velocity levels is described in Table 4.8-2.

Table 4.8-2
Human Response to Different Levels of Groundborne Vibration

Vibration Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception for many people.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

Source: Federal Railroad Administration, 1998.

c. Regulatory Framework.

Federal Railway Administration. The Federal Railway Administration has developed vibration impact thresholds for noise-sensitive buildings, residences, and institutional land uses. These thresholds are 80 VdB at residences and buildings where people normally sleep (e.g., nearby residences and daycare facility) and 83 VdB at institutional buildings (e.g., schools and churches). These thresholds apply to conditions where there are an infrequent number of events per day.[1]

California Code of Regulations. Title 24 of the California Code of Regulations codifies Sound Transmission Control requirements, which establishes uniform minimum noise insulation performance standards for new hotels, motels, dormitories, apartment houses, and dwellings other than detached single-family dwellings. Specifically, Title 24 states that interior noise levels attributable to exterior sources shall not exceed 45 dBA CNEL in any habitable room of new multi-family dwellings. Dwellings are to be designed so that interior noise levels will meet this standard for at least 10 years from the time of building permit application.

City of Los Angeles Noise Ordinances. The City of Los Angeles is the local agency responsible for adopting and implementing policies as they relate to noise and its effect on land uses within its jurisdiction. Both acceptable and unacceptable noise levels associated with construction activities, roadway noise levels and ambient noise levels must be defined and quantified. The City of Los Angeles has numerous ordinances and enforcement practices that apply to intrusive noise and that guide new construction. The City's comprehensive noise ordinance (Chapter XI of the LAMC) sets forth sound measurement and criteria, maximum ambient noise levels for different land use zoning classifications, sound emission levels for

[1] *"Infrequent events" is defined by the Federal Railroad Administration as being fewer than 70 vibration events per day.*

specific uses, hours of operation for certain uses, standards for determining when noise is deemed to be a disturbance to the peace, and legal remedies for violations.

In particular, Section 41.40 of the LAMC prohibits construction activity (including demolition) and repair work, where the use of any power tool, device, or equipment would disturb persons occupying sleeping quarters in any dwelling hotel, apartment, or other place of residence, between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, and between 6 p.m. and 8 a.m. on Saturday. All such activities are also prohibited on Sundays and all federal holidays.

Section 112.05 of the LAMC prohibits the operation of any powered equipment or powered hand tool that produces a maximum noise level exceeding the following noise limits at a distance of 50 feet between the hours of 7:00 a.m. and 10:00 p.m.:

- *75 dB(A) for construction, industrial, and agricultural machinery including crawler-tractors, dozers, rotary drills and augers, loaders, power shovels, cranes, derricks, motor graders, paving machines, off-highway trucks, ditchers, trenchers, compactors, scrapers, wagons, pavement breakers, compressors and pneumatic or other powered equipment;*
- *75 dB(A) for powered equipment of 20 horsepower or less intended for infrequent use in residential areas, including chain saws, log chippers and powered hand tools; or*
- *65 dB(A) for powered equipment intended for repetitive use in residential areas, including lawn mowers, backpack blowers, small lawn and garden tools and riding tractors.*

The noise limitations above do not apply where compliance is deemed to be technically infeasible, which means that said noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques during the operation of construction equipment.

Onsite activities are required to comply with Sections 112.01 and 112.06 of the Los Angeles Municipal Code. These sections provide regulation related to amplified music and places of public entertainment. Specifically, these sections include the following provisions:
Sec. 112.01. Radios, Television Sets, And Similar Devices (Amended by Ord. No. 156,363, Eff. 3/29/82):

(a) It shall be unlawful for any person within any zone of the City to use or operate any radio, musical instrument, phonograph, television receiver, or other machine or device for the producing, reproducing or amplification of the human voice, music, or any other sound, in such a manner, as to disturb the peace, quiet, and comfort of neighbor occupants or any reasonable person residing or working in the area.

(b) Any noise level caused by such use or operation which is audible to the human ear at a distance in excess of 150 feet from the property line of the noise source, within any residential zone of the City or within 500 feet thereof, shall be a violation of the provisions of this section.

(c) Any noise level caused by such use or operation which exceeds the ambient noise level on the premises of any other occupied property, or if a condominium, apartment

house, duplex, or attached business, within any adjoining unit, by more than five (5) decibels shall be a violation of the provisions of this section.

City of Los Angeles General Plan Noise Element. California Government Code Section 65302(g) requires that a noise element be included in the General Plan of each county and city in the state. The Noise Element of the City of Los Angeles General Plan is intended to identify sources of noise and provide objectives and policies that ensure that noise from various sources does not create an unacceptable noise environment. The City's Noise Element describes the noise environment (including noise sources) in the City, addresses noise mitigation regulations, strategies, and programs as well as delineating federal, State, and City jurisdiction relative to rail, automotive, aircraft, and nuisance noise.

The City's noise standards are correlated with land use zoning classifications in order to maintain identified ambient noise levels and to limit, mitigate, or eliminate intrusive noise that exceeds the ambient noise levels within a specified zone. Table 4.8-3 on the following page lists the noise/land use compatibility guidelines for land uses within the City of Los Angeles.

In accordance with the Noise Element, noise exposure of up to 60 dB CNEL exposure is considered to be the most desirable target for the exterior of noise-sensitive land uses, or sensitive receptors, such as homes, schools, churches, libraries, etc. It is also recognized that such a level may not always be possible in areas of substantial traffic noise intrusion. Exposures up to 70 dB CNEL for noise-sensitive uses are considered conditionally acceptable if all measures to reduce such exposure have been taken. Noise levels above 70 dB CNEL are normally unacceptable for sensitive receptors except in unusual circumstances.

d. Existing Ambient Daytime Noise Levels. The project site is located in an urbanized setting at the northeast corner of Alameda Street and First Street, at the edge of the Little Tokyo community in downtown Los Angeles. Surrounding land uses include a Department of Water and Power facility located across East Temple Street to the north of the site; a Veterans' Affairs Hospital located to the northwest of the site on the northwest corner of Alameda Street and East Temple Street; the Little Tokyo/Arts District Metro Gold Line station immediately adjacent to the west of the site; the Geffen Contemporary at the Museum of Contemporary Art (MOCA) and the Japanese American National Museum located across Alameda Street to the west of the project site; a restaurant and surface parking lot to the southwest of the site on the southwest corner of First Street and Alameda Street; multi-family residential buildings, a car wash and the Sogo/Chugokaya Hotel located across First Street to the south of the site; and a City of Los Angeles Emergency Operations Center and the Nishi Hongwanji Buddhist Temple located immediately east of the site.

To establish baseline noise conditions within the vicinity of the project site, existing daytime noise levels were documented by taking noise measurements at three locations, as identified in Table 4.8-4 and on Figure 4.8-1. The noise meter utilized for the noise measurements was an ANSI Type II integrating sound level meter. This meter was calibrated and operated according to the manufacturer's written specifications.

Aerial source: Google Earth Pro, 2009.

Project Site
Closest Sensitive Receptor
Noise Measurement Location

N
0 200 400 Feet

Sensitive Receptor and
Noise Measurement Locations

Figure 4.8-1

Table 4.8-3
Guidelines for Noise Compatible Land Uses

Land Use	Normally Acceptable[a]	Conditionally Acceptable[b]	Normally Unacceptable[c]	Clearly Unacceptable[d]
Single-family, Duplex, Mobile Homes	50 – 60	55 – 70	70 – 75	above 70
Multi-Family Homes	50 – 65	60 – 70	70 – 75	above 70
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 – 70	60 – 70	70 – 80	above 80
Transient Lodging – Motels, Hotels	50 – 65	60 – 70	70 – 80	above 80
Auditoriums, Concert Halls, Amphitheaters	---	50 – 70	---	above 65
Sports Arena, Outdoor Spectator Sports	---	50 – 75	---	above 70
Playgrounds, Neighborhood Parks	50 – 70	---	67 – 75	above 72
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 – 75	---	70 – 80	above 80
Office Buildings, Business and Professional Commercial	50 – 70	67 – 77	above 75	---
Industrial, Manufacturing, Utilities, Agriculture	50 – 75	70 – 80	above 75	---

[a] 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.
[b] 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.
[c] Normally Unacceptable: New construction or development should generally 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.
[d] Clearly Unacceptable: New construction or development should generally not be undertaken.
Note: Noise levels are provided in CNEL.
Source: Office of Noise Control, California Department of Health Services (DHS).

Table 4.8-4
Existing Daytime Noise Levels

Noise Measurement Location	Primary Noise Source	Noise Level Statistics		
		L_{eq}	L_{min}	L_{max}
1. Along E. 1st St.	Traffic on East First Street	66.5	50.7	84
2. Along N. Alameda St	Traffic on North Alameda Street	60	51.7	77.1
3. Along Temple Street	Traffic on Temple Street	67.8	51.2	86.3

Source: Rincon Consultants, 2009, September 29, 2009. Noise level measurement data is provided in Appendix F.

The three noise measurement locations were selected because they represent the ambient daytime noise levels within the neighborhood surrounding the project site, and provide a baseline to establish what the conditions at the surrounding residences are prior to the construction of onsite development. The measured Leqs range from 60 dBA along North Alameda Street to about 68 dBA along Temple Street. The primary noise source at all three measurement locations was roadway traffic.

e. Sensitive Receptors. Noise sensitive receptors are land uses that are considered more sensitive to noise than others. Residences, hospitals, schools, guest lodging, and libraries are most sensitive to noise intrusion and therefore have more stringent noise exposure targets than manufacturing or industrial uses that are not subject to effects such as sleep disturbance. The nearest sensitive receptors in the vicinity of the project site include multi-family residential uses approximately 75 feet south of the project site, the Veterans' Affairs Hospital approximately 150 feet northwest of the site, and the Nishi Hongwanji Buddhist Temple approximately 300 feet east of the site (as shown on Figure 4.8-1).

4.8.2 Impact Analysis

a. Methodology and Significance Thresholds. Construction noise was estimated based on noise level estimates from the U.S. Environmental Protection Agency document "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances" (1971). Noise levels associated with existing and future traffic along area roadways segments were calculated using the Federal Highway Administration's Traffic Noise Model (TNM) 2.5 (noise modeling data sheets can be viewed in Appendix F of this document). The model calculations are based on traffic data from the EIR traffic study (see Appendix G). Traffic on the following roadway segments were modeled using TNM 2.5:

- *Alameda Street between Aliso Street and Temple Street*
- *Temple Street between Los Angeles Street and Alameda Street*
- *Alameda Street between Temple Street and First Street*
- *First Street between Alameda and Vignes Street*
- *Alameda Street between First Street and Second Street*

These five roadway segments were chosen to be modeled due to their proximity to the project site and existing sensitive receptors and because these segments would have the greatest increase in noise generated by traffic. Cumulative conditions correspond to the assumed buildout of pending development within the City as indicated in Table 3-1 of Section 3.0, *Environmental Setting*.

In accordance with Appendix G of the *CEQA Guidelines*, onsite development would have a significant noise impact if it would cause any of the following:

a) Expose persons to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies;

b) Expose persons to or generate excessive groundborne vibration or groundborne noise levels;

c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels exiting without the project;

d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels exiting without the project;

e) Expose people residing or working in the project area to excessive noise levels within 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; or

f) Expose people residing or working in the project area to excessive noise levels within the vicinity of a private airstrip.

Impacts related to items e and f above were determined to have no impact, as discussed in the Initial Study (Appendix A). The project site is not in the vicinity of any public or private airport (the closest airport is the Compton Airport, located approximately 11 miles south of the project site). Therefore, this analysis focuses on items a-d.

Based upon the criteria established in the *City of Los Angeles CEQA Thresholds Guide,* a project would normally have a significant impact on noise levels from construction if:

- *Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dB or more at a noise sensitive use;*
- *Construction activities lasting more than 10 days in a three month period would exceed existing ambient exterior noise levels by 5 dB or more at a noise sensitive use; or*
- *Construction activities would exceed the ambient noise level by 5 dB at a noise sensitive use between the hours of 9:00 PM and 7:00 AM Monday through Friday, before 8:00 AM or after 6:00 PM on Saturday, or at any time on Sunday.*

Based upon the criteria established in the *City of Los Angeles CEQA Thresholds Guide*, project operations would normally have a significant impact on noise levels if the project would increase the ambient noise level by 3 dBA CNEL at the property line of homes where the resulting noise level would be at least 70 dBA CNEL or at the property line of commercial buildings where the resulting noise level is at least 75 dBA CNEL. In addition, any long-term increase of 5 dB CNEL or more is considered to cause a significant impact.

Although not specified in the *City of Los Angeles CEQA Thresholds Guide*, a project would typically have a significant operational noise impact if the proposed land use would be exposed to noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. As shown previously in Table 4.8-3 of this section, the City's adopted noise standards applicable to onsite development identify conditionally acceptable operational noise levels within a range of 55-70 dBA CNEL for residences and 60-70 dBA CNEL for schools.

The City of Los Angeles has not adopted specific thresholds for groundborne vibration impacts. Therefore, this analysis uses the Federal Railway Administration's vibration impact thresholds for sensitive buildings to determine whether groundborne vibration would be "excessive." A vibration velocity level of 75 VdB is the approximate dividing line between barely perceptible

and distinctly perceptible levels for many people. Therefore, the Federal Railway Administration recommends an 80 VdB threshold at residences and buildings where people normally sleep (e.g., nearby residences). No thresholds have been adopted or recommended for commercial uses.

b. Project Impacts and Mitigation Measures.

Impact N-1 Project construction would intermittently generate high noise levels on and adjacent to the site. Mitigation measures N-1(a-e) would be required to reduce temporary construction generated noise impacts. With implementation of mitigation measures N-1(a-f), impacts would be *significant but mitigable*.

Project development would require the use of heavy equipment for demolition, site grading and excavation, and building construction. Development activities would also involve the use of smaller power tools, generators, and other sources of noise. During each stage of development, there would be a different mix of equipment operating and noise levels would vary based on the amount of equipment in operation and the location of the activity. The USEPA has compiled data regarding the noise generating characteristics of specific types of construction equipment and typical construction activities. These data are presented in Table 4.8-5 for a reference distance of 50 feet. These noise levels would diminish with distance from the construction site at a rate of approximately 6 dB per doubling of distance. For example, a noise level of 84 dBA measured at 50 feet from the noise source to the receptor would drop off to 78 dBA at 100 feet from the source to the receptor.

Table 4.8-5
Typical Noise Levels at Construction Sites

Construction Phase	Average Noise Level at 50 Feet	
	Minimum Required Equipment On-Site	All Pertinent Equipment On-Site
Clearing	84 dBA	84 dBA
Excavation	78 dBA	88 dBA
Foundation/Conditioning	88 dBA	88 dBA
Laying Subbase, Paving	78 dBA	79 dBA
Finishing and Cleanup	84 dBA	84 dBA

Source: Bolt, Beranek and Newman, "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," prepared for the U.S. Environmental Protection Agency, 1971.

As shown in Table 4.8-5, the grading/excavation phase of project construction would create the highest construction noise levels. This is because of the operation of heavy equipment, although it should be noted that only a limited amount of equipment can operate near a given location at a particular time. Based on the information presented in Table 4.8-5, construction

noise levels could periodically reach approximately 79 to 88 dBA at a distance of 50 feet from the project site. Table 4.8-6 shows the anticipated maximum construction noise levels at the three sensitive receptors located in the project site vicinity.

Table 4.8-6
Anticipated Maximum Construction Noise Levels at Sensitive Receptor Locations

Sensitive Receptor	Distance from Project Site	Anticipated Noise Level
Multi-family residential Uses	Approximately 75 feet south	84.5 dBA
Veterans' Affairs Hospital	Approximately 150 feet northwest	78.5 dBA
Nishi Hongwanji Buddhist Temple	Approximately 300 feet east	72.4 dBA

As shown in Table 4.8-6, the anticipated maximum noise at the multi-family residential uses located 75 feet south of the project site would be approximately 85 dBA. The anticipated maximum noise at the Veterans' Affairs Hospital located 150 feet northwest of the project site would be approximately 79 dBA and the anticipated maximum noise at the Nishi Hongwanji Buddhist Temple located 300 feet east of the site would be approximately 72 dBA.

During construction, three basic types of activities would be expected to occur and generate noise. First, the existing surface parking lot and office building would be cleared and demolished. Second, the site would be prepared, excavated, and graded to accommodate the subterranean parking structure and building foundations. Third, onsite structures would be constructed.

As discussed in *Setting*, in accordance with Section 41.40 of the Los Angeles Municipal Code, exterior demolition and construction activities that generate noise would be prohibited between the hours of 9:00 PM and 7:00 AM Monday through Friday, and before 8:00 AM and after 6:00 PM on Saturday. Demolition and construction would not occur on Sundays and all federal holidays. Therefore, exterior demolition and construction activities would not occur during recognized sleep hours for nearby residences.

As shown in Table 4.8-4, existing ambient noise levels in the project site vicinity range from 60-68 dBA Leq. As shown in Table 4.8-6, construction generated noise ranges from about 72 to 85 dBA at the sensitive receptor locations closest to the project site. As discussed above, according to the *City of Los Angeles CEQA Thresholds Guide*, a significant impact would occur if construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dB or more at noise sensitive uses. It is expected that construction noise would exceed existing ambient exterior noise levels by more than 10 dB for more than one day during construction, which would exceed this threshold. This is a potentially significant impact. It should be noted, however, that these noise disturbances would be temporary in nature and the peak noise levels would likely occur during the demolition, site clearing and grading phases.

Mitigation Measures. The following standard mitigation measures would be required to reduce construction-generated noise.

N-1(a) **Construction Sign Posting.** The project applicant shall be required to post a sign informing all workers and subcontractors of the time restrictions for construction activities and hours when construction activities are permitted. The sign shall also include the City telephone numbers where violations can be reported and complaints associated with construction noise can be submitted.

N-1(b) **Alternative Piles Types.** If pile driving activities are required for construction, alternative pile types that are quieter to install, such as Nicholson Pin Piles, Tubex grout units, or GeoJet foundation units, shall be utilized where feasible in place of traditional driven piles to reduce noise and vibration generation.

N-1(c) **Staging Area.** The construction contractor shall provide staging areas onsite to minimize off-site transportation of heavy construction equipment. These areas shall be located to maximize the distance between activity and sensitive receptors. This would reduce noise levels associated with most types of idling construction equipment.

N-1(d) **Diesel Equipment Mufflers**. All diesel equipment shall be operated with closed engine doors and shall be equipped with factory-recommended mufflers.

N-1(e) **Electrically-Powered Tools and Facilities.** Electrical power shall be used to run air compressors and similar power tools and to power any temporary structures, such as construction trailers or caretaker facilities.

N-1(f) **Additional Noise Attenuation Techniques.** For all noise-generating construction activity on the project site, additional noise attenuation techniques shall be employed to reduce noise levels. Such techniques shall include, but are not limited to, the use of mufflers on noise generating construction equipment, the use of sound blankets on noise generating equipment and the construction of temporary sound barriers between construction sites and nearby sensitive receptors.

Significance After Mitigation. Implementation of mitigation measures N-1(a-e) would reduce construction-generated noise to a less than significant level.

Impact N-2 Project construction activities could generate intermittent levels of groundborne vibration exceeding the 80 VdB threshold for residences and buildings on and adjacent to the project site. Because these impacts are temporary in nature, impacts would be *less than significant.*

Construction activities that would occur at the project site have the potential to generate low levels of groundborne vibration. Table 4.8-7 identifies various vibration velocity levels for the types of construction equipment that would operate at the project site during construction.

Based on the information presented in Table 4.8-7, vibration levels could reach approximately 77 VdB at the existing residences located 75 feet south of the project site. This would be less than the groundborne velocity threshold level of 80 vibration decibels (VdB) established by the Federal Railway Administration for noise-sensitive buildings, residences, and institutional land uses where people normally sleep. In addition, construction activities and their associated vibration levels would be limited to daytime hours between 7:00 AM to 9:00 PM Monday through Friday and 8:00 AM to 6:00 PM on Saturday in accordance with Section 41.40 of the Los Angeles Municipal Code. Therefore, they would not occur during recognized sleep hours for residences. As such, impacts to the residential uses 75 feet south of the project site would be less than significant.

Table 4.8-7
Vibration Source Levels for Construction Equipment

Equipment	Approximate VdB				
	25 Feet	50 Feet	60 Feet	75 Feet	100 Feet
Large Bulldozer	87	81	79	77	75
Loaded Trucks	86	80	78	76	74
Jackhammer	79	73	71	69	67
Small Bulldozer	58	52	50	48	46

Source: Federal Railroad Administration, 1998

Construction activities would also have the potential to generate groundborne vibration at the Veterans' Affairs Hospital located approximately 150 feet northwest of the project site and at the Nishi Hongwanji Buddhist Temple located approximately 300 feet east of the project site. The Veterans' Affairs Hospital and the Nishi Hongwanji Buddhist Temple could contain equipment that may be sensitive to vibration. Accordingly, these uses are considered sensitive receptors due to the presence of sensitive equipment, which could be affected during the demolition and excavation phases of the onsite development. As discussed above, the Federal Railway Administration recommends an 80 VdB threshold at residences and buildings where people normally sleep. As shown in Table 4.8-7, vibration velocity levels 50 feet from the project site would be approximately 80 VdB. Because the Veterans' Affairs Hospital and the Nishi Hongwanji Buddhist Temple are more than 50 feet from the project site, impacts would be below the 80 VdB threshold and impacts would be less than significant. Nonetheless, standard City mitigation measures are required.

Mitigation Measures. Impacts would be less than significant without mitigation. Standard mitigation measures N-1(b) and N-1(d) listed under impact N-1 would further reduce impacts.

Impact N-3 Project-generated traffic would incrementally increase noise levels on area roadways. However, project-generated noise level increases would not exceed the 3 dB threshold. Therefore, impacts would be *less than significant*.

Receptors in the vicinity of the project site would experience changes in noise levels as a result of an increase in the onsite population and the resulting increase in motor vehicle trips. The changes in future noise levels associated with traffic generated by onsite development at locations along the roadway segments in the project vicinity are identified in Table 4.8-8. Estimated peak hour traffic values from the traffic study (Appendix G) were used to model the change in noise levels resulting from increased traffic on Alameda Street, Temple Street, and First Street. Sensitive receptor locations used for modeling, including the residences on the south side of First Street, the Nishi Hongwanji Buddhist Temple located on the northwest corner of First Street and Vignes Street and the Veterans' Affairs Hospital located on the northwest corner of Alameda Street and Temple Street, are shown on Figure 4.8-1.

Table 4.8-8
Project Contribution to Roadway Noise Levels

Receptor Location	Noise Level (dBA CNEL)			Noise Level Increase (dB)	
	Existing	Existing Plus Cumulative Development	Existing Plus Cumulative Plus Project	Increase due to Project	Increase due to Cumulative Development Plus Project
Alameda Street Between Aliso Street and Temple Street	69.6	70.1	70.5	0.4	0.9
Temple Street Between Los Angeles Street and Alameda Street	66.9	67.3	67.6	0.3	0.7
Alameda Street Between Temple Street and First Street	68.8	69.3	69.3	0.0	0.5
First Street Between Alameda Street and Vignes Street	64.7	68.7	69.0	0.3	4.3
Alameda Street Between First Street and Second Street	68.2	68.7	68.9	0.2	0.7

Source: See Appendix F for Federal Highway Administration's Traffic Noise Model 2.5 noise modeling data sheets

As shown in Table 4.8-8, the increase in noise due to traffic generated by onsite development would be less than 1 dB along all road segments. The greatest increase in noise that would

result from traffic generated specifically attributable to onsite development would be the 0.4 dB increase along Alameda Street, between Aliso Street and Temple Street.

As discussed in *Regulatory Framework* in the *Setting,* based upon the criteria established in the *City of Los Angeles CEQA Thresholds Guide*, project operations would normally have a significant impact on noise levels if a project would increase the ambient CNEL by 3 dB at the property line of homes where the resulting noise level would be at least 70 dBA CNEL or at the property line of commercial buildings where the resulting noise level is at least 75 dBA CNEL. In addition, any long-term increase of 5 dB or more is considered to cause a significant impact.

Noise level increases resulting from traffic generated by onsite development would not exceed the 3 dB threshold of significance established by the *City of Los Angeles CEQA Thresholds Guide*. Noise levels along First Street where residences and the Nishi Hongwanji Buddhist Temple are located would be below 70 dBA CNEL and noise levels at commercial properties along Alameda Street and Temple Street would be below 75 CNEL. Therefore, impacts associated with noise due to traffic generated by onsite development would be less than significant.

Mitigation Measures. Mitigation is not required as significant impacts related to increased traffic noise have not been identified.

Impact N-4 **Onsite noise sources may include rooftop ventilation and heating systems, deliveries, trash hauling, parking lot activity and general retail activities. Noise from these sources may periodically be audible to existing uses near the project site. However, with implementation of mitigation measures N-4(a-b), impacts would be *significant but mitigable*.**

Onsite development would include an estimated 743,750 sf of non-residential space, including 200,000 sf of retail space, 500,000 sf of office space, 25,000 sf of community space, and 18,750 sf commercial space within live/work units. The residential component of onsite development would encompass an estimated 456,250 sf (528 units). As such, existing uses near the project site may periodically be subject to noise associated with operation of onsite uses, including noise generated by light machinery, conversations, doors slamming and delivery and trash hauling trucks.

Onsite development would include parking in subterranean levels. Subterranean parking structures would not generate noise levels that would affect sensitive receptors. Onsite development may also include surface parking. Sources of surface parking lot noise would include tires squealing, engines accelerating, doors slamming, car alarms, and people talking. Noise levels associated with parking lot noise are shown in Table 4.8-9. It is anticipated that site access would be provided via a driveway on East Temple Street and a driveway on the proposed Hewitt Street extension. A driveway is not anticipated on 1st Street, which is adjacent to the closest residents to the project site. Therefore, parking lot noise would be lower on 1st Street than on Temple Street and on the Hewitt Street extension.

It is anticipated that retail and commercial service areas would front on commercial streets, including 1st Street and Alameda Street. Therefore, surface parking lot noise would be lower than noise levels shown in Table 4.8-9 due to the retail and commercial service areas that would

create a barrier between surface parking lots and sensitive receptors in the multi-family residential development 75 feet south of the project site.

Table 4.8-9
Parking Lot Noise Sources at 100 Feet

Source	Level (dBA)
Autos at 14 mph	44
Sweepers	66
Car Alarm Signal	63
Car Alarm Chirp	48
Car Horns	63
Door Slams or Radios	58
Talking	30
Tire Squeals	60

Source: Gordon Bricken & Associates, 1996. Estimates are based on actual noise measurements taken at various parking lots.

Moreover, given that the existing use of the site is a surface parking lot, placing parking in subterranean levels may represent a reduction in parking lot noise compared to current conditions. Therefore, it is anticipated that the activities within the subterranean parking structure would not increase ambient noise levels at the nearby homes.

Onsite development would generate noise associated with delivery trucks and trash hauling. Noise associated with delivery trucks and trash hauling would be audible any time of day and could be disruptive if it were to occur at night or in the early morning hours when people are most sensitive to noise. Therefore, impacts related to noise generated by delivery trucks and trash hauling would be potentially significant.

Onsite development could also include rooftop ventilation and heating systems. These systems could create noise that is audible at neighboring land uses. The orientation of such rooftop systems is unknown at this time but if they are directed toward neighboring sensitive uses they could create noise levels that exceed thresholds identified in Table 4.8-3 above.

As discussed above, onsite activities would be required to comply with Sections 112.01 and 112.06 of the Los Angeles Municipal Code. These sections provide regulation related to amplified music and places of public entertainment. Due to the anticipated noise levels from rooftop ventilation systems and truck deliveries and trash pick-up, impacts would be potentially significant.

Mitigation Measures. The following measures would be required to reduce the potential for adverse noise effects from rooftop ventilation systems and truck deliveries and trash pick-up.

N-4(a) Rooftop Ventilation. Parapets shall be installed around all rooftop ventilation systems.

N-4(b) Truck Deliveries and Trash Pick-Up. All commercial truck deliveries and trash pickups shall be restricted to daytime operating hours (7:00AM to 10:00 PM Monday through Friday, and 8:00 AM to 10:00 PM on weekends).

Significance After Mitigation. Impacts related to rooftop ventilation and truck deliveries and trash pick-up would be less than significant after implementation of mitigation measures N-4(a) and N-4(b).

Impact N-5 Project site residents would potentially be exposed to noise from traffic level on adjacent roads and the adjacent Little Tokyo/Arts District Metro Gold Line station. However, with implementation of mitigation measures N-5(a-c), impacts would be *significant but mitigable*.

Ambient noise at the project site includes vehicular noise from Alameda, 1st Street, and Temple Street. Current ambient noise on the project site ranges from about 60 to 68 dBA $L_{eq,}$ as shown in Table 4.8-4. Ambient noise levels are projected to increase in the future due to increased traffic and rail activity on the adjacent Little Tokyo/Arts District Metro Gold Line station, which immediately abuts the site's western boundary. Based on the City's Land Use Noise Compatibility Guidelines, noise levels above 70 dBA CNEL are "clearly unacceptable" for multi-family residential land uses and future ambient noise could exceed this level.

The Little Tokyo/Arts District Metro Gold Line station adjacent to the project site is anticipated to generate noise levels of about 72 dBA CNEL 25 feet from the rail, which would be the distance from the rail tracks to the western edge of the project site (see Appendix F for railroad noise calculations). This noise level would attenuate to approximately 65 dBA CNEL 58 feet from the rail line and to approximately 60 dBA CNEL at 104 feet from the rail line. Because noise levels at the most affected portion of the site would be above 70 dBA CNEL, which is "clearly unacceptable" for residential land uses, impacts would be potentially significant.

As discussed in *Regulatory Framework* of the *Setting*, Title 24 states that interior noise levels attributable to exterior sources shall not exceed 45 dBA CNEL in any habitable room of new multi-family dwellings. Exterior-to-interior reduction of newer residential units with closed windows is generally 25 dB. The Little Tokyo/Arts District Metro Gold Line station would generate noise levels of 72.4 dBA CNEL 25 feet from the rail. Therefore, a 25 dB decrease would reduce the noise level 25 feet from the rail to 47.4 dBA CNEL. Such a noise reduction would not bring interior noise levels associated with roadway traffic and the Little Tokyo/Arts District Metro Gold Line station below 45.0 dBA. As such, operational noise impacts associated with locations for interior spaces would be considered potentially significant.

Mitigation Measures. The following project specific mitigation measures would be required to reduce noise for onsite development.

N-5(a) Building Material Guidelines. All exterior windows associated with the proposed residential uses on the project site shall be constructed

with double-pane glass and use exterior wall construction which provides a Sound Transmission Class of 50 or greater as defined in UBC No. 35-1, 1979 edition or any amendment thereto. The applicant, as an alternative, may retain an acoustical engineer to submit evidence, along with the application for a building permit, any alternative means of sound insulation sufficient to mitigate interior noise levels below a CNEL of 45 dBA in any habitable room. This would require at a minimum the use of double-paned windows on all windows that are exposed to railroad and automobile noise. Such windows should have a minimum laboratory standard transmission class (STC) of 37. The glass shall be sealed into the frame in an airtight manner with a non-hardening sealant or a soft elastomer gasket, or gasket tape. The window frames shall be correctly installed into the wall and insulated to avoid any air gaps. The total area of glazing facing the railroad tracks or roadways in rooms used for sleeping on the upper floors shall not exceed 20 percent of the wall area. Solid-core doors shall be used for those doorways facing the railroad tracks and walls should be insulated in conformance with California Title 24 requirements. The exterior wall facing material shall be a surface with an STC rating of at least 45.

N-5(b) **Building Design.** The living areas shall contain forced air ventilation. All duct work for ventilation shall include noise louvers at the exterior outlet and/or duct outlets shall be directed either opposite to or perpendicular to the railroad tracks and roadways, including Alameda, Temple Street, and 1st Street. Upper level residential patio/deck areas shall be not be positioned facing the railroad tracks or roadways.

N-5(c) **Mechanical Equipment.** All new mechanical equipment associated with onsite development shall comply with Section 112.02 of the City of Los Angeles Municipal Code, which prohibits noise from air conditioning, refrigeration, heating, pumping, and filtering equipment from exceeding the ambient noise level on the premises of other occupied properties by more than five decibels.

Significance After Mitigation. Impacts would be less than significant with implementation of mitigation measures N-5(a-c).

c. Cumulative Impacts. This cumulative impact analysis considers development of onsite development in combination with ambient growth and other development projects within the vicinity of onsite development. As noise is a localized phenomenon, and drastically reduces in magnitude as distance from the source increases, only projects and ambient growth in the nearby area could combine with onsite development to result in cumulative noise impacts.

In general, onsite development combined with other pending projects in site vicinity (see Table 3-1 in Section 3.0, *Environmental Setting*) would contribute toward creating a more intensely developed urban environment by adding more than 17,000 new residences as well as more than

five million square feet of non-residential development. Among the planned and pending projects are two mixed use developments in the general vicinity of the project site: a project at 905East 2nd Street with 320 residences plus retail development and a project at 300 South Santa Fe Avenue with 459 residences plus restaurant and retail uses.

Onsite development in combination with projects in the vicinity of the project site would result in an increase in construction-related and traffic-related noise in this already urbanized area of the City. However, each of the related projects would be subject to LAMC Section 41.40, which limits the hours of allowable construction activities. Noise levels are only allowed to exceed this noise limitation under conditions where compliance is technically infeasible. With conformance with LAMC Sections 41.40 and 112.05, the cumulative construction noise impact would be less than significant.

Future construction associated with the related projects could result in a cumulatively significant impact with respect to temporary or periodic increases in ambient noise levels. Construction noise is localized in nature and decreases substantially with distance. Consequently, in order to achieve a substantial cumulative increase in construction noise levels, more than one source emitting high levels of construction noise would need to be in close proximity to onsite development. The nearest related projects to the project site are a project at 905 East 2nd Street with 320 residences plus retail development and a project at 300 South Santa Fe Avenue with 459 residences plus restaurant and retail uses, located approximately 0.3 miles and 0.5 miles from the project site, respectively.

Due to the proximity of these related projects to the project site, noise from the development of cumulative projects at the same time would not result in a substantial cumulative impact due to attenuation of noise by 6 dBA for every doubling of distance. As discussed previously, construction activities associated with onsite development and proposed projects in the project site vicinity would only occur during the permitted hours designated in Section 41.40 of the LAMC and, thus, would not occur during recognized sleep hours for residences or on days that residents are most sensitive to exterior noise. Impacts related to construction noise are temporary in nature and would not result in noise that would exceed the noise levels anticipated by onsite development due to attenuation. Therefore, the cumulative impact of onsite development would be less than significant.

Cumulative development in the City may result in the exposure of people to or the generation of excessive groundborne vibration. Due to the proximity of the two pending projects in close proximity to the project site, construction-related activities at these two locations along with construction at the project site could expose nearby sensitive receptors to excessive groundborne vibration levels if construction occurs at the same time. It is not known at this time whether or not construction activities for the two proposed projects would occur at the same time as that of onsite development. However, for the purpose of conducting a conservative analysis, this potential scenario where construction activities would overlap at these two sites is assumed. Thus, this could be a potentially significant and unavoidable cumulative impact. However, implementation of mitigation measures would serve to reduce the vibration levels associated with construction at the project site to a less than significant level. Therefore, the contribution of onsite development to this cumulative impact would be less than significant.

As discussed under Impact N-3, noise level increases resulting from traffic generated by onsite development would not exceed the 3 dBA threshold of significance established by the *City of Los Angeles CEQA Thresholds Guide*. Cumulative mobile source noise impacts would occur primarily as a result of increased traffic on local roadways due to onsite development and related projects within the study area. Therefore, cumulative traffic-generated noise impacts are assessed based on the contribution of onsite development to the future year cumulative base traffic volumes on the roadway segments in the project vicinity. As shown in Table 4.8-8, the highest increase in noise levels that would result from cumulative development along with onsite development would be the 4.3 dBA CNEL increase on the roadway segment of First Street between Alameda Street and Vignes Street. This increase in noise would be below the 5.0 dBA CNEL threshold set forth in the *City of Los Angeles CEQA Thresholds Guide.* Furthermore, the noise levels at nearby residences and commercial properties would be below 70 dBA CNEL and 75 dBA CNEL, respectively. Therefore, cumulative impacts associated with mobile noise due to cumulative development would be less than significant.

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