4.5 NOISE

INTRODUCTION

This section of the environmental impact report (EIR) presents the results of an analysis of both existing background conditions and future noise conditions following completion of the Project. This section incorporates the findings of the Project traffic study, prepared by Kunzman Associates, Inc., February 24, 2010. A complete copy of the traffic analysis is contained in ***Appendix 4.8****.*

CHARACTERISTICS OF NOISE

"Noise" is usually defined as unwanted sound and can be an undesirable by-product of society's normal day-to-day activities. Sound becomes unwanted when it interferes with normal activities, causes actual physical harm, or has an adverse effect on health. The definition of noise as unwanted sound implies that it has an adverse effect or causes a substantial annoyance to people and their environment.

Sound pressure level alone is not a reliable indicator of loudness because the human ear does not respond uniformly to sounds at all frequencies. For example, it is less sensitive to low and high frequencies than to the medium frequencies that more closely correspond to human speech. In response to the human ear's sensitivity to different frequencies or lack thereof, the A-weighted noise level, referenced in units of dB(A), was developed to better correspond with peoples' subjective judgment of sound levels. In general, changes in a community noise level of less than 3 dB(A) are not typically noticed by the human ear.[1] Changes from 3 to 5 dB(A) may be noticed by some individuals who are extremely sensitive to changes in noise. An increase greater than 5 dB(A) is readily noticeable, while the human ear perceives a 10 dB(A) increase in sound level to be a doubling of sound volume. A doubling of sound energy results in a 3 dB increase in sound, which means that a doubling of sound wave energy (e.g., doubling the volume of traffic on a roadway) would result in a barely perceptible change in sound level. Common noise levels associated with certain activities are shown on **Figure 4.5-1, Common Noise Levels**.

1 U.S. Department of Transportation, Federal Highway Administration, *Highway Noise Fundamentals*, (Springfield, Virginia: U.S. Department of Transportation, Federal Highway Administration, September 1980), 81.

Noise sources occur in two forms: (1) point sources, such as stationary equipment or individual motor vehicles; and (2) line sources, such as a roadway with a large number of mobile point sources (e.g., motor vehicles). Sound generated by a stationary point source typically diminishes (attenuates) at a rate of 6 dB(A) for each doubling of distance from the source to the receptor at acoustically "hard" sites, and at a rate of 7.5 dB(A) at acoustically "soft" sites.[2] For example, a 60 dB(A) noise level measured at 50 feet from a point source at an acoustically hard site would be 54 dB(A) at 100 feet from the source and it would be 48 dB(A) at 200 feet from the source. Sound generated by a line source typically attenuates at a rate of 3 dB(A) and 4.5 dB(A) per doubling of distance from the source to the receptor for hard and soft sites, respectively.[3] Man-made or natural barriers can also attenuate sound levels, as illustrated in **Figure 4.5-2, Noise Attenuation by Barriers**.

Solid walls and berms may reduce noise levels by 5 to 10 dB(A).[4] The minimum attenuation of exterior to interior noise provided by typical structures in California is provided in **Table 4.5-1, Outside to Inside Noise Attenuation**.

Table 4.5-1
Outside to Inside Noise Attenuation (dB(A))

Building Type	Open Windows	Closed Windows[1]
Residences	17	25
Schools	17	25
Churches	20	30
Hospitals/Convalescent Homes	17	25
Offices	17	25
Theaters	20	30
Hotels/Motels	17	25

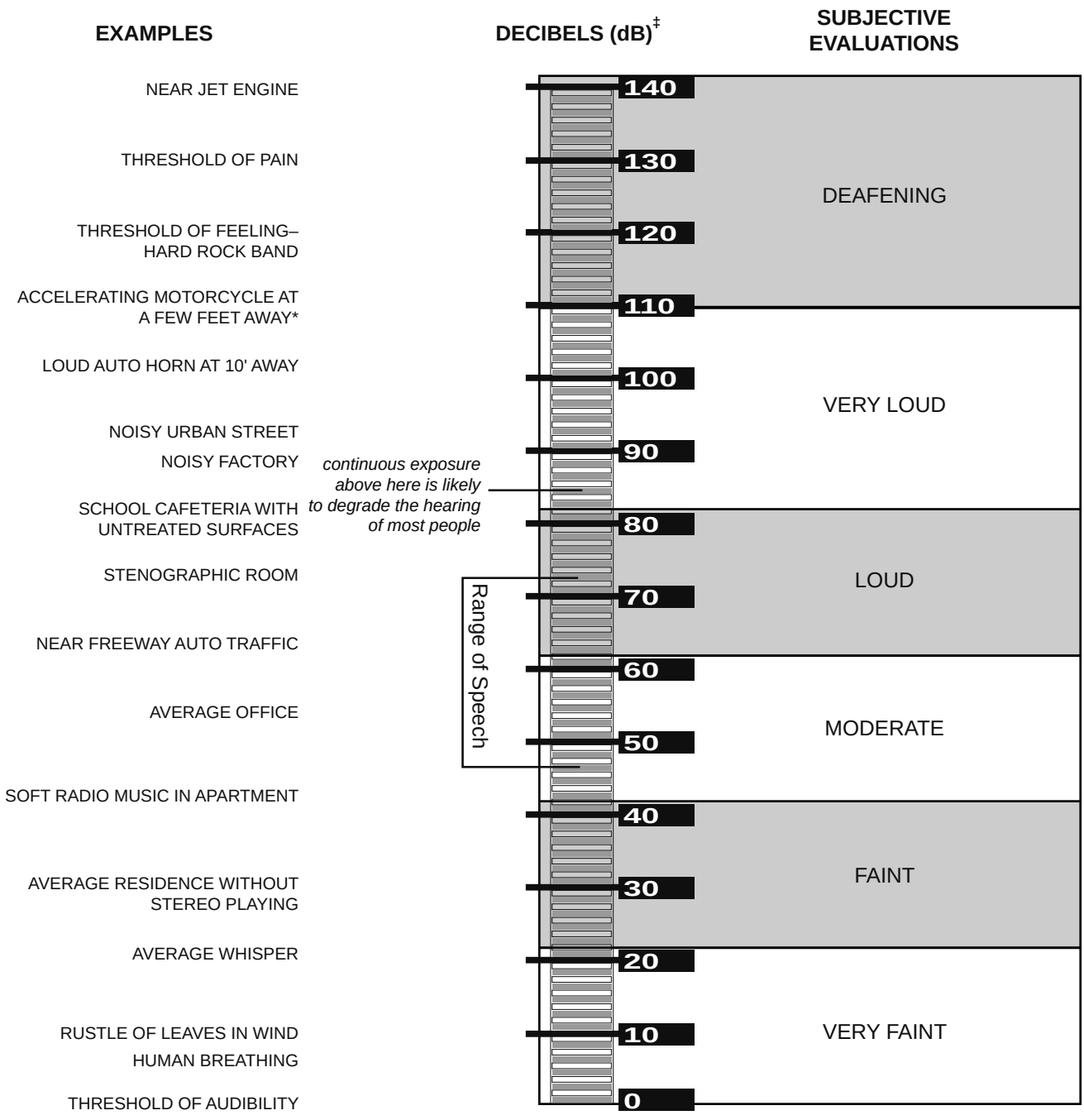
Source: Transportation Research Board, National Research Council, Highway Noise: A Design Guide for Highway Engineers, National Cooperative Highway Research Program Report 117.

[1] *As shown, structures with closed windows can attenuate exterior noise by a minimum of 25 to 30 dB(A).*

2 U.S. Department of Transportation, Federal Highway Administration, *Highway Noise Fundamentals*, (Springfield, Virginia: US Department of Transportation, Federal Highway Administration, September 1980), 97. A "hard" or reflective site does not provide any excess ground-effect attenuation and is characteristic of asphalt, concrete, and very hard packed soils. An acoustically "soft" or absorptive site is characteristic of normal earth and most ground with vegetation.

3 U.S. Department of Transportation, Federal Highway Administration, *Highway Noise Fundamentals*, (Springfield, Virginia: US Department of Transportation, Federal Highway Administration, September 1980), 97.

4 U.S. Department of Transportation, Federal Highway Administration, *Highway Noise Mitigation*, (Springfield, Virginia: US Department of Transportation, Federal Highway Administration, September 1980), 18.

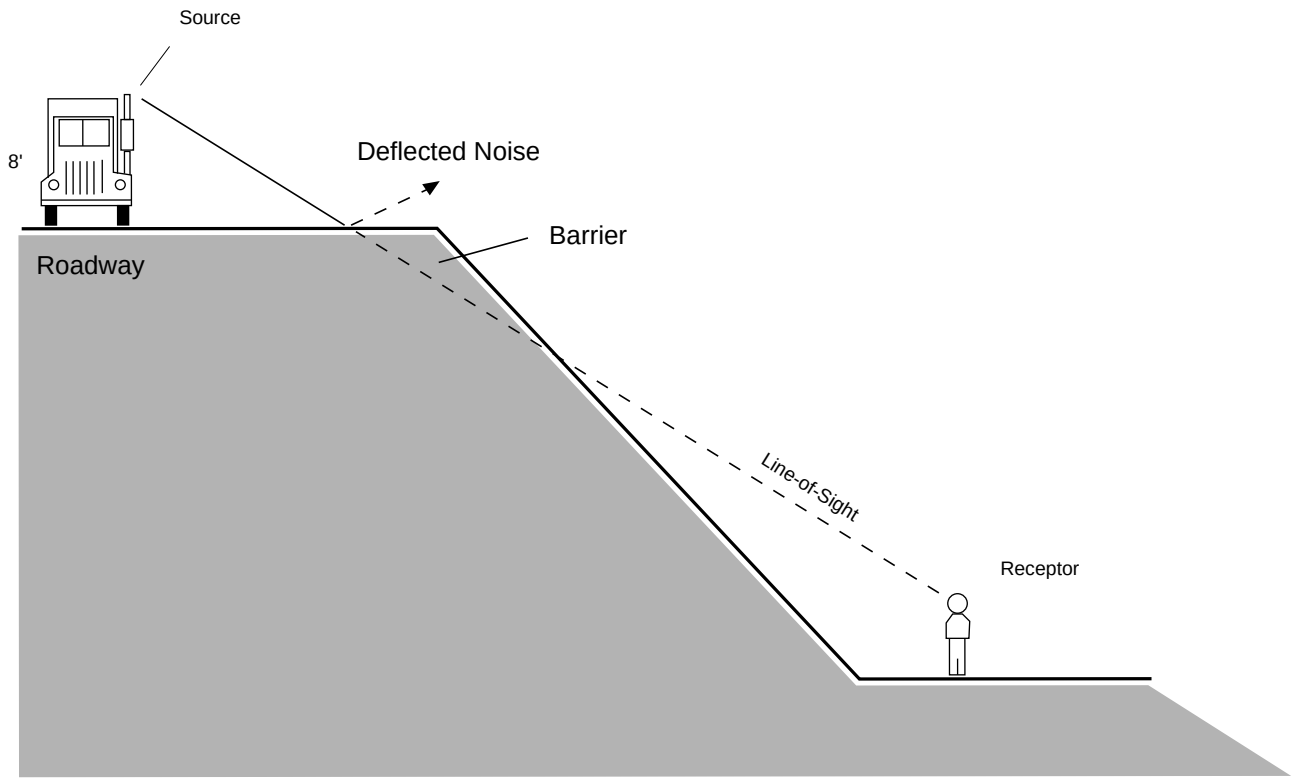


** NOTE: 50' from motorcycle equals noise at about 2000' from a four-engine jet aircraft.*

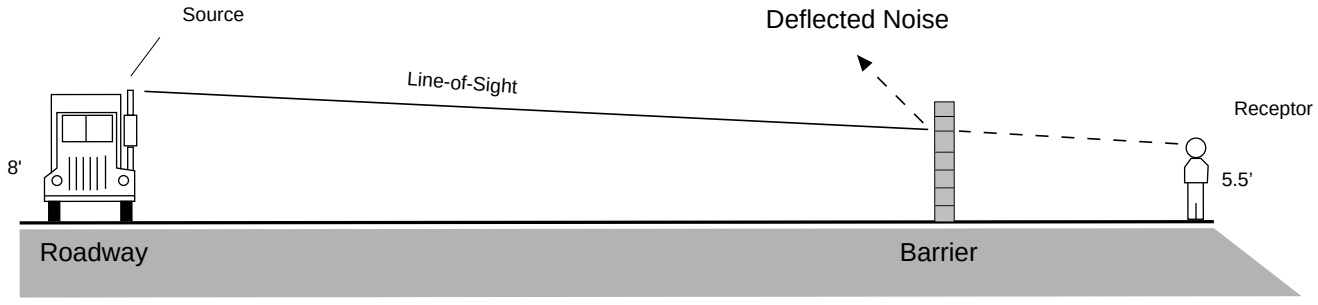
‡ *NOTE: dB are "average" values as measured on the A–scale of a sound–level meter.*

FIGURE **4.5-1**

Common Noise Levels



"Barrier Effect" Resulting from Differences in Elevation.



"Barrier Effect" Resulting from Typical Soundwall.

SOURCE: Impact Sciences, Inc. – May 2006

FIGURE **4.5-2**

Noise Attenuation by Barriers

When assessing community reaction to noise, there is an obvious need for a scale that averages sound pressure levels over time and quantifies the result in terms of a single numerical descriptor. Several scales have been developed that address community noise levels.

Those that are applicable to this analysis are the Equivalent Noise Level (L_{eq}) and the Community Noise Equivalent Level (CNEL). L_{eq} is the average A-weighted sound level measured over a given time interval. L_{eq} can be measured over any period, but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods. CNEL is another average A-weighted sound level measured over a 24-hour period. However, this CNEL noise scale is adjusted to account for some individuals' increased sensitivity to noise levels during the evening and nighttime hours. A CNEL noise measurement is obtained by adding 5 dB to sound levels occurring during the evening from 7:00 PM to 10:00 PM, and 10 dB to sound levels occurring during the nighttime from 10:00 PM to 7:00 AM. The 5 and 10 dB "penalties" are applied to account for increased noise sensitivity during the evening and nighttime hours. The logarithmic effect of adding these penalties to the 1-hour L_{eq} measurements typically results in a CNEL measurement that is within approximately 3 dB(A) of the peak-hour L_{eq}.[5]

CHARACTERISTICS OF VIBRATION

Vibration is minute variation in pressure through structures and the earth, whereas noise is minute variation in pressure through air. Thus, vibration is felt rather than heard. Some vibration effects can be caused by noise; e.g., the rattling of windows from truck pass-bys. This phenomenon is related to the coupling of the acoustic energy at frequencies that are close to the resonant frequency of the material being vibrated. Groundborne vibration attenuates rapidly as distance from the source of the vibration increases. Vibration can be measured as particle velocity in inches per second and referenced as vibration decibels (VdB).

The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity 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 barely perceptible. The range of interest is from approximately 50 VdB, which is typical background vibration velocity, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings.

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5 California Department of Transportation, *Technical Noise Supplement; A Technical Supplement to the Traffic Noise Analysis Protocol*, (Sacramento, California: October 1998), N51–N54.

Figure 4.5-3, Typical Levels of Ground-Borne Vibration, identifies the typical groundborne vibration levels in VdB and human response to different levels of vibration.

REGULATORY FRAMEWORK

Applicable Plans and Policies

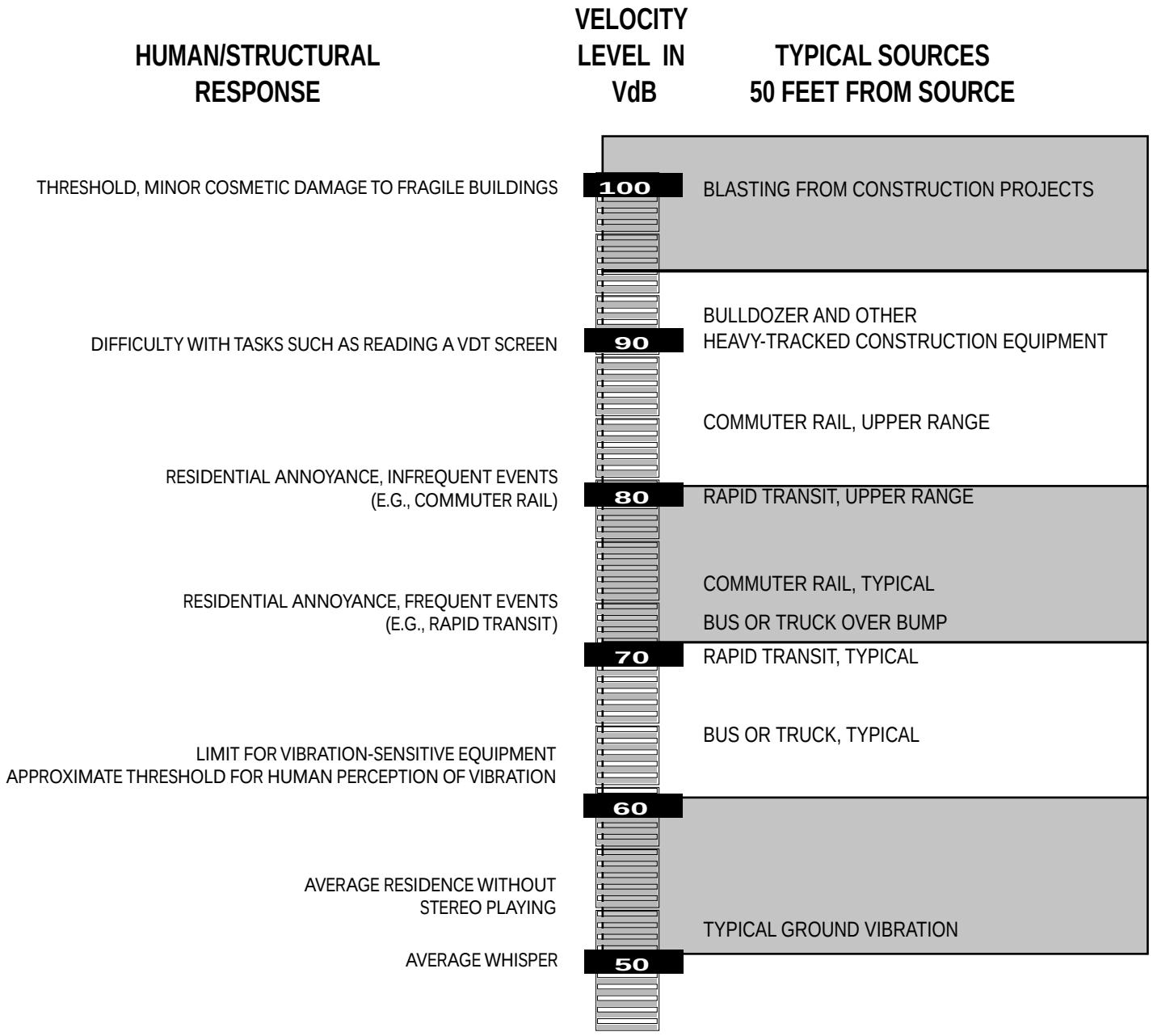
Noise standards for specific land uses are identified in the City of Glendale's Noise Ordinance, which is located in Chapter 8.36, Section 8.36.040 of the Municipal Code. Under Section 8.36.040 of the Noise Ordinance, exterior and interior noise is regulated by reference to "presumed noise standards," which are presented below in **Table 4.5-2, Exterior Presumed Noise Standards**. Under Section 8.36.050 of the Noise Ordinance, where noise levels are below the presumed noise standards, the actual ambient noise level controls, and any noise more than 5 dB(A) above the actual ambient noise level is considered a violation of the Noise Ordinance. Where the actual ambient noise level exceeds the presumed noise standard, the actual ambient noise level also controls, and any noise more than 5 dB(A) above the actual ambient noise level is also considered a violation of the Noise Ordinance. However, under the Noise Ordinance, the actual ambient noise levels are not allowed to exceed the presumed noise level by more than 5 dB(A).

Table 4.5-2
Exterior Presumed Noise Standards

Zone	Standard	Maximum	Time
Central Business District and Commercial	65 dB(A)	70 dB(A)	Anytime
Industrial	70 dB(A)	75 dB(A)	Anytime

Source: City of Glendale Municipal Code.

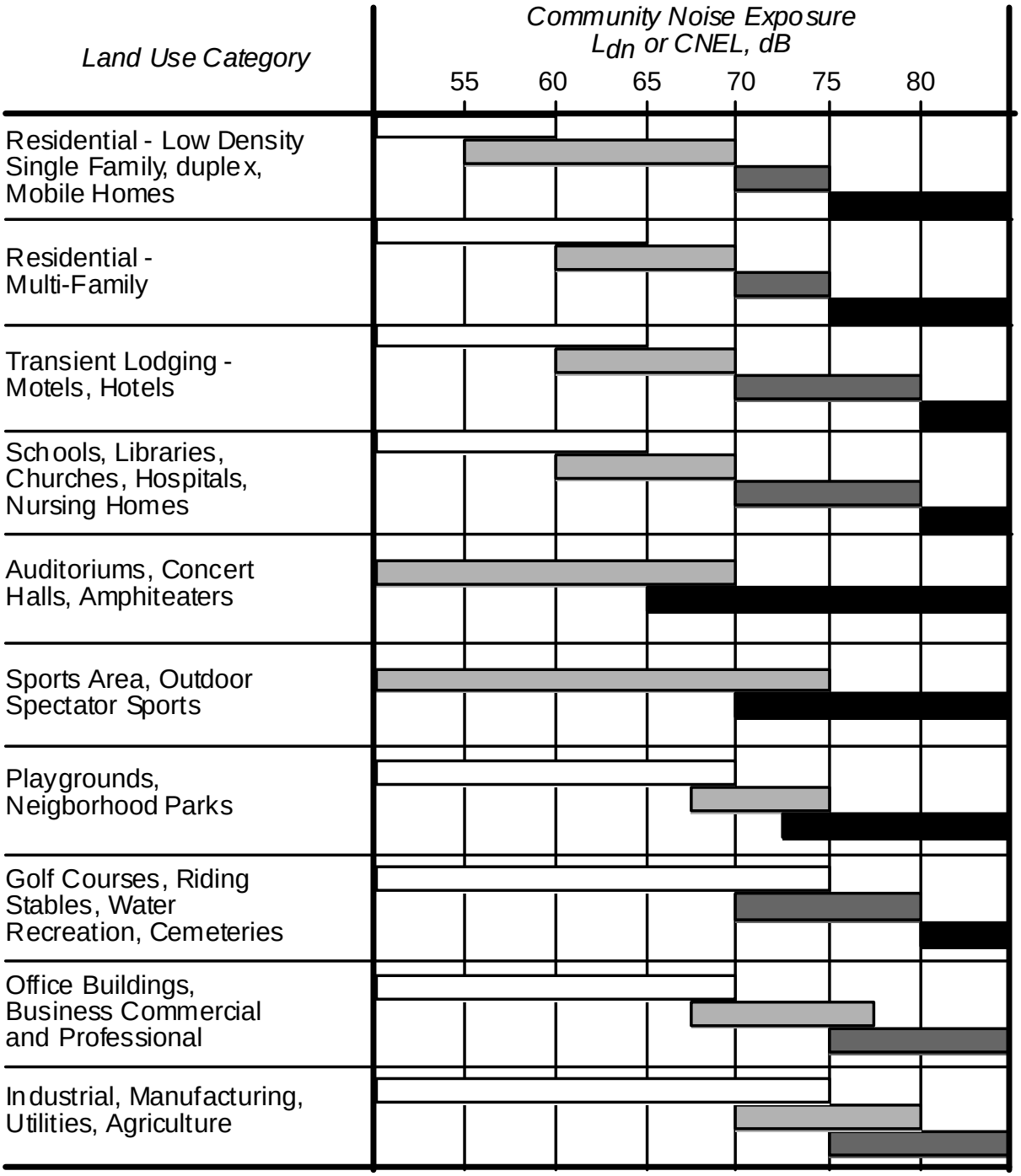
In addition, the City of Glendale General Plan Noise Element (adopted June 7, 2007) establishes noise criteria for the various land uses throughout the City. **Figure 4.5-4, Land Use Compatibility to Noise**, identifies the acceptable limit of noise exposure for various land use categories within the City. Noise exposure for an office and commercial uses is "normally acceptable" when the CNEL at exterior residential locations is equal to or below 70 dB(A), "conditionally acceptable" when the CNEL is between 67.5 to 77.5 dB(A), and "normally unacceptable" when the CNEL exceeds 75 dB(A). These guidelines apply to noise sources such as vehicular traffic, aircraft, and rail movements. The Noise Element does not establish an interior noise level standard for office and commercial uses.



SOURCE: United States Department of Transportation, "Transit Noise and Vibration Impact Assessment", Office of Planning and Environment Federal Transit Administration, May 2006

FIGURE **4.5-3**

Typical Levels of Ground-Borne Vibration



INTERPRETATION

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

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

Normally Unacceptable
New construction or development should 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: State of California, "General Plan Guidelines," – 1998

FIGURE **4.5-4**

Land Use Compatibility to Noise

The City of Glendale does not have regulations that establish maximum construction noise levels. However, Section 8.36.290(K) provides an exemption from the Noise Ordinance for any activity, operation, or noise, which cannot be brought into compliance (with the Noise Ordinance) because it is technically infeasible to do so. "Technical infeasibility" for the purpose of this section means that noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers and/or any other noise reduction devices or techniques during the operation of the equipment.

Section 8.36.210 of the Noise Ordinance provides that vibration created by the operation of any device would be a violation of City standards if such vibration were above the vibration perception threshold of an individual at or beyond the property boundary of a source on private property. For sources on a public space or public right-of-way, a violation would occur if the vibration perception threshold of an individual were exceeded at a distance of 150 feet from the source. The Noise Ordinance does not define the level of vibration that is deemed perceptible by an individual and does not establish maximum allowable vibration levels.

ENVIRONMENTAL SETTING

Existing Conditions

Noise Environment

Land uses around the project site include industrial uses and a homeless center to the north; commercial uses, a veterinary clinic and multi-family residential to the east; commercial retail, and light-industrial uses to the south; and the Union Pacific Railroad (UPRR) right-of-way to the west. The homeless center is considered a noise-sensitive use. The project site and surrounding uses are located in an urban area of the City of Glendale and are exposed to noise sources typical of such a setting. No stationary sources of noise are currently located on the project site. Off-site stationary noise sources in the area that are audible on the site include activities associated with commercial uses surrounding the site, such as people talking, doors slamming, tires squealing, and truck deliveries. Mobile sources of noise that are audible on the site are related to road traffic along Fernando Court, Gardena Avenue, and Los Feliz Road, and railroad traffic along the UPRR right-of-way.

Roadway Traffic Noise

The existing ambient noise environment for the roadways was determined by calculating noise levels based on average daily trips determined in the traffic analysis conducted for this EIR. The noise modeling effort was accomplished using the Federal Highway Administration Highway Traffic Noise Model (TNM), Version 2.5. The results of the noise modeling are provided in **Table 4.5-3, Existing Roadway**

Modeled Noise Levels. As shown, roadway noise levels range from a low of 43.0 to a high of 68.1 dB(A) CNEL at 75 feet from Roadway Centerline.

Table 4.5-3
Existing Roadway Modeled Noise Levels

Roadway Segment/Intersection	CNEL in dB(A) at 75 feet from Roadway Centerline
City of Los Angeles	
Glenfeliz Boulevard, south of Los Feliz	54.1
Brunswick Avenue, north of Los Feliz	56.7
Brunswick Avenue, south of Los Feliz	55.6
Revere Avenue, south of Los Feliz	54.1
Los Feliz Boulevard, west of I-5	66.7
Los Feliz Boulevard, between I-5 and Glenfeliz	68.1
Los Feliz Boulevard, between Glenfeliz and Brunswick	67.2
Los Feliz Boulevard, between Brunswick and Revere	67.5
Los Feliz Boulevard, between Revere and UPRR	66.1
City of Glendale	
Chevy Chase, west of San Fernando	59.8
Chevy Chase, between San Fernando and Central	62.7
Chevy Chase, between Central and Brand	63.2
Chevy Chase, between Brand and Glendale	63.6
Chevy Chase, east of Glendale	64.0
Fernando Court, west of Gardena	37.8
Fernando Court, east of Gardena	49.8
Los Feliz, between UPRR	66.1
Los Feliz, between Gardena and San Fernando	66.0
Los Feliz, between San Fernando and Central	64.3
Los Feliz, between Central and Brand	63.5
Los Feliz, between Brand and Glendale	62.7
Los Feliz, east of Glendale	49.1
Gardena, between Fernando and Los Feliz	46.6
Gardena, between Los Feliz and Central	54.5
San Fernando, north of Chevy Chase	65.7
San Fernando, between Chevy Chase and Magnolia	65.0
San Fernando, between Magnolia and Fernando	64.5
San Fernando, between Fernando and Los Feliz	64.9
San Fernando, between Central and Brand	65.5
San Fernando, between Brand and Glendale	65.9

Roadway Segment/Intersection	CNEL in dB(A) at 75 feet from Roadway Centerline
San Fernando, south of Glendale	65.6
Central, north of Chevy Chase	64.5
Central, between Chevy Chase and Los Feliz	64.4
Central, between Los Feliz and San Fernando	62.1
Central, between San Fernando and Gardena	56.4
Brand, north of Chevy Chase	65.0
Brand, between Chevy Chase and Los Feliz	65.2
Brand, between Los Feliz and San Fernando	65.2
Brand, south of San Fernando	66.5
Glendale, north of Chevy Chase	64.3
Glendale, between Chevy Chase and Los Feliz	64.9
Glendale, between Los Feliz and San Fernando	62.4

Source: Impact Sciences. Model results are contained in ***Appendix 4.5****.*

Railroad Noise

The project site is directly adjacent to the UPRR right-of-way located west of the project site. This line is a very active Metrolink route with over 50 trains per day. Amtrak and freight operations also use this railroad. The proposed Project is not expected to alter the activity of the UPRR and would therefore not alter the noise or vibration exposure produced by the UPRR.

ENVIRONMENTAL IMPACTS

Methodology

Analysis of the existing and future noise environments presented in this EIR section is based on technical reports, noise monitoring, and noise prediction modeling. Predicted vibration impacts resulting from the implementation of the proposed Project were determined using data from the Federal Transit Administration (FTA). Noise modeling procedures involved the calculation of existing and future vehicular noise levels along individual roadway segments. This was accomplished using the Federal Highway Administration Highway TNM. This model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site conditions. Traffic volumes utilized as data inputs to the noise prediction model were calculated based on information provided by Kunzman Associates, Inc., the Project traffic engineer, and are consistent with the analysis provided in **Section 4.8, Traffic, Circulation, and Parking**, of this EIR.

Thresholds of Significance

The following thresholds for determining the significance of impacts related to noise are contained in the environmental checklist form contained in Appendix G of the most recent update of the *California Environmental Quality Act (CEQA) Guidelines*. The *State CEQA Guidelines* ask whether the Project would result in

- exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- for a project located within an airport land use plan or, where such plan has not been adopted, within 2 miles of a public airport or public use airport, would expose people residing or working in the project area to excessive noise levels (issue is addressed in **Section 8.0**, **Effects Found Not to Be Significant**); or
- for a project within the vicinity of a private airstrip would the project expose people residing or working in the project area to excessive noise levels (issue is addressed in **Section 8.0**, **Effects Found Not to Be Significant)**.

The *State CEQA Guidelines* do not provide a definition for "substantial increase" in noise and they do not provide a threshold of significance for potential noise or vibration impacts. Therefore, the following thresholds of significance were developed for this noise analysis based upon the General Plan Noise Element and Noise Ordinance discussed previously in this EIR section. These thresholds apply to both project impacts and cumulative impacts.

Noise

On-Site Noise Thresholds

As shown in **Figure 4.5-4**, exterior noise levels of up to 70 dB(A) CNEL are considered "normally acceptable" for office and commercial uses, while noise levels between 67.5 dB(A) and 77.5 dB(A) CNEL are considered "conditionally acceptable" and noise levels exceeding 75 dB(A) CNEL are considered normally unacceptable. The Noise Element does not establish an interior noise standard for non-office and commercial uses.

Off-Site Noise Thresholds

Off-site noise thresholds consider the following: the City's Noise Compatibility Criteria, community responses to changes in noise levels, and CEQA standards. As stated earlier, changes in a noise level of less than 3 dB(A) are not typically noticed by the human ear. Some individuals who are extremely sensitive to changes in noise may notice changes from 3 to 5 dB(A). Based on this information, the following thresholds have been established for this analysis:

- An increase of 3 dB(A) or greater in traffic noise level that occurs due to project-related activities would be significant if the resulting noise levels would cause the City's noise compatibility thresholds for "normally acceptable" exterior or interior noise levels to be exceeded, or result in a 3 dB(A) increase in noise to a land use experiencing levels above the City's noise compatibility threshold for "normally acceptable." A noise level increase of less than 3 dB(A) under either of the previously described scenarios is not considered to be significant.

- An increase of 5 dB(A) or less in traffic noise level that occurs from project-related activities would be considered not significant if the resulting noise levels remain below the "acceptable" thresholds established by the City. Increases in traffic noise greater than 5 dB(A) would be considered to be significant even if the resulting noise levels are below City standards.

- Stationary noise sources proposed as part of the project that could result in increases in noise levels at adjacent land uses that exceed City standards would be considered significant.

Vibration

Vibration Thresholds

The City's Municipal Code states that a violation of City standards would occur if the operation of a device creates a vibration above the vibration perception threshold. A numerical threshold to identify the point at which a vibration impact is deemed perceptible is not identified in the City's Municipal Code. In the absence of significance thresholds for vibration from construction, the FTA identifies a maximum acceptable level threshold of 65 VdB for buildings where low ambient vibration is essential for interior operations (such as hospitals and recording studios), 72 VdB for residences and buildings where people normally sleep, and 75 VdB for institutional land uses with primary daytime use (such as churches and schools).

Impact Analysis

Each applicable threshold of significance is listed below followed by analysis of the significance of any potential impacts and the identification of mitigation measures that would lessen or avoid potential impacts. Finally, the significance of potential impacts after implementation of all identified mitigation measures is presented.

Thresholds: **Would result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.**

Would result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

Impact Analysis:

As stated previously, based on noise monitoring and noise modeling conducted, the existing ambient noise level around the Project site already exceeds City threshold exterior noise levels for office uses.

Vehicle Noise – Vehicular noise can potentially affect the Project site, as well as land uses located along the studied roadway system. Based on the distribution of traffic volumes, noise modeling was conducted for the roadways analyzed in **Section 4.8, Traffic, Circulation and Parking**. The traffic study analyzed two scenarios: one without a traffic signal at the intersection of San Fernando Road and Fernando Court, and the other with a traffic signal at the intersection of San Fernando Road and Fernando Court. Therefore, forecasts were calculated by comparing existing noise levels to existing plus Project levels under both of these scenarios. The results of the modeled weekday roadway noise levels are provided below in **Table 4.5-4, Operational Roadway Noise Levels**. As shown, no significant changes in CNEL would result from the proposed Project. As discussed above, an increase in CNEL of 3 dB(A) represents the point at which only the most sensitive individuals notice a change in noise levels. Since the Project would not increase roadway noise levels by 3 dB(A) or greater during the weekday, land uses located along study area roadway ways, including residential areas to the southwest of the Project site in the City of Los Angeles and Glendale Memorial Hospital to the east of the Project site, would not be affected by traffic noise. Therefore, impacts would be less than significant.

Table 4.5-4
Operational Roadway Noise Levels

Roadway Segment/Intersection	Existing Noise Levels Without Project	Existing Noise Levels Plus Project	Change in Noise Levels	Significant Project Impact
City of Los Angeles				
Glenfeliz Boulevard, south of Los Feliz	54.1	54.1	0.0	No
Brunswick Avenue, north of Los Feliz	56.7	56.7	0.0	No
Brunswick Avenue, south of Los Feliz	55.6	55.7	0.1	No
Revere Avenue, south of Los Feliz	54.1	54.3	0.2	No

Roadway Segment/Intersection	Existing Noise Levels Without Project	Existing Noise Levels Plus Project	Change in Noise Levels	Significant Project Impact
Los Feliz Boulevard, west of I-5	66.7	66.7	0.0	No
Los Feliz Boulevard, between I-5 and Glenfeliz	68.1	68.2	0.1	No
Los Feliz Boulevard, between Glenfeliz and Brunswick	67.2	67.2	0.0	No
Los Feliz Boulevard, between Brunswick and Revere	67.5	67.6	0.1	No
Los Feliz Boulevard, between Revere and UPRR	66.1	66.2	0.1	No
City of Glendale				
Chevy Chase, west of San Fernando	59.8	59.9	0.1	No
Chevy Chase, between San Fernando and Central	62.7	62.7	0.0	No
Chevy Chase, between Central and Brand	63.2	63.2	0.0	No
Chevy Chase, between Brand and Glendale	63.6	63.6	0.0	No
Chevy Chase, east of Glendale	64.0	64.1	0.1	No
Fernando Court, west of Gardena	37.8	52.2	14.4	Yes
Fernando Court, east of Gardena	49.8	54.9	5.1	Yes
Los Feliz, between UPRR and Gardena	66.1	66.5	0.4	No
Los Feliz, between Gardena and San Fernando	66.0	66.6	0.6	No
Los Feliz, between San Fernando and Central	64.3	65.0	0.7	No
Los Feliz, between Central and Brand	63.5	64.0	0.5	No
Los Feliz, between Brand and Glendale	62.7	63.2	0.5	No
Los Feliz, east of Glendale	49.1	49.1	0.0	No
Gardena, between Fernando and Los Feliz	46.6	50.8	4.2	No
Gardena, between Los Feliz and Central	54.5	54.7	0.2	No
San Fernando, north of Chevy Chase	65.7	66.0	0.3	No
San Fernando, between Chevy Chase and Magnolia	65.0	65.4	0.4	No
San Fernando, between Magnolia and Fernando	64.5	64.9	0.4	No
San Fernando, between Fernando and Los Feliz	64.9	65.1	0.2	No
San Fernando, between Central and Brand	65.5	65.9	0.4	No
San Fernando, between Brand and Glendale	65.9	66.1	0.2	No
San Fernando, south of Glendale	65.6	65.7	0.1	No
Central, north of Chevy Chase	64.5	64.7	0.2	No

Roadway Segment/Intersection	Existing Noise Levels Without Project	Existing Noise Levels Plus Project	Change in Noise Levels	Significant Project Impact
Central, between Chevy Chase and Los Feliz	64.4	64.6	0.2	No
Central, between Los Feliz and San Fernando	62.1	62.1	0.0	No
Central, between San Fernando and Gardena	56.4	56.7	0.3	No
Brand, north of Chevy Chase	65.0	65.2	0.2	No
Brand, between Chevy Chase and Los Feliz	65.2	65.3	0.1	No
Brand, between Los Feliz and San Fernando	65.2	65.2	0.0	No
Brand, south of San Fernando	66.5	66.7	0.2	No
Glendale, north of Chevy Chase	64.3	64.5	0.2	No
Glendale, between Chevy Chase and Los Feliz	64.9	65.2	0.3	No
Glendale, between Los Feliz and San Fernando	62.4	62.4	0.0	No

Source: Impact Sciences. Model results are contained in ***Appendix 4.5****.*

As shown **Table 4.5-4**, existing plus Project modeled noise levels along Fernando Court, east and west of Gardena Avenue, would be within the "normally acceptable" ranges of office and commercial uses, as identified in **Figure 4.5-4**. However, even though noise levels are substantially below the City standards and the uses within adjacent buildings are enclosed thus reducing the noise exposure to occupants, the increase in traffic noise along these segments would be greater than 5 dB(A) and thus is considered significant. These increases are primarily due to the fact that these roadway segments do not currently carry a substantial amount of traffic and are the primary entrance/exit roadways for the Project.

Level of Significance Before Mitigation: Significant.

Mitigation Measures*:* No feasible mitigation measures are available.

Level of Significance After Mitigation: Significant and unavoidable.

Parking Structures – Development of the Project would introduce a nine-level parking garage on the western portion of the Project site. In general, noise associated with parking structures is not of sufficient volume to exceed community standards based on the time-weighted CNEL scale. Parking structures can be a source of annoyance due to automobile engine start-ups and acceleration, and the activation of car alarms. Surrounding residential land uses near Atwater Village would be the closest sensitive receptors

within the project area and would thus represent the worst-case impact associated with parking structure noise from the project. Estimates of the maximum noise levels associated with parking lot activities are presented in **Table 4.5-5 Maximum Noise Levels Generated by Parking Lots**. These levels are based on numerous measurements conducted by Impact Sciences, Inc. The noise levels presented are for a distance of 50 feet from the source, and are the maximum noise level generated. A range is provided to reflect the variability of noise generated by various automobile types and driving styles.

Table 4.5-5
Maximum Noise Level Generated By Parking Lots

Event[1]	L_{max} at 50 feet from
Door Slamming	60 to 70
Car Alarm	65 to 75
Engine Start-ups	60 to 70
Tire Squeals	50 to 70
Car Pass-bys	55 to 70

Source: Impact Sciences, Inc.

Because the parking structures proposed as part of the project is not directly adjacent to sensitive receptor locations, would not contain any unobstructed openings that face sensitive receptors, the parking structure L_{eq} noise levels would not be audible outside of the structure. Additionally, the noise levels would not exceed the time-weighted CNEL scale. Consequently, impacts would be less than significant.

Level of Significance Before Mitigation: Less than significant.

***Mitigation Measures*:** None are required.

Level of Significance After Mitigation: Less than significant.

Railroad Noise – Existing train and Metrolink activity is audible throughout the project site and vicinity. According to the City's existing noise contours, the L_{dn} from existing train activities is 65 dB(A) at 150 feet from the centerline of the tracks. As proposed, the on-site structure to be used for office, commercial-retail and a day spa is located at approximately 200 feet from the centerline of the tracks and would be buffered from the tracks by the development of the on-site parking structure. Consequently, impacts from train and Metrolink activities would be less than significant.

Level of Significance Before Mitigation: Less than significant.

***Mitigation Measures*:** None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: Would result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

Impact Analysis:

Construction Vibration – Ground vibrations from construction activities very rarely reach the levels that can damage structures, but they can achieve the audible range and be felt in buildings close to the site. The primary and most intensive vibration source associated with the development of the Project would be the use of bulldozers and pile drivers during construction. These types of equipment can create intense noise that is disturbing and can result in ground vibrations.

The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. Ground vibrations from construction activities rarely reach the levels that can damage structures, but they can achieve the audible and perceptible ranges in buildings close to the construction site. **Table 4.5-6, Vibration Source Levels for Construction Equipment**, lists vibration source levels for construction equipment.

Table 4.5-6
Vibration Source Levels for Construction Equipment

	Approximate VdB			
Equipment	**25 Feet**	**50 Feet**	**75 Feet**	**100 Feet**
Large bulldozer	87	81	77	75
Loaded trucks	86	80	76	74
Jackhammer	79	73	69	67
Small bulldozer	58	52	48	46

Source: Federal Railroad Administration, 2005.

As indicated in **Table 4.5-6**, large bulldozers are capable of producing approximately 77 VdB, respectively, at 75 feet, the approximate distance to the nearest structure. Land uses surrounding the Project site consist mostly of warehouse and industrial uses, and do not contain sensitive equipment. However, the homeless shelter located to the north of the Project does provide transient lodging. The residential neighborhoods southwest of the Project site in the City of Los Angeles and Glendale Memorial

Hospital to the east of the Project site would not be affected given their distance from the proposed Project. Individuals staying overnight at the homeless shelter check in the late afternoon and leave early in the morning. As discussed below, high noise-producing (and vibration-producing) activities during construction will be scheduled to occur between the hours of 8:00 AM and 5:00 PM to minimize disruption on sensitive uses. As high vibration-producing activities would occur after individuals staying overnight at the shelter have left the facility, vibration impacts associated with construction would be less than significant.

Level of Significance Before Mitigation: Less than significant.

***Mitigation Measures*:** None are required.

Level of Significance After Mitigation: Less than significant.

Railroad Vibration – Trains are also a source of groundborne vibration. The Caltrans study identifies the threshold of annoyance as 20 meters, or 66 feet, from train tracks, given that vibration is constant. As the project site is located a little more the 50 feet from the UPRR right-of-way, train-generated vibration would be perceptible at the project site. However, this area of the Project would be occupied by a parking structure, which is not considered a sensitive receptor. Consequently, impacts would be less than significant.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Would result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.**

Impact Analysis: The construction period for the Project is anticipated to consist of four phases and last approximately 24 months. Initially, the Project would involve the removal all asbestos-containing building materials (ACBM), lead paint, and light ballast containing polychlorinated biphenyls (PCBs) from the site, in accordance with applicable local, state, and federal regulations. It is anticipated that equipment needs would be minimal with enclosed or covered haul trucks carrying bagged or non-regulated materials. The removal of these materials would occur concurrently with Phase I.

Phase I (Demolition) would involve the demolition and removal of the existing on-site structures. Demolition would occur over 15 days and would involve the use of standard construction equipment

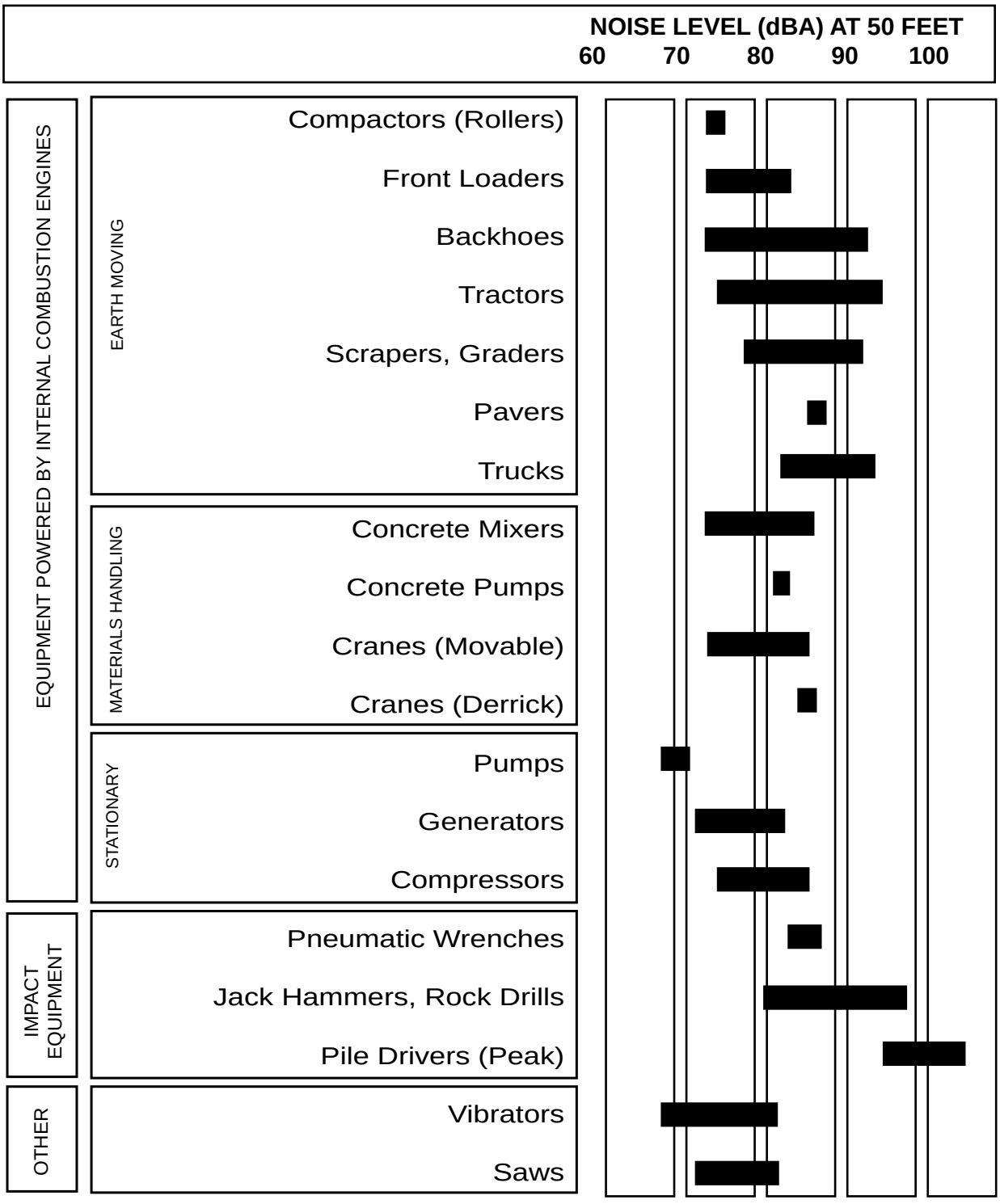
such as bulldozers, loaders and haul trucks. Approximately 4,000 cubic yards of demolition material would be generated and would require an average of 18 truck trips per day to export the demolition material.

Phase II (Grading/Excavation) would involve the excavation of 62,500 cubic yards of earth materials and replacement with properly compacted fill materials. Grading activities would involve the use of standard earth moving equipment, such as drop hammer, dozers, loaders, excavators, graders, back hoes, pile drivers, dump trucks, and other related heavy-duty equipment, which would be stored on site during construction to minimize disruption of the surrounding land uses. In addition, this phase would involve approximately 95 truck/trailer combos per day for export and import of soil. This phase is anticipated to take 45 days to complete.

Phase III would consist of sub-grade construction, which would occur over a four-month period. Sub-grade construction activities would involve the use of standard construction equipment, such as mixer trucks, concrete pump trucks, forklifts, laser screeds and other related equipment. Phase IV would consist of construction of the parking structure and commercial building super structures, which would occur over a six-month period. Above-grade construction activities would involve the use of standard construction equipment, such as hoists, cranes, mixer trucks, concrete pumps, laser screeds and other related equipment. Phases V and VI would involve finishing of the proposed structures, testing and operation, which would occur over a 12-month period. Finishing, testing and operation activities would involve the use of hoist cranes and other related equipment. These phases are anticipated to generate an average of 15 material delivery trucks per day.

Equipment used during the construction phases would generate both steady state and episodic noise that would be heard both on and off the project site. Noise levels generated during construction would primarily affect the warehouse and industrial uses adjacent to the project site. The U.S. Department of Transportation has compiled data regarding the noise generating characteristics of specific types of construction equipment. This data is presented in **Figure 4.5-5, Noise Levels of Typical Construction Equipment**. As shown, noise levels generated by heavy equipment can range from approximately 73 dB(A) to noise levels in excess of 80 dB(A) when measured at 50 feet.

Construction activities associated with the Project would occur at approximately 75 feet from existing warehouse and industrial uses. Noise levels generated during each of the project phases are presented in **Table 4.5-7, Estimated Noise Levels for Construction Phases**. Equipment estimates used for the analysis for demolition, grading, and building construction noise levels are representative of worse-case conditions, since it very unlikely that all the equipment contained on site would operate simultaneously. As presented, potential construction-related noise impacts are considered significant due to exceeding the noise threshold of 70 dB(A) for industrial area, as allowed by the Municipal Code.



NOTE: Based on limited available data samples.

SOURCE: United States Environmental Protection Agency, 1971, "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," NTID 300-1

FIGURE **4.5-5**

Noise Levels of Typical Construction Equipment

Table 4.5-7
Estimated Noise Levels for Construction Phases

Construction Phase	Approximate L_{eq} (dB(A)) without Noise Attenuation			
	75 Feet	100 Feet	200 Feet	300 Feet
Demolition	79	76	70	67
Grading/Excavation	80	78	72	68
Sub-grade Building Construction	80	77	71	68
Above-grade Building Construction	80	77	71	68

Source: Veneklasen Associates, 2008. Model results are contained in ***Appendix 4.5****.*

In addition to equipment-generated noise associated with construction activities, construction traffic would generate noise along access routes to the proposed development areas. The major pieces of heavy equipment would be moved onto the development only one time for each construction activity (i.e., demolition, grading, etc). In addition, daily transportation of construction workers and the hauling of materials both on and off the Project site are expected to cause increases in noise levels along study area roadways, although noise levels from such trips would be less than peak hour noise levels generated by Project trips during Project operation. Average daily trips associated with construction activities would not result in a doubling of trip volume along study area roadways. Given that it takes a doubling of average daily trips on roadways to increase noise by 3 dB(A), the noise level increases associated with construction vehicle trips along major arterials in the City of Glendale would be less than 3 dB(A), and potential impacts would be less than significant.

Level of Significance Before Mitigation: Significant.

Mitigation Measures: The following mitigation measures are provided to reduce significant noise impacts due to construction equipment:

4.5-1 All construction activity within the City shall be conducted in accordance with Section 8.36.080, Construction on buildings, structures and projects, of the City of Glendale Municipal Code.

4.5-2 The following construction best management practices (BMPs) shall be implemented to reduce construction noise levels:

- Two weeks prior to the commencement of construction, notification must be provided to surrounding land uses within 1,000 feet of a project site disclosing the construction schedule, including the various types of activities that would be occurring throughout the duration of the construction period;

- Ensure that construction equipment is properly muffled according to industry standards and be in good working condition;
- Place noise-generating construction equipment and locate construction staging areas away from sensitive uses, where feasible;
- Schedule high noise-producing activities between the hours of 8:00 AM and 5:00 PM to minimize disruption on sensitive uses;
- Implement noise attenuation measures to the extent feasible, which may include, but are not limited to, temporary noise barriers or noise blankets around stationary construction noise sources;
- Use electric air compressors and similar power tools rather than diesel equipment, where feasible;
- Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 30 minutes; and
- Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow for surrounding owners to contact the job superintendent. If the City or the job superintendent receives a complaint, the superintendent shall investigate, take appropriate corrective action, and report the action taken to the reporting party. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City prior to issuance of a grading permit.

4.5-3 Construction staging areas along with the operation of earthmoving equipment within the project area shall be located as far away from vibration- and noise-sensitive sites as possible.

Level of Significance After Mitigation: Although the mitigation measures identified would reduce noise levels to the maximum extent feasible, impacts during construction would remain significant and unavoidable.

Cumulative Impacts

For purposes of this analysis, development of the related projects provided in **Table 4.0-1, Related Projects**, in **Section 4.0, Environmental Impact Analysis**, will be considered to contribute to cumulative noise impacts. Noise by definition is a localized phenomenon, and drastically reduces as distance from the source increases. Consequently, only projects and growth due to occur in the general area of the Project site would contribute to cumulative noise impacts.

Thresholds: **Would result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.**

Would result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

***Impact Analysis*:** Cumulative development would be subject to California Noise Insulation and City of Glendale standards, which require that new hotels, apartment houses, and dwellings achieve an interior noise level of 45 dB(A), and that commercial and office uses achieve interior noise levels of 55 dB(A). Nonetheless, it cannot be guaranteed that all cumulative development associated with related projects would or could comply with these standards, which could result in the exposure of persons to noise levels in excess of applicable standards. Thus, the cumulative impact could be significant. The Project impacts would be less than significant, as all office and commercial development under the Project would be designed to comply with these standards, and as noted above, would achieve compliance. Consequently, the Project contribution to cumulative noise impacts is not cumulatively considerable.

Cumulative development from related projects would not result in a cumulative impact in terms of a substantial permanent increase in ambient noise levels. A substantial permanent increase is most likely to originate from an increase in noise levels due to roadway traffic. For the purposes of this EIR, an increase of 5 dB(A) at any roadway location is considered a significant impact, and if the resulting noise level would exceed the land use compatibility criteria, then an increase of 3 dB(A) is considered significant. In order to determine whether the Project would result in a cumulatively significant impact, the increase between existing conditions and future with Project conditions was determined. Refer to **Table 4.5-8, Cumulative Roadway Noise Levels.** As shown under the future with Project condition, roadway noise level increases would be above 5 dB(A) CNEL along three roadway segments adjacent to the Project site. These increases are primarily due to the fact that these roadways do not currently carry a substantial amount of traffic (Gardena and Fernando Court) and are the primary entrance/exit roadways for the Project. Even though noise levels are substantially below the City standards and the uses within adjacent buildings are enclosed thus reducing the noise exposure to occupants, the increase in traffic noise along these segments would be greater than the threshold. Consequently, a cumulatively significant impact would occur with regard to roadway noise. In addition, because the contribution of the Project was included in the future with Project conditions, the Project's impact is also significant.

Table 4.5-8
Cumulative Roadway Noise Levels

Roadway Segment/Intersection	Existing	Future Noise Levels With Project	Cumulative Change in Noise Levels	Cumulative Project Impact
City of Los Angeles				
Glenfeliz Boulevard, south of Los Feliz	54.1	54.3	0.2	No
Brunswick Avenue, north of Los Feliz	56.7	57.0	0.3	No
Brunswick Avenue, south of Los Feliz	55.6	55.9	0.3	No
Revere Avenue, south of Los Feliz	54.1	54.4	0.3	No
Los Feliz Boulevard, west of I-5	66.7	67.6	0.9	No
Los Feliz Boulevard, between I-5 and Glenfeliz	68.1	69.0	0.9	No
Los Feliz Boulevard, between Glenfeliz and Brunswick	67.2	68.1	0.9	No
Los Feliz Boulevard, between Brunswick and Revere	67.5	68.5	1	No
Los Feliz Boulevard, between Revere and UPRR	66.1	67.2	1.1	No
City of Glendale				
Chevy Chase, west of San Fernando	59.8	60.1	0.2	No
Chevy Chase, between San Fernando and Central	62.7	62.9	0.2	No
Chevy Chase, between Central and Brand	63.2	63.6	0.4	No
Chevy Chase, between Brand and Glendale	63.6	64.0	0.3	No
Chevy Chase, east of Glendale	64.0	64.5	0.8	No
Fernando Court, west of Gardena	37.8	56.4	18.6	Yes
Fernando Court, east of Gardena	49.8	54.9	5.1	Yes
Los Feliz, between UPRR and Gardena	66.1	67.4	1.3	No
Los Feliz, between Gardena and San Fernando	66.0	67.7	1.6	No
Los Feliz, between San Fernando and Central	64.3	65.5	1.2	No
Los Feliz, between Central and Brand	63.5	64.5	1.0	No
Los Feliz, between Brand and Glendale	62.7	63.4	0.7	No
Los Feliz, east of Glendale	49.1	51.1	2.0	No
Gardena, between Fernando and Los Feliz	46.6	55.0	8.4	Yes
Gardena, between Los Feliz and Central	54.5	54.8	0.3	No
San Fernando, north of Chevy Chase	65.7	66.4	0.7	No
San Fernando, between Chevy Chase and Fernando	65.0	65.8	0.8	No
San Fernando, between Fernando and Los Feliz	64.9	65.6	0.7	No
San Fernando, between Central and Brand	65.5	66.6	1.1	No

Roadway Segment/Intersection	Existing	Future Noise Levels With Project	Cumulative Change in Noise Levels	Cumulative Project Impact
San Fernando, between Brand and Glendale	65.9	67.0	1.1	No
San Fernando, south of Glendale	65.6	66.7	1.1	No
Central, north of Chevy Chase	64.5	65.5	1.0	No
Central, between Chevy Chase and Los Feliz	64.4	65.5	1.1	No
Central, between Los Feliz and San Fernando	62.1	62.7	0.6	No
Central, between San Fernando and Gardena	56.4	59.7	3.3	No
Brand, north of Chevy Chase	65.0	66.0	1.0	No
Brand, between Chevy Chase and Los Feliz	65.2	66.1	0.9	No
Brand, between Los Feliz and San Fernando	65.2	65.9	0.7	No
Brand, south of San Fernando	66.5	67.1	0.6	No
Glendale, north of Chevy Chase	64.3	64.6	0.3	No
Glendale, between Chevy Chase and Los Feliz	64.9	65.3	0.4	No
Glendale, between Los Feliz and San Fernando	62.4	62.6	0.2	No

Source: Impact Sciences. Model results are contained in ***Appendix 4.5****.*

With regard to stationary sources, a cumulatively significant impact could result from cumulative development. The major stationary sources of noise that would be introduced in the area by related projects would include rooftop equipment, loading docks, and parking structures. Since these projects would be required to adhere to City of Glendale noise standards, all the stationary sources would be required to provide shielding or other noise abatement measures so as not to cause a substantial increase in ambient noise levels. Moreover, due to distance, it is unlikely that noise from multiple related projects would interact to create a significant combined noise impact. Therefore, it is not anticipated that a significant cumulative increase in permanent ambient noise levels would occur and, therefore, the impact would be less than significant. Consequently, the project contribution to cumulative noise impacts is not considered to be cumulatively considerable.

Level of Significance Before Mitigation: Significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Would result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.**

Impact Analysis: Vibration impacts are localized in nature and decrease with distance. Consequently, in order to achieve a cumulative increase in vibration, more than one source emitting high levels of vibration would need to be in close proximity to the noise receptor. The closest related project, the residential-commercial mixed-use project at 3900 San Fernando Road, is located 580 feet from the project site. This related project would not be located close enough to the project site where significant vibration impacts would occur from concurrent construction. The combined vibration impact of the related projects and the project's contribution would not be cumulatively significant.

Level of Significance Before Mitigation: Less Than Significant.

Mitigation Measures: None required.

Level of Significance After Mitigation: Less Than Significant.

Threshold: **Would result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.**

Impact Analysis: Noise impacts are localized in nature and decrease with distance. Consequently, in order to achieve a cumulative increase in noise, more than one source emitting high levels of noise would need to be in close proximity to the noise receptor. One such related project, the residential-commercial mixed-use project at 3900 San Fernando Road, is located in close enough proximity to the project site to result in cumulative noise impacts during construction. As discussed above, because loud construction equipment, such as tractors, backhoes, trucks, and jackhammers, would be utilized during project construction, noise levels over 95 dB(A) are anticipated within 50 feet of operation. The 3900 San Fernando Road project by itself could generate noise levels in excess of City standards at adjacent locations. If construction of the proposed Project and this related project were to occur simultaneously, there is the potential for combined construction impacts. Therefore, the project contribution to a significant cumulative construction noise impact would be cumulatively considerable. Cumulative construction noise impacts would be significant and unavoidable.

Level of Significance Before Mitigation: Significant.

Mitigation Measures: Implementation of **Mitigation Measures 4.5-1** to **4.5-3** would reduce construction noise levels generated by the Project.

Level of Significance After Mitigation: Although the mitigation measures identified above would reduce noise levels to the maximum extent feasible, impacts during construction would remain significant and unavoidable.