III.I. NOISE AND VIBRATION

The following analysis of noise impacts is based on the MGA Campus Project Air Quality, Greenhouse Gas and Noise Impact Report prepared by Terry A. Hayes Associates Inc. (TAHA), dated July 2014. This report is included in its entirety as **Appendix C** of this Draft EIR.

This section evaluates noise and vibration impacts associated with the implementation of the proposed project. The noise and vibration analysis in this section assesses the following: existing noise and vibration conditions at the project site and its vicinity, as well as short-term construction and long-term operational noise and vibration impacts associated with the proposed project. Mitigation measures for potentially significant impacts are recommended, where appropriate.

EXISTING CONDITIONS

NOISE AND VIBRATION CHARACTERISTICS AND EFFECTS

Noise

Characteristics of Sound

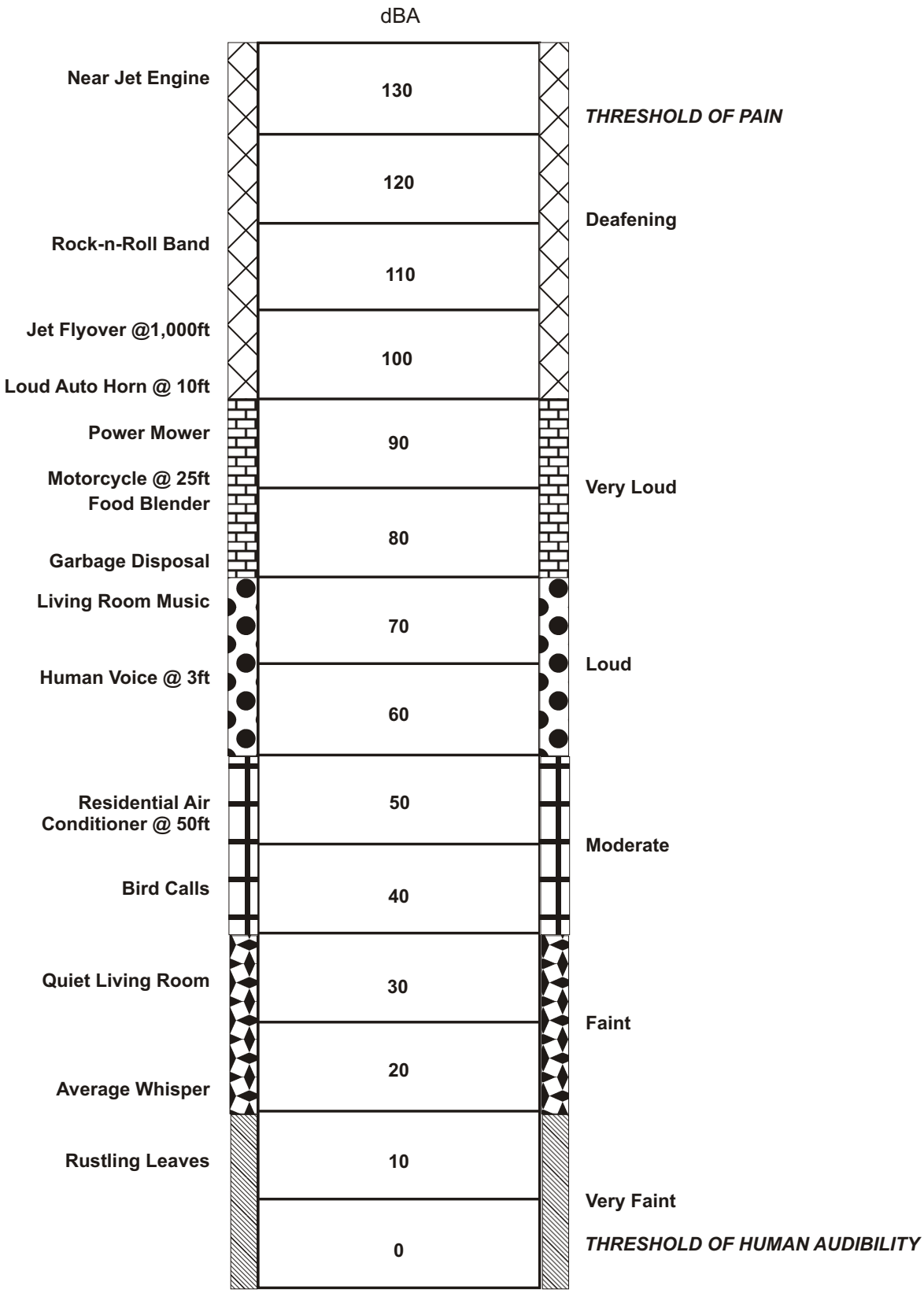
Sound is technically described in terms of the loudness (amplitude) and frequency (pitch). The standard unit of measurement for sound is the decibel (dB). The human ear is not equally sensitive to sound at all frequencies. The "A-weighted scale," abbreviated dBA, reflects the normal hearing sensitivity range of the human ear. On this scale, the range of human hearing extends from approximately 3 to 140 dBA. **Figure III.G-1** provides examples of A-weighted noise levels from common sounds.

Noise Definitions

This noise analysis discusses sound levels in terms of Community Noise Equivalent Level (CNEL) and Equivalent Noise Level (L_{eq}).

Community Noise Equivalent Level

CNEL is an average sound level during a 24-hour period. CNEL is a noise measurement scale, which accounts for noise source, distance, single event duration, single event occurrence, frequency, and time of day. Human reaction to sound between 7:00 PM and 10:00 PM is as if the sound were actually 5 dBA higher than if it occurred from 7:00 AM to 7:00 PM. From 10:00 PM to 7:00 AM, humans perceive sound as if it were 10 dBA higher due to the lower background level. Hence, the CNEL is obtained by adding an additional 5 dBA to sound levels in the evening from 7:00 PM to 10:00 PM and 10 dBA to sound levels in the night from 10:00 PM to 7:00 AM. Because CNEL accounts for human sensitivity to sound, the CNEL 24-hour figure is always a higher number than the actual 24-hour average.



SOURCE: James P. Cowan, Handbook of Environmental Acoustics

Figure III.I-1

A-weighted Decibel Scale

Equivalent Noise Level

L_{eq} is the average noise level on an energy basis for any specific time period. The L_{eq} for one hour is the energy average noise level during the hour. The average noise level is based on the energy content (acoustic energy) of the sound. L_{eq} can be thought of as the level of a continuous noise that has the same energy content as the fluctuating noise level. The equivalent noise level is expressed in units of dBA.

Sound Exposure Level (SEL)

The most common measure of cumulative noise exposure for single-event noise is the Sound Exposure Level (SEL). SEL is the sum of the sound energy over the duration of a noise event. It can be considered as an equivalent noise event with a one-second duration. Because the SEL is normalized to one second, it is almost always larger in magnitude than the maximum noise level for the event. Also, the fact that it is a cumulative measure means that a higher SEL can result from either a louder or longer event, or some combination.

Effects of Noise

Noise is generally defined as unwanted sound. The degree to which noise can impact the human environment ranges from levels that interfere with speech and sleep (annoyance and nuisance) to levels that cause adverse health effects (hearing loss and psychological effects). Human response to noise is subjective and can vary greatly from person to person. Factors that influence individual response include the intensity, frequency, and pattern of noise, the amount of background noise present before the intruding noise, and the nature of work or human activity that is exposed to the noise source.

Audible Noise Changes

Studies have shown that the smallest perceptible change in sound level for a person with normal hearing sensitivity is approximately 3 dBA. A change of at least 5 dBA would be noticeable and would likely evoke a community reaction. A 10-dBA increase is subjectively heard as a doubling in loudness and would cause a community response.

Noise levels decrease as the distance from the noise source to the receiver increases. Noise generated by a stationary noise source, or "point source," will decrease by approximately 6 dBA over hard surfaces (e.g., reflective surfaces such as parking lots or smooth bodies of water) and 7.5 dBA over soft surfaces (e.g., absorptive surfaces such as soft dirt, grass, or scattered bushes and trees) for each doubling of the distance. For example, if a noise source produces a noise level of 89 dBA at a reference distance of 50 feet, then the noise level would be 83 dBA at a distance of 100 feet from the noise source, 77 dBA at a distance of 200 feet, and so on. Noise generated by a mobile source will decrease by approximately 3 dBA over hard surfaces and 4.8 dBA over soft surfaces for each doubling of the distance.

Generally, noise is most audible where there is a direct line-of-sight.[1] Barriers, such as walls, berms, or buildings, that break the line-of-sight between the source and the receiver greatly reduce noise levels from the source since sound can only reach the receiver by bending over the top of the barrier. Sound barriers can reduce sound levels by up to 20 dBA. However, if a

[1] Line-of-sight is an unobstructed visual path between the noise source and the noise receptor.

barrier is not high or long enough to break the line-of-sight from the source to the receiver, its effectiveness is greatly reduced.

Vibration

Characteristics of Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration can be a serious concern, causing buildings to shake and rumbling sounds to be heard. In contrast to noise, vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of vibration are trains, buses on rough roads, and construction activities such as blasting, pile driving, and heavy earth-moving equipment.

Vibration Definitions

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings and is usually measured in inches per second. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (Vdb) is commonly used to measure RMS. The decibel notation acts to compress the range of numbers required to describe vibration.[2]

Effects of Vibration

High levels of vibration may cause physical personal injury or damage to buildings. However, groundborne vibration levels rarely affect human health. Instead, most people consider groundborne vibration to be an annoyance that can affect concentration or disturb sleep. In addition, high levels of groundborne vibration can damage fragile buildings or interfere with equipment that is highly sensitive to groundborne vibration (e.g., electron microscopes). To counter the effects of groundborne vibration, the Federal Transit Administration (FTA) has published guidance relative to vibration impacts.

Perceptible Vibration Changes

In contrast to noise, ground-borne vibration is not a phenomenon that most people experience every day. The background vibration velocity level in residential areas is usually 50 Vdb RMS or lower, well below the threshold of perception for humans, which is around 65 Vdb RMS.[3] Most perceptible indoor vibration is caused by sources within buildings such as operation of mechanical equipment, movement of people, or slamming of doors. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If the roadway is smooth, the vibration from traffic is rarely perceptible.

[2] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, May 2006.
[3] IBID.

REGULATORY FRAMEWORK

Noise Element of the General Plan

The City of Los Angeles has developed a Noise Element of the General Plan to guide in the development of noise regulations.[4] It addresses noise mitigation regulations, strategies and programs and delineates federal, State, and City jurisdiction relative to rail, automotive, aircraft and nuisance noise. Programs included in the Noise Element that are relevant to the proposed project include:

- For a proposed development project that is deemed to have a potentially significant noise impact on noise sensitive uses, as defined by this chapter, require mitigation measures, as appropriate, in accordance with CEQA and City procedures.

- When issuing discretionary permits for a proposed noise-sensitive use (as defined by this chapter) or a subdivision of four or more detached single-family units and which use is determined to be potentially significantly impacted by existing or proposed noise sources, require mitigation measures, as appropriate, in accordance with procedures set forth in the CEQA so as to achieve an interior noise level of a CNEL of 45 dB, or less, in any habitable room, as required by Los Angeles Municipal Code Section 91.

- Use, as appropriate, the "Guidelines for Noise Compatible Land Use" (see **Table III.I-1**), or other measures that are acceptable to the city, to guide land use and zoning reclassification, subdivision, conditional use and use variance determinations and environmental assessment considerations, especially relative to sensitive uses, as defined by this chapter, within a CNEL of 65 dB airport noise exposure areas and within a line of sight of freeways, major highways, railroads or truck haul routes.

City of Los Angeles Municipal Code Noise Regulations

The City of Los Angeles has established policies and regulations concerning the generation and control of noise that could adversely affect its citizens and noise sensitive land uses. Los Angeles Municipal Code (LAMC) Section 41.40 (Noise Due to Construction, Excavation Work – When Prohibited) indicates that no construction or repair work shall be performed between the hours of 9:00 PM and 7:00 AM, since such activities would generate loud noises and disturb persons occupying sleeping quarters in any adjacent dwelling, hotel, apartment or other place of residence. No person, other than an individual home owner engaged in the repair or construction of his/her single-family dwelling, shall perform any construction or repair work of any kind or perform such work within 500 feet of land so occupied before 8:00 AM or after 6:00 PM on any Saturday or on a federal holiday, nor at any time on any Sunday. Under certain conditions, the City may grant a waiver to allow limited construction activities to occur outside of the limits described above.

[4] City of Los Angeles, Noise Element of the Los Angeles City General Plan, February 3, 1999.

TABLE III.I -1
NOISE/LAND USE COMPATIBILITY CHART

Land Use Category	Community Noise Exposure - L_{dn} or CNEL (dBA) 55 60 65 70 75 80
Residential - Low Density Single-Family, Duplex, Mobile Homes	
Residential - Multi-Family	
Transient Lodging - Motels Hotels	
Schools, Libraries, Churches, Hospitals, Nursing Homes	
Auditoriums, Concert Halls, Amphitheaters	
Sports Arena, Outdoor Spectator Sports	
Playgrounds, Neighborhood Parks	
Golf Courses, Riding Stables, Water Recreation, Cemeteries	
Office Buildings, Business Commercial and Professional	
Industrial, Manufacturing, Utilities, Agriculture	

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 system or air conditionally will normally suffice.

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.

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

SOURCE: California Department of Health Services.

LAMC Section 112.05 (Maximum Noise Level of Powered Equipment or Powered Hand Tools) also specifies the maximum noise level of powered equipment or powered hand tools. Any powered equipment or hand tool that produces a maximum noise level exceeding 75 dBA at a distance of 50 feet is prohibited. However, this noise limitation does not apply where compliance is technically infeasible. Technically infeasible means the above noise limitation cannot be met despite the use of mufflers, shields, sound barriers and/or any other noise reduction device or techniques during the operation of equipment.

City of Los Angeles Municipal Code Zoning Regulations

The City's Municipal Code (Article I, Chapter XI, Section III.00) contains a variety of provisions that directly or indirectly mitigate noise impacts on or impacts that are associated with, different types of land uses. Permit processing is guided by the General Plan, especially the community plans which together are the City's Land Use Element. The plans designate appropriate land use (zoning) classifications. The noise ordinance guides land use considerations by setting maximum ambient noise levels for specific zones.

Conditional use permits (LAMC Section 12.24) allow the City to assess potential use impacts and impose conditions to mitigate noise impacts. Conditional use permits are required in certain zones for various land uses including, but not limited to, schools, churches, alcohol sales, parks, mixed-use development, and automobile repair facilities. In most cases the uses are allowed-by-right in less restrictive zones. Some are prohibited entirely in residential zones. The permitting procedures include site investigations, notice to neighbors and hearings to assist decision makers in determining if the use should be permitted and, if permitted, allow imposition of appropriate conditions of approval. Typical conditions include specific site design, setbacks, use limitations on all or parts of the site, walls and hours of operation so as to minimize noise and other impacts.

Federal Interagency Committee on Aviation Noise

The Federal Interagency Committee on Aviation Noise (FICAN) has published a study that established a relationship between single event noise and awakenings.[5] Although the proposed project does not generate or expose people to aviation activity, the study is applicable to train noise events. The report uses SEL to assess the percent of the population that would be awakened by a single, loud event. For example, the ten percent awakening level is 81 dBA SEL.

Vibration

There are no adopted City or State standards for ground-borne vibration.

[5]Federal Interagency Committee on Aviation Noise, *Effects of Aviation Noise on Awakenings from Sleep*, June 1997.

EXISTING NOISE ENVIRONMENT

The existing noise environment of the project area is characterized by vehicular and train traffic, and noises typical to a moderately dense industrial area. Existing sources of noise include the Southern Pacific Railroad Right of Way and neighboring industrial and commercial activity. Sound measurements in the project area were taken using a SoundPro DL Sound Level Meter between 11:15 AM and 12:00 PM on February 4, 2014 to determine existing ambient daytime noise levels in the project vicinity. These readings were used to establish existing ambient noise conditions and to provide a baseline for evaluating noise impacts. As shown in **Table III.G-2**, existing ambient sound levels in the project area were monitored as 59.6 and 62.4 dBA L_{eq}. A 24-hour sound measurement was taken from 1:00 PM Tuesday, February 4, 2014 to 1:00 PM Wednesday, February 5, 2014. A monitor was placed at the southwest corner of the project site in order to accurately characterize rail noise. The recorded CNEL was 65.6 dBA. During the 24-hour monitoring, a maximum noise level of 99.9 dBA L_{eq} was observed at 10:00 AM. This maximum level was likely generated by a train passing by the site on the Southern Pacific Railroad Right of Way. Noise monitoring locations are shown in **Figure III.I-2**.

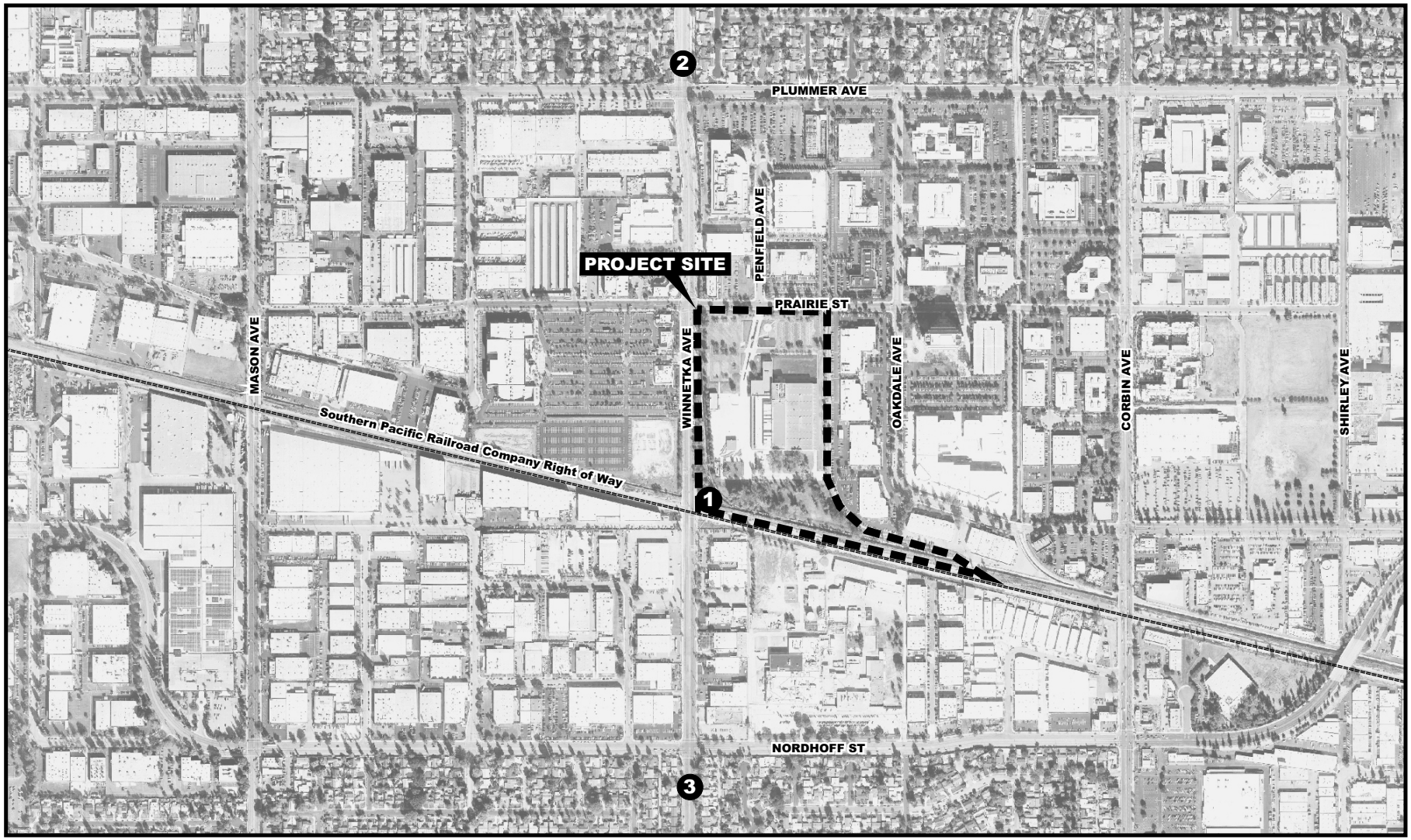
TABLE III.I-2
EXISTING NOISE LEVELS

Location	Noise Monitoring Location	Distance to Project Site (feet)	Sound Level (dBA, L_{eq})
1	Project Site (24-hour)	N/A	65.6
2	Residences along Plummer St	1,300	59.6
3	Residences along Nordhoff St.	1,500	62.4

SOURCE: TAHA, *MGA Campus Project, Air Quality, Greenhouse Gas and Noise Impact Report*, July, 2014

EXISTING VIBRATION ENVIRONMENT

Similar to noise, the vibration environment is dominated by traffic from nearby roadways and the railroad tracks immediately south of the project site. Heavy trucks can generate vibrations that vary depending on vehicle type, weight, and pavement conditions. As heavy trucks typically operate on major streets, existing vibration in the project vicinity is largely related to heavy truck traffic on the surrounding roadway network. Based on field observations, vibration levels from adjacent roadways and the rail line are not perceptible at the project site.



LEGEND:

Project Site

Noise Monitoring Locations

1. 24-hour Project Site Location
2. Residences along Plummer St
3. Residences along Nordhoff St

N

APPROX. SCALE

0 425 850 FEET

SOURCE: Google Earth and TAHA, 2014

Figure III.I-2

Noise Monitoring Locations

SENSITIVE RECEPTORS

Noise and vibration sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise and vibration sensitive and may warrant unique measures for protection from intruding noise. As shown in **Figure III.I-3**, sensitive receptors near the project site include the following:

- Pacific Movie Theater located approximately 1,000 feet to the west of Winnetka Avenue
- Single-family residences located 1,300 feet to the north of Plummer Street
- Single-family residences located approximately 1,500 feet to the south of Nordhoff Street
- The "Village" residential development located approximately 1,900 feet to the east at the corner of Corbin Avenue and Prairie Street

The above sensitive receptors represent the nearest (and thus worst-case) land uses with the potential to be impacted by the proposed project. Additional sensitive receptors are located further from the project site in the surrounding community and would be less impacted by noise than these sensitive receptors.

ENVIRONMENTAL IMPACT

THRESHOLD OF SIGNIFICANCE

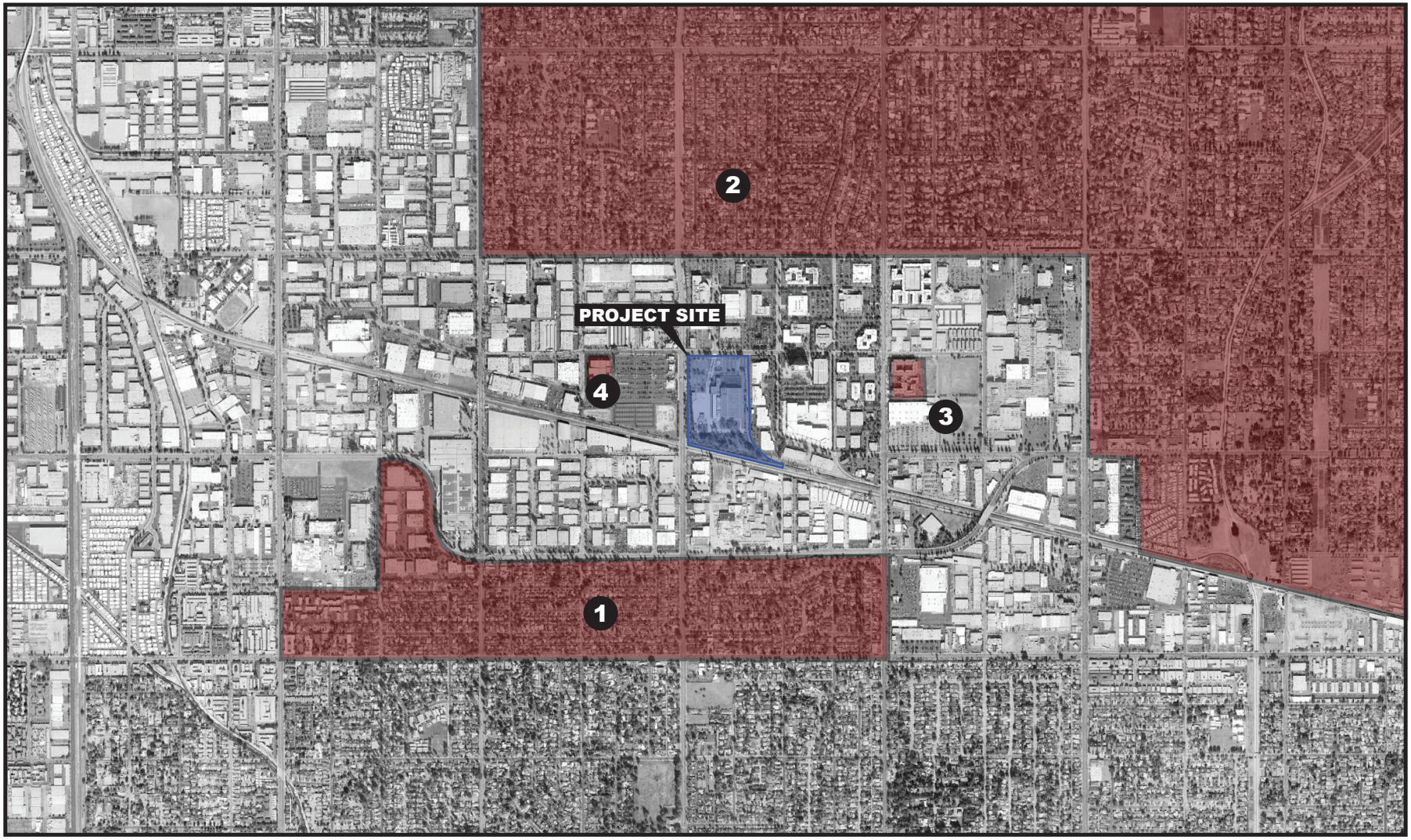
In accordance with Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact related to noise if it would:

- Expose persons or generate noise in levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Expose people to or generate excessive groundborne vibration or groundborne noise levels;
- Result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project; and/or
- Result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project.

The City of Los Angeles has established significance thresholds in its *CEQA Thresholds Guide*. The following specific significance thresholds are relevant to the Proposed Project.

Based on the City of Los Angeles Noise Ordinance (LAMC Chapter XI), the City of Los Angeles *LA CEQA Thresholds Guide* (2006) and the State Land Use Compatibility Matrix,[6] the proposed project would result in significant noise impacts if it would generate noise levels in excess of the following thresholds.

[6] California Office of Noise Control, Department of Health Services.



LEGEND:

Project Site

Sensitive Receptors

1. Single-Family Residences
2. Single-Family Residences
3. The "Village" Residential Development
4. Pacific Theatres Winnetka

N

Approx. Scale

0 425 850 Feet

SOURCE: Google Earth and TAHA, 2014

Figure III.I-3

Sensitive Receptor Locations

Construction Phase Significance Criteria

A significant construction impact would result if:

- Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise sensitive use;
- Construction activities lasting more than ten days in a three-month period would exceed existing ambient noise levels by 5 dBA or more at a noise sensitive use; or
- Construction activities would exceed the ambient noise level by 5 dBA 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 anytime on Sunday.

Operational Phase Significant Criteria

A significant operational impact would result if:

- The ambient noise level measured at the property line of the affected uses to increase by 3 dBA CNEL to or within the "normally unacceptable" or "clearly unacceptable" category (see **Table III.I-1**) or any 5 dBA or more increase in noise level; and/or
- Train activity would result in interior noise levels at new residences that exceed 81 dBA SEL.

Vibration Significance Criteria

There are no adopted State or City of Los Angeles vibration standards, but there are Federal guidelines for vibration damage criteria as shown in **Table III.I-3**. These criteria are based on the type of building construction. Single–family residential buildings typically are non-engineered timber and masonry buildings and can be exposed to 0.2 inches per second PPV without experiencing damage. In addition to the damage criteria, FTA has established impact criteria related to interference with the operation of theaters (a Pacific Theater complex is located approximately 1.000 feet west of the project boundary). The operational interference impact criteria for theaters, based on frequent events such as construction activity, is 72 VdB.[7]

[7] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, May 2006.

TABLE III.I-3 VIBRATION DAMAGE CRITERIA	
Building Category	**PPV (Inches/Second)**
I. Reinforced-concrete, steel, or timber (no plaster)	0.50
II. Engineered concrete and masonry (no plaster)	0.30
III. Non-engineered timber and masonry buildings	0.20
IV. Buildings extremely susceptible to vibration damage	0.12
Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, May 2006.	

A significant construction or operational vibration impact if:

- Vibration levels would exceed the building damage standards listed in **Table III.I-3**; and/or

- Vibration would exceed 72 VdB at the Pacific Theater complex.

CONSTRUCTION PHASE IMPACTS

Noise

Construction of the proposed project would result in temporary increases in ambient noise levels in the project area on an intermittent basis. The increase in noise may result in an annoyance to nearby residents during the approximate 24-month construction schedule. Noise levels would fluctuate depending on construction phase, equipment type and duration of use, distance between the noise source and receptor, and presence or absence of noise attenuation barriers.

Construction activities require the use of numerous noise-generating equipment, such as jack-hammers, pneumatic impact equipment, saws, and tractors. Typical noise levels from various types of equipment that may be used during construction are listed in **Table III.I-4**. The table shows noise levels at distances of 50 and 100 feet from the construction noise source.

TABLE III.I-4 MAXIMUM NOISE LEVELS OF COMMON CONSTRUCTION MACHINES		
Noise Source	**Noise Level (dBA)**[1]	
	50 Feet	**100 Feet**
Jackhammer	90	84
Crane	88	82
Street Paver	87	81
Backhoe	84	78
Street Compressor	81	75
Front-end Loader	80	74
Grader	87	81
Idling Haul Truck	89	83
Cement Mixer	82	76
Impact Pile Driving	101	95
Auger Drilling	77	71

[1] Assumes a 6-dBA drop-off rate for noise generated by a "point source" and traveling over hard surfaces. Actual measured noise levels of the equipment listed in this table were taken at distances of 10 and 30 feet from the noise source.

Whereas **Table III.I-4** shows the noise level of each equipment, the noise levels shown in **Table III.I-5** take into account the likelihood that more than one piece of construction equipment would be in operation at the same time and lists the typical overall noise levels that would be expected for each phase of construction.

The highest noise levels are expected to occur during the grading/excavation and finishing phases of construction. A typical piece of noisy equipment is assumed to be active for 40 percent of the eight-hour workday (consistent with USEPA studies of construction noise), generating a noise level of 89 dBA L_{eq} at a reference distance of 50 feet.

TABLE III.I-5 TYPICAL OUTDOOR CONSTRUCTION NOISE LEVELS	
Construction Phase	**Noise Level At 50 Feet (dBA)**
Ground Clearing	84
Grading/Excavation	89
Foundations	78
Structural	85
Finishing	89
SOURCE: TAHA, *MGA Campus Project Air Quality, Greenhouse Gas and Noise Impact Report*, July, 2014.	

The noise level during the construction period at each receptor location was calculated by (1) making a distance adjustment to the construction source sound level and (2) logarithmically adding the adjusted construction noise source level to the ambient noise level. The estimated construction noise levels at sensitive receptors are shown in **Table III.I-6**.

TABLE III.I -6
CONSTRUCTION NOISE LEVELS

Receptor	Distance (feet)[1]	Maximum Construction Noise Level (dBA)[2]	Existing Ambient (dBA, L_{eq})[3]	Add New Ambient (dBA, L_{eq})[4]	Increase[5]
Proposed Project					
Pacific Theaters - 9201 Winnetka Avenue	1,000	53.0	59.6	60.5	0.9
Single-Family Residences along Plummer Street	1,300	50.7	59.6	60.1	0.5
Single-Family Residences along Nordoff Street	1,500	49.5	62.4	62.6	0.2
The "Village" Mixed-Use Development	1,900	47.4	59.6	59.9	0.3

[1] Distance of noise source from receptor.
[2] Construction noise source's sound level at receptor location with distance and structure adjustment.
[3] Pre-construction activity ambient sound level at receptor location.
[4] New sound level at receptor location during the construction period, including noise from construction activity.
[5] An incremental noise level increase of 5 dBA or more would result in a significant impact.
SOURCE: TAHA, *MGA Campus Project, Air Quality, Greenhouse Gas and Noise Impact Report*, July, 2014.

Noise levels related to construction activity would not exceed the 5 dBA significance threshold at sensitive receptors. The proposed project would not result in a significant impact.

Vibration

As shown in **Table III.I-7**, use of heavy equipment (e.g., a bulldozer) generates vibration levels of 0.089 inches per second PPV at a distance of 25 feet. The closest building that could experience damage from heavy equipment activity is a commercial building located approximately 65 feet to the east of the project site. This building could experience vibration level of 0.03 inches per second PPV. Vibration levels would not exceed the potential building damage threshold of 0.3 inches per second PPV. The Pacific Theater complex is particularly sensitive to increased vibration due to sensitive film equipment. At a location approximately 1,000 feet west of the project site, the theater could experience a vibration levels up to 39 VdB during construction activity. This level would be well below the operational interference impact criteria for theaters of 72 VdB. Therefore, the proposed project would result in a less-than-significant related to construction vibration.

TABLE III.I -7 VIBRATION VELOCITIES FOR CONSTRUCTION EQUIPMENT		
Equipment	**PPV at 25 feet (Inches /Second)[1]**	**Lv at 25 feet (VdB)**
Large Bulldozer	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58
SOURCE: Federal Transit Authority, *Transit Noise and Vibration Impact Assessment*, May 2006.		

OPERATIONAL PHASE IMPACTS

Noise

Vehicular Noise

The predominant noise source for the proposed project is vehicular traffic. According to the traffic report prepared by Overland Traffic Consultants, Inc. in **Appendix C**, the proposed project would generate a net 8,157 daily vehicle trips[8]

Table III.I-8 shows peak hour mobile source noise levels along the analyzed roadway segments for existing and existing plus project conditions. The greatest project-related noise increase would be 1.9 dBA L_{eq} along Prairie Street between Winnetka Avenue and Corbin Avenue. This would not exceed the most conservative roadway noise threshold of 3-dBA. Therefore, the proposed project would result in a less-than-significant related to existing plus project mobile noise levels.

TABLE III.I-8 OPERATIONAL MOBILE NOISE SOURCE LEVELS EXISTING PLUS PROJECT			
Roadway Segment	**CNEL**		
	Existing	**Existing Plus Project**	**Project Impact**
Winnetka Ave. between Nordhoff St. and Parthenia St.	68.8	69.6	0.8
Winnetka Ave. between Plummer St. and Lassen St.	67.3	67.9	0.6
Plummer St. between Winnetka Ave. and Mason Ave.	67.3	67.4	0.1
Nordhoff St. between Winnetka Ave. and Corbin Ave.	67.1	67.3	0.2
Prairie St. between Winnetka Ave. and Corbin Ave.	63.4	65.3	1.9
SOURCE: TAHA, *MGA Campus Project, Air Quality, Greenhouse Gas and Noise Impact Report*, July, 2014.			

[8] Overland Traffic Associates, Traffic Impact Analysis for Mixed Use Project Located at 20000 Prairie Street in the City of Los Angeles, January, 2014.

Table III.I-8 shows peak hour mobile source noise levels along the analyzed roadway segments for future no project and future with project conditions. The greatest project-related noise increase (e.g. the difference between future with project conditions and future without project conditions.) would be 1.1 dBA L_{eq} along Prairie Street between Winnetka Avenue and Corbin Avenue. This would not exceed the most conservative roadway noise threshold of 3-dBA. Therefore, the proposed project would result in a less-than-significant related to future with project mobile noise levels. Therefore, the proposed project would result in a less-than-significant mobile noise impact.

TABLE III.I-8
OPERATIONAL MOBILE NOISE SOURCE LEVELS
FUTURE PLUS PROJECT COMPARED TO NO PROJECT

Roadway Segment	CNEL		
	No Project	Project	Project Impact
Winnetka Ave. between Nordhoff St. and Parthenia St.	69.7	70.1	0.4
Winnetka Ave. between Plummer St. and Lassen St.	67.8	68.3	0.5
Plummer St. between Winnetka Ave. and Mason Ave.	67.9	68.0	0.1
Nordhoff St. between Winnetka Ave. and Corbin Ave.	69.4	69.5	0.1
Prairie St. between Winnetka Ave. and Corbin Ave.	65.0	66.1	1.1

SOURCE: TAHA, *MGA Campus Project, Air Quality, Greenhouse Gas and Noise Impact Report*, July, 2014.

Stationary Noise

Potential stationary noise sources related to the long-term operations of the project include mechanical equipment, pool areas, roof decks and BBQ areas, an amphitheater, loading docks, and a transit plaza. Mechanical equipment (e.g., HVAC equipment) would be designed so as to be located within an enclosure or confined to the rooftop of the proposed structure. HVAC equipment typically generates noise level of approximately 60 dBA L_{eq} at 50 feet. Mechanical equipment would be screened from view as necessary to comply with provisions of the Municipal Code for on-site stationary sources. Operation of mechanical equipment would not be anticipated to increase ambient noise levels by 5 dBA or more.

Other sources of community noise, including pools and roof decks, which would be located at all residential buildings, and an amphitheater, which would be located central to the project site. Roof decks would not include amplified sound and events at the amphitheater will be limited to one per month during off-peak hours. Pool activity is a localized noise source that would not be audible at the nearest single-family residences located 1,300 feet to the north of Plummer Street. Multi-level buildings on and off the project site would act as substantial barriers between these sources and off-site sensitive land uses. It is not anticipated that these uses would generate audible noise (i.e., 3 dBA above ambient) at the property line of sensitive uses.

The proposed project would include a private shuttle stop to serve the site during mid-day and evening hours. The operational intensity would be much less than a traditional transit center. However, the FTA has stated that a transit center would potentially impact sensitive land uses within 225 feet of bus activity.[9] This screening distance is based on 20 buses per peak hour,

[9] Federal Transit Authority, Transit Noise and Vibration Impact Assessment, May 2006.

which is more than the number of hourly buses anticipated to use the transit plaza. There are no existing sensitive land uses within 225 feet of the proposed private shuttle stop. Therefore, the proposed project would result in a less-than-significant impact related to the shuttle stop and other stationary sources of noise.

In general, the proposed project would result in the creation of a mixed-use campus that will be distinctive from the largely commercial and industrial uses surrounding the project site. There are no unusual sources of stationary noise that would impact the adjacent commercial and industrial uses, or the nearest residences.

Parking Noise

The proposed project would include 1,467 spaces in structured parking. Automobile parking activity typically generates a noise level of approximately 58.1 dBA L_{eq} at 50 feet (e.g., tire noise, engine noise, and door slams).[10] The nearest sensitive land use that could be impacted by parking activity would be the Pacific Theaters complex, located approximately 1,000 feet to the west. Project parking would be shielded from the theater by proposed residential units in the same multi-story buildings. In addition, the movie theater has existing expansive surface parking area between the theater building and the project site. It is not anticipated that parking activity would generate audible noise (i.e., 3 dBA above ambient) at the property line of any sensitive uses. Therefore, the proposed project would result in a less-than-significant related to parking noise.

Land Use/Noise Compatibility

It is important that new residential land uses are located in noise compatible environments (see **Table III.I-1**). A noise measurement taken at the project site indicated that the 24-hour noise level is 65.6 dBA CNEL (accounting for train activity along the Southern Pacific Railroad Right of Way and nearby industrial activity). The monitored noise level is conditionally acceptable for residential land uses based on City policy. Conditionally acceptable means that 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 with closed windows and fresh air supply system or air conditioning will normally suffice. As noted in PDF-N-1, below, the project would be constructed to current design standards and regulations, and each unit would include an air conditioning system capable of providing fresh air. The proposed residences, along with associated pools, plazas, roof decks, and other outdoor amenities, would be compatible with the existing community noise levels. Therefore, the proposed project would result in a less-than-significant related to land use and 24-hour noise compatibility.

New residences facing the Southern Pacific Railroad Right of Way would be exposed to single-event noise levels associated with train movements. During the 24-hour monitoring period, the loudest recorded SEL was 112.6 dBA. Although the source of noise is not related to aviation activity, the Federal Interagency Committee on Aviation Noise has published research related to sleep disturbance and awakenings from loud noise events.[11] Los Angeles World Airports used this research to establish a significance threshold for sleep disturbance. The threshold was

[10] The reference parking noise level is based on a series of noise measurements completed 50 feet from vehicles accessing a multi-level parking structure.

[11] Federal Interagency Committee on Aviation Noise, *Effects of Aviation Noise on Awakenings from Sleep*, June 1997.

established as a ten percent awakening level at 81 dBA SEL.[12] New residential units typically achieve an exterior-to-interior attenuation level of at least 20 dBA with windows closed. This means that for 10 percent of residents to be awakened, the SEL would have to be 101 dBA with windows closed. The parking structure between lower residential units in Building A and the railroad tracks would help attenuate train noise for these units by providing an effective line-of-sight barrier for all but the top floors. Due to its concrete and steel construction, this parking structure could reduce single-event noise by as much as 40 dBA.[13] However, not all of the southerly facing residential units would be effectively shielded by the parking structure, thus exposing them to the highest noise levels from passing trains (upper units in Building A, southerly units in Building B) of 112.6 dBA, which would exceed the significance threshold. Therefore, without mitigation, the proposed project would result in a significant impact related to single-event rail noise.

Vibration

The proposed project would not include significant stationary sources of vibration, such as heavy equipment operations. Operational vibration in the project vicinity would be generated by vehicular travel on the local roadways. However, similar to existing conditions, traffic-related vibration levels would not be perceptible by sensitive receptors. Thus, operational vibration would result in a less-than-significant impact.

PROJECT DESIGN FEATURES

PDF-III.I-1 New residential units shall include a fresh air supply system or air conditioning so that windows may be closed, as needed, to reduce noise.

REGULATORY COMPLIANCE MEASURES

RC-III.I-1 All construction truck traffic shall be restricted to truck routes approved by the City of Los Angeles Department of Building and Safety, which shall avoid residential areas and other sensitive receptors to the extent feasible.

RC-III.I-2 The proposed project shall comply with the City of Los Angeles Noise Ordinance (LAMC Chapter XI), and any subsequent ordinances, which prohibits the emission or creation of noise beyond certain levels at adjacent uses unless technically infeasible.

RC-III.I-3 Construction and demolition shall be restricted to the hours of 7:00 AM to 6:00 PM Monday through Friday, and 8:00 AM to 6:00 PM on Saturday, and prohibited on all Sundays and federal holidays.

RC-III.I-4 The proposed project shall comply with the LAMC Section 91.106.4.8, which requires a construction site notice to be provided that includes the following information: job site address, permit number, name and phone number of the contractor and owner or owner's agent, hours of construction allowed by code or any discretionary approval for the site, and City telephone numbers where violations can be reported. The notice shall be posted and maintained at the

[12] Los Angeles World Airport, LAX Master Plan Supplemental Draft EIS/EIR, June 2003.
[13] Federal Highway Administration, *Noise Barrier Design Handbook*, May 2013.

construction site prior to the start of construction and displayed in a location that is readily visible to the public and approved by the City's Department of Building and Safety.

MITIGATION MEASURES

MM-III.I-1 Materials used in the construction of residential units shall be capable of achieving an exterior-to-interior noise attenuation level of 32 dBA. Such materials may include double-glazed windows.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

CONSTRUCTION PHASE NOISE IMPACTS

Noise levels related to construction activity would not exceed the 5 dBA significance threshold at sensitive receptors. **Regulatory Compliance Measure RC-III.I-1** through **RC-III.I-4** would further ensure that construction noise effects would be reduced. As such, the proposed project would result in a less than significant impact.

CONSTRUCTION PHASE VIBRATION IMPACTS

As shown in **Table III.I-7**, use of heavy equipment (e.g., a bulldozer) generates vibration levels of 0.089 inches per second PPV at a distance of 25 feet. The closest building that could experience damage from heavy equipment activity could experience a vibration level of 0.03 inches per second PPV, substantially the threshold of 0.3 inches per second PPV. The Pacific Theater complex could experience a vibration levels up to 39 VdB during construction activity, substantially below the threshold of 72 VdB. As such, the proposed project would result in a less than significant impact.

OPERATIONAL PHASE NOISE IMPACTS

Mobile sources would not increase noise levels by more than 3 dBA along proximate street segments, operation of mechanical equipment would not be anticipated to increase ambient noise levels by 5 dBA or more, and other stationary noise sources would not exceed ambient noise levels by more than 3 dBA at the closest sensitive receptors. **Mitigation Measure MM-III.I-1** would ensure that new residents would not result in significant single event sleep disturbance from the Southern Pacific rail line adjacent to the site. Consequently, the project would have a less than significant impact after mitigation.

OPERATIONAL PHASE VIBRATION IMPACTS

Operational ground-borne vibration impacts for the proposed project would be less-than-significant.

CUMULATIVE IMPACTS

Future traffic conditions without and with the proposed project accounted for cumulative impacts from other eight other known projects. Since the noise impacts are generated directly from the traffic analysis results, the future without project and future with project noise impacts analyzed herein reflect cumulative impacts.

Table III.I-10 presents the cumulative increase in future traffic noise levels at various intersections (i.e., existing and future with project). The maximum cumulative roadway noise increase would be would be 2.7 dBA L_{eq} and would occur along Prairie Street. Cumulative roadway noise levels would not exceed the 3 dBA threshold increment and would not result in a perceptible change in noise level. Therefore, the proposed project would not result in a cumulatively considerable impact related to roadway noise.

TABLE III.I-10
OPERATIONAL MOBILE NOISE SOURCE LEVELS
FUTURE PLUS PROJECT COMPARED TO EXISTING

Roadway Segment	CNEL		
	Existing	Future With Project	Cumulative Impact
Winnetka Ave. between Nordhoff St. and Parthenia St.	68.8	70.1	1.3
Winnetka Ave. between Plummer St. and Lassen St.	67.3	68.3	1.0
Plummer St. between Winnetka Ave. and Mason Ave.	67.3	68.0	0.7
Nordhoff St. between Winnetka Ave. and Corbin Ave.	67.1	69.5	2.4
Prairie St. between Winnetka Ave. and Corbin Ave.	63.4	66.1	2.7

SOURCE: TAHA, *MGA Campus Project, Air Quality Greenhouse Gas and Noise Impact Report*, July, 2014.

The predominant vibration sources near the project site are heavy truck travel on the local roadways and trains travelling on the railroad tracks immediately south of the project site. Neither the proposed project nor related projects would substantially increase heavy-duty vehicle traffic near the project site and would not cause a substantial increase in heavy-duty trucks on local roadways. The proposed project would not result in a cumulatively considerable impact related to roadway vibration.