APPENDIX 4.7

Acoustical Analysis

Veneklasen Associates
Consultants in Acoustics & Audio-Visual Design

ASSESSMENT OF ENVIRONMENTAL NOISE

GLENDALE TRIANGLE PROJECT SITE
CITY OF GLENDALE

August 19, 2008

By

Veneklasen Associates, Inc.

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INTRODUCTION

This section of the EIR presents the results of an analysis of both existing background conditions and future noise conditions following completion of the project. These findings also reflect the project traffic study, prepared by Linscott, Law and Greenspan in August 2008.

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.

Although sound can be easily measured, its perception is subjective and the physical response to noise complicates the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness." However, the sound pressure magnitude can be objectively measured and quantified using a logarithmic ratio of pressures which yields the level of sound, utilizing the measurement scale of decibels (dB). The decibel is generally adjusted to the A-weighted level (dBA) which de-emphasizes very low frequencies to better approximate the human ear's range of sensitivity. In practice, the noise level of a sound source is measured using a sound level meter that includes an electronic filter corresponding to the A-weighting curve. Table A.1 in the appendix defines the decibel along with other technical terms used in this analysis.

Even though the A-weighted scale accounts for a person's spectral response and, therefore, is commonly used to quantify individual events or general community sound levels, the degree of annoyance or other response effects also depends on several other perceptibility factors, including:

- ambient (background) sound level
- magnitude of the event sound level with respect to the background
- Spectral (frequency) composition (e.g., presence of tones)
- duration of the sound event
- number of event occurrences and their repetitiveness

- Time of day the event occurs.

In determining the daily level of environmental noise, it is important to account for the difference in human responses to daytime and nighttime noises. At night, exterior background noise levels are generally lower than daytime levels. However, most household noise also decreases at night, and exterior noise may become increasingly noticeable. Further, most people sleep at night and are very sensitive to noise intrusion. To account for human sensitivity to nighttime noise levels, a 24-hour descriptor, Ldn (day-night average sound level), was developed. The Ldn divides the 24-hour day into a daytime period of 7:00 a.m. to 10:00 p.m. and a nighttime period of 10:00 p.m. to 7:00 a.m. Noise levels occurring during nighttime period are penalized 10 dB, in determining the level for this descriptor. The Community Noise Equivalent Level (CNEL) is another 24-hour average that includes both an evening and a nighttime weighting. The evening period from 7:00 p.m. to 10:00 p.m. is given a 5 dB penalty. Otherwise, the CNEL has the same weighting and periods as the Ldn metric.

The effects of noise on people fall into three general categories:

- Subjective effects of annoyance and nuisance
- Interference with activities such as speech, sleep and learning
- Physiological effects such as hearing loss

In most cases, the levels associated with environmental noise produce effects only in the first two categories. However, workers in industrial plants may experience noise effects in the last category. There is no completely effective way to measure the subjective effects of noise or the corresponding reactions of annoyance, because of the wide variation in individual thresholds of annoyance and degrees to which people become acclimated to noise. Thus, an important way of determining a person's subjective reaction to a new noise source is by comparison to the existing environment to which they are accustomed (the "ambient" environment"). In general, the more a new noise exceeds the previous ambient noise level, the less acceptable the noise source will be to those who hear it.

With regard to increases in A-weighted noise levels, the following relationships are applicable to this analysis:

- Except in carefully controlled laboratory experiments, a 1 dB change cannot be perceived.
- Outside of a laboratory, a 3 dB change is considered a just-perceivable difference.
- A change in level of at least 5 dB is considered a noticeable change in noise level.

- A 10 dB change is subjectively heard as approximately a doubling in loudness, and would almost certainly cause an adverse change in community response.

Common noise levels associated with certain activities are shown on Figure 1, Common Noise Levels.

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 (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.[1] 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.[2] Man-made or natural barriers can also attenuate sound levels.

The minimum attenuation of exterior to interior noise provided by typical structures is provided in Table 1, Outside to Inside Noise Attenuation.

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

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

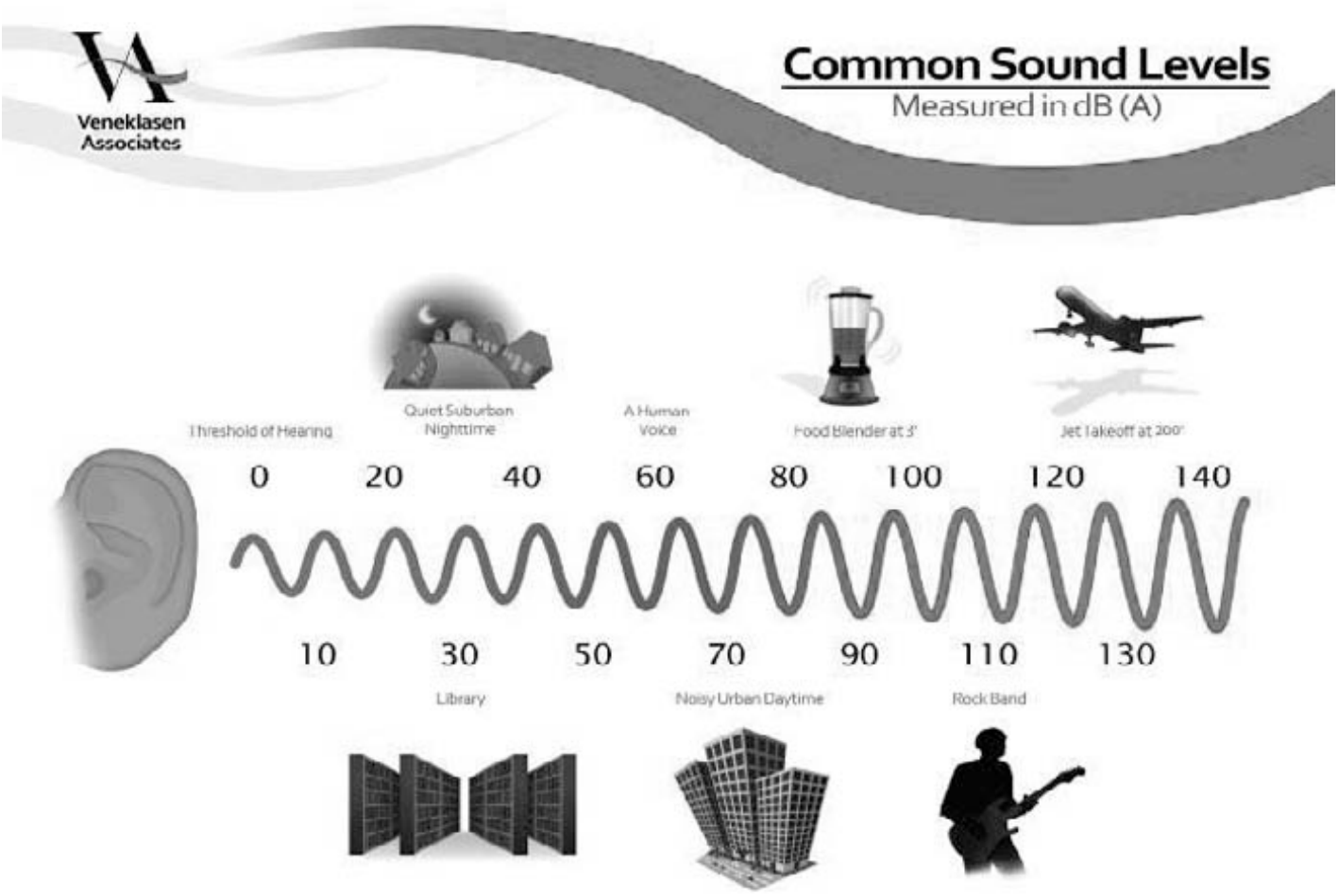
Table 1
Outside to Inside Noise Attenuation (dB(A))

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).***

Figure 1 - Common Noise Levels



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 generated attenuates rapidly as distance from the source of the vibration increases. Vibration can be measured as particle velocity in inches per second and can be 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 the typically background vibration velocity, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings.

Figure 2, 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

The criteria used to assess the acceptability of community noise levels vary with the municipality. The project is located within the City of Glendale; therefore, it is subject to the standards promulgated by the City.

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 2, Exterior Presumed Noise Standards, and Table 3, Interior 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 shall not exceed the presumed noise level by more than 5 dB(A).

Table 2
Exterior Presumed Noise Standards

Zone	Standard	Maximum	Time
Residential (single family and duplex)	55 dB(A)	60 dB(A)	Daytime
	45 dB(A)	50 dB(A)	Nighttime[1]
Residential (multi-family, hotels, motels and transient lodgings)	60 dB(A)	65 dB(A)	Anytime
Central Business District and Commercial	65 dB(A)	70 dB(A)	Anytime

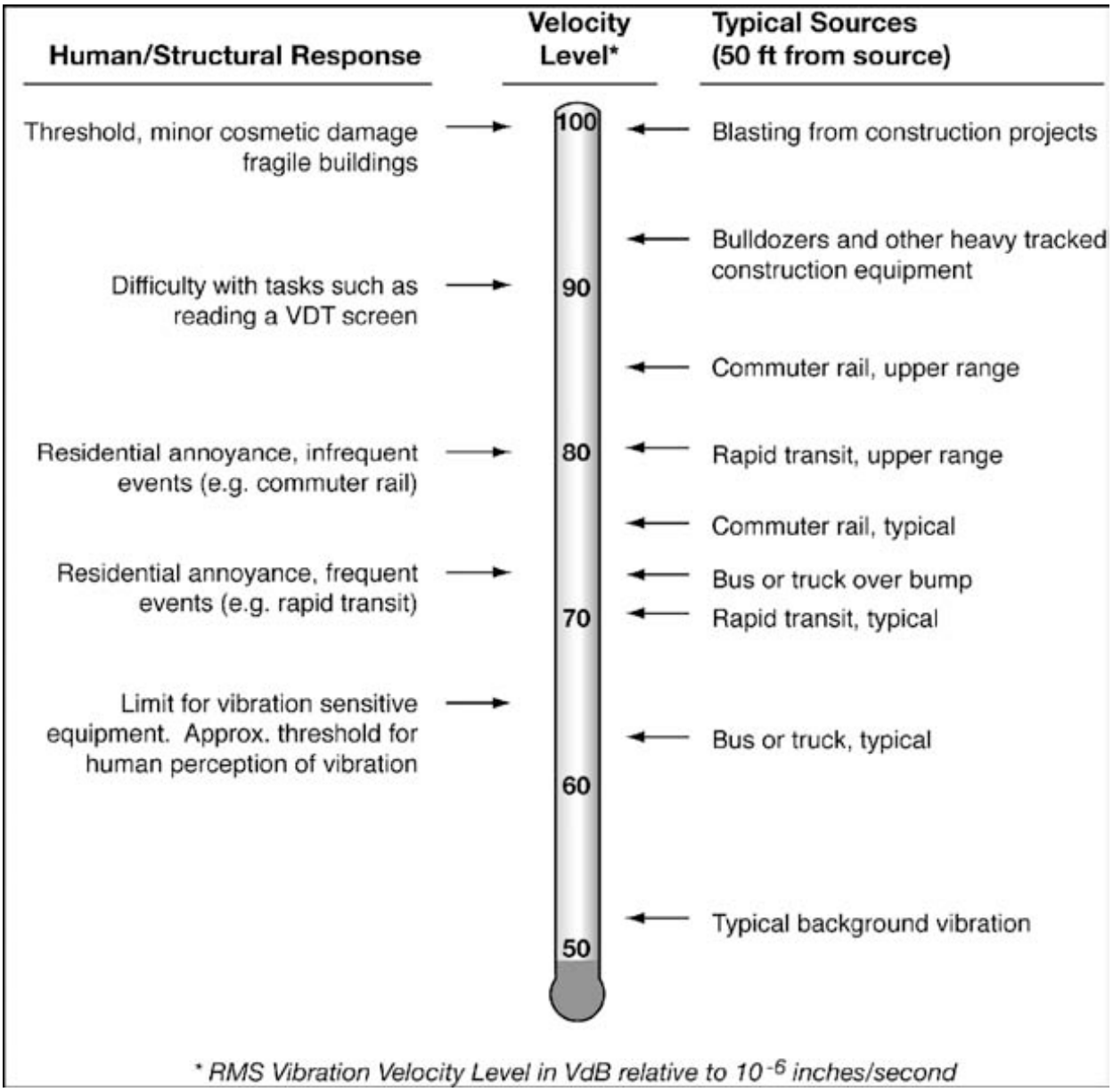
Source: City of Glendale Municipal Code.

Table 3
Interior Presumed Noise Standards

Zone	Decibels	Time
Residential	45 dB(A)	Nighttime[1]
Residential	55 dB(A)	All other times

Source: City of Glendale Municipal Code.
[1] Nighttime is defined as between 10:00 PM to 7:00 AM.

Figure 2 - Typical Levels of Ground-Borne Vibration



In addition, the City of Glendale General Plan Noise Element (adopted June 7, 2007) establishes noise guidelines for the various land uses throughout the City. Figure 3, Land Use Compatibility to Noise, identifies the acceptable limit of noise exposure for various land use categories within the City. Noise exposure for a residential land use is "normally acceptable" when the CNEL at exterior residential locations is equal to or below 60 dB(A), "conditionally acceptable" when the CNEL is between 60 to 70 dB(A), "normally unacceptable" when the CNEL is between 70 to 75 dB(A), and "clearly unacceptable" when the CNEL is greater than 75 dB(A). For commercial land uses, such as those proposed by the Glendale Triangle Project, a CNEL of 70 dB(A) would be considered "normally acceptable," and a CNEL greater than 75 dB(A) would be considered "normally unacceptable." These guidelines apply to noise sources such as vehicular traffic, aircraft, and rail movements.

Section 8.36.080 of the City of Glendale Municipal Code was adopted in order to reduce intrusive noise sources that are related to construction activities. It is unlawful for any person within a residential zone, or within 500 feet of a residential zone, to operate equipment or perform any outside construction or repair work on buildings within the City between the hours of 7:00 AM and 7:00 PM, Monday through Saturday, unless a permit is obtained beforehand. No construction is allowed on Sundays and holidays without an approved permit. 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 surrounding the project site consist of a hospital, commercial, office and residential uses. Noise sensitive receptors exist within the immediate vicinity of the site.

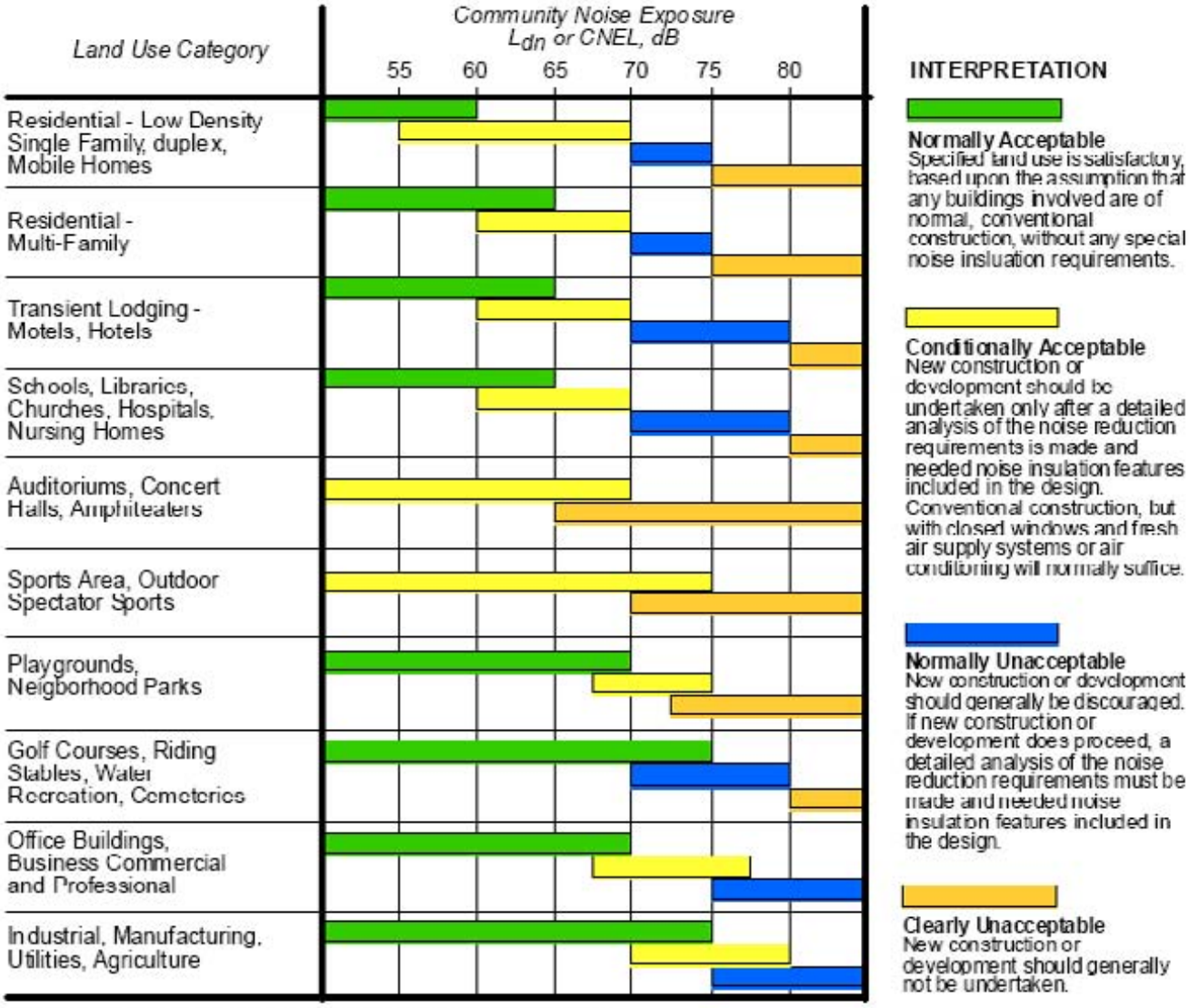
The project site is located in an urban location in the City of Glendale and is exposed to noise sources typical of such a setting. Stationary sources of noise on the site include a car wash, auto repair service, and fast-food restaurant uses and parking (e.g., doors slamming, car alarms). Off-site stationary noise sources in the area that are audible on the site include activities associated with commercial and retail uses surrounding the site, such as people talking, doors slamming and tires squealing, and truck deliveries. Mobile sources of noise that are audible on the site are related to traffic along San Fernando Avenue, Los Feliz Road and Central Avenue.

Existing Ambient Monitored Noise Levels

Veneklasen Associates (VA). conducted noise level monitoring to document ambient conditions, using a three Bruel & Kjaer 2260 Sound Level Meters, which satisfy the American National Standards Institute (ANSI) for general environmental noise measurement instrumentation. Vehicular traffic is the predominant noise source around the project site. Long term noise monitoring was conducted at three locations around the project site on Tuesday, July 2 through Thursday, July 3, 2008, a 48-hour period. These noise levels are conservative since they were not measured during the weekend. Noise readings were taken in L_{eq} 10-minute intervals with "A" frequency fast time weighting. A series of short term noise measurements were also conducted on site taken in 10 minute periods. The existing car wash did increase the ambient noise level on site, however the sound level meters were located as to avoid this noise. No unique or special events, such as high-winds or construction activities, were noted during the monitoring periods. Figure 4, Noise Monitoring Location, illustrates the location of noise monitoring sites, and Table 4, Existing Ambient Monitored Noise Levels, provides the data associated with each monitoring period for each location. As shown, noise levels ranged from 68 dB(A) to 72 dB(A) CNEL on the existing project site. These monitored levels are typical of commercial, office, dining, and entertainment land uses.

Figure 3 - Land Use Compatibility to Noise

Table 1
Noise/Land Use Compatibility Table



Source: State of Califronia, "General Plan Guidelines," 1998

Figure 4 - Noise Monitoring Locations

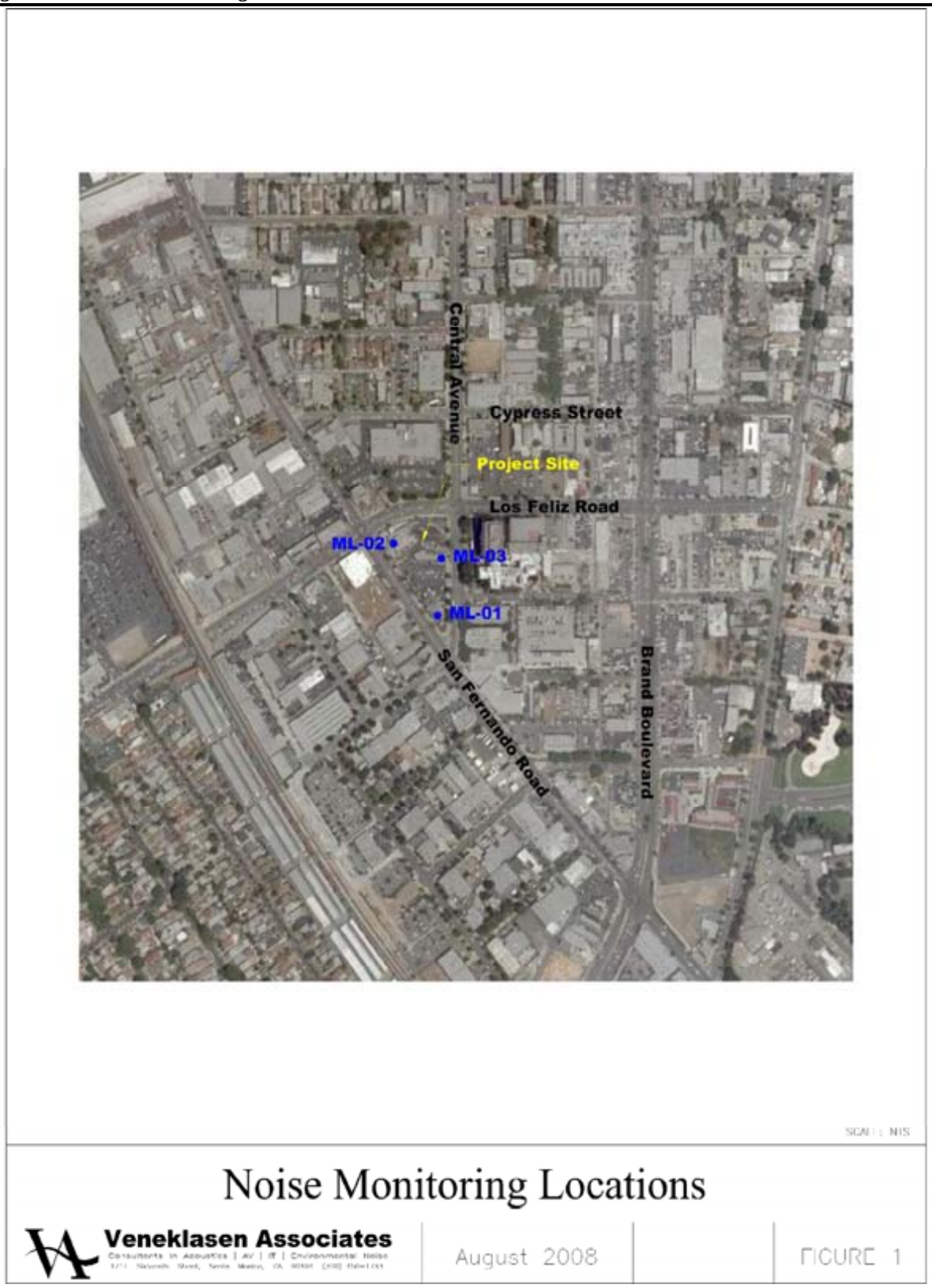


Table 4
Existing Ambient Monitored Noise Levels

Location	Noise Sources	Noise Levels, CNEL
Location No. 1 – On project site along San Fernando Road and Central Avenue approximately 40 feet from edge of San Fernando Road	Vehicles, Rooftop Mechanical Equipment	72 dB(A)
Location No. 2 – On project site along San Fernando Road and Los Feliz Road approximately 50 feet from roadway edge.	Vehicles, Equipment Associated with Car Wash	72 dB(A)
Location No. 3 – On project site along Central Avenue approximately 20 feet from roadway edge.	Vehicles	69 dB(A)

Source: Veneklasen Associates., July 1 through July 3, 2008.

Existing Modeled Noise Levels

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 version 2.5 of the Federal Highway Administration's Traffic Noise Model(TNM). Figure 5, Traffic Noise Model Receptor Locations, illustrates the location of receptor locations, and Table 5, Existing Ambient Monitored Noise Levels, provides the results associated with receptor location. As shown, roadway noise levels range from a low of 53.7 to a high of 72.5 dB(A) CNEL.

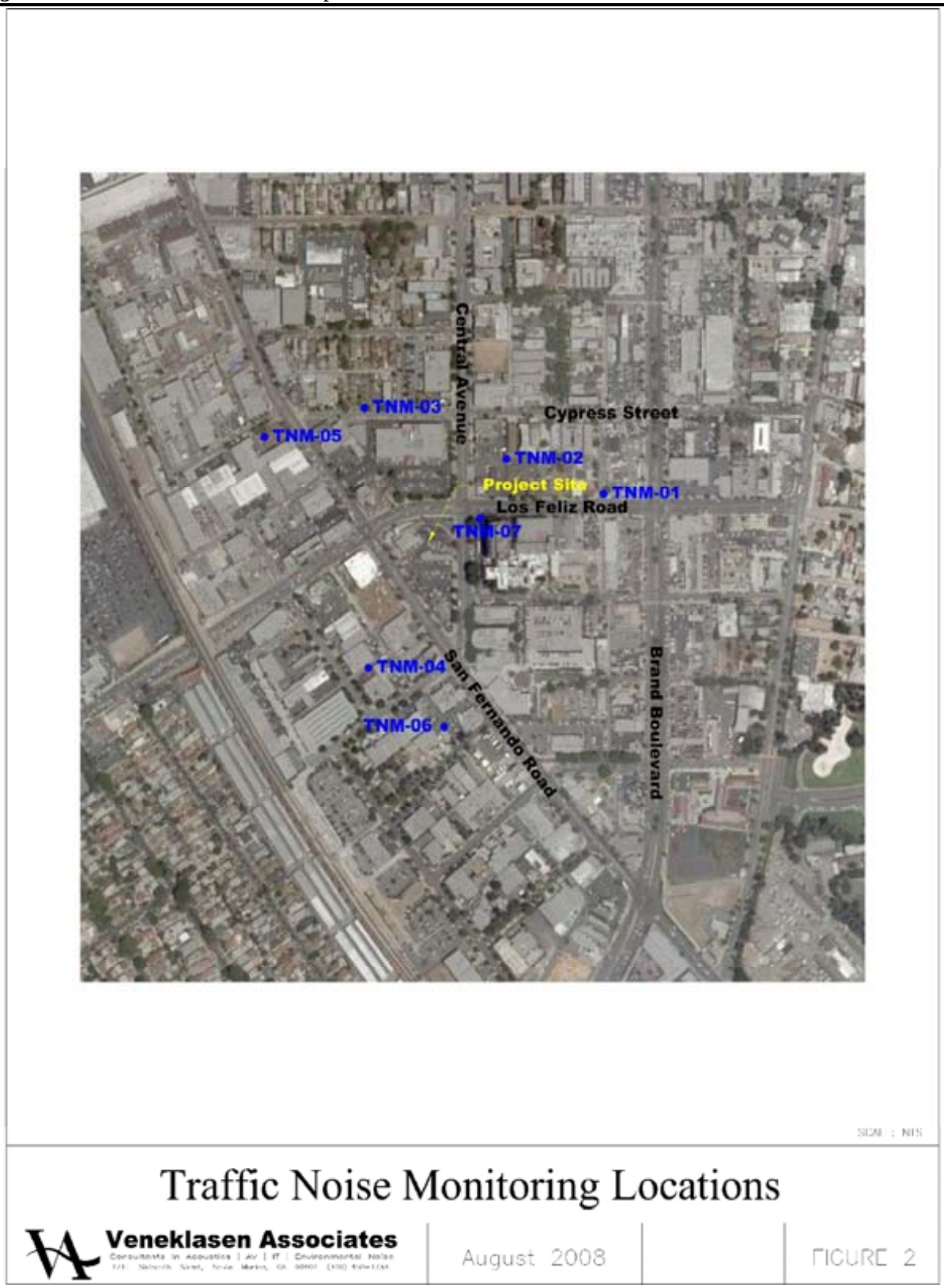
Table 5
Existing Roadway Modeled Noise Levels

Receptor	Location	CNEL in dB(A)
TNM01	Los Feliz Road, east of Central Ave	70.4
TNM02	East of Central Ave	66.8
TNM03	West of Central Ave, East of San Fernando Road	59.2
TNM04	West of San Fernando Road	53.7
TNM05	West of San Fernando Road	68.9
TNM06	West of San Fernando Road	58.4
TNM07	East of Central, South of Los Feliz Road	72.5

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

Based on noise monitoring and noise modeling conducted, the existing noise levels around the project site exceed City threshold levels for residential land uses.

Figure 5 - Traffic Noise Model Receptor Locations



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. 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 Noise Prediction Model (TNM Version 2.5). The California Department of Transportation (Caltrans) published the "Technical Noise Supplement (TeNS)" in October of 1998 which defines how to predict traffic noise for projects in California. The TeNS, Section N-5520 requires that any traffic noise study conducted after March 30, 2000 utilize the calculation methods used by Federal Highway Administration (FHWA) 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 Linscott, Law & Greenspan, the project traffic engineer.

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 ***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.

- 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.

The ***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 Thresholds

On-Site Traffic Noise Thresholds

As shown in Figure 3, the City's Noise Element defines multi-family residential use is "normally acceptable" with exterior noise levels of up to 65 dB(A) CNEL, "conditionally acceptable" between 65 dB(A) and 70 dB(A) CNEL and "normally unacceptable" between 70 dB(A) and 75 dB(A) CNEL. Section 2.2.3, 'Site Plan Review', of The City of Glendale's Noise Element describes a method of reviewing the layout of a project in the planning stage of the development as to locate noise sensitive uses in lower noise exposure areas on the project site.

Table 2 of the City's Noise Element requires that 'residential within mixed use' development have an interior noise level below 45 CNEL however there is no exterior noise requirement.

Off-Site Traffic 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 <u>not</u> 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.

Off-Site Construction Noise Thresholds

Off-site construction noise thresholds consider the following: the City's Municipal Code, the City's Noise Compatibility Criteria, community responses to changes in noise levels, and CEQA standards. Based on this information, the following thresholds have been established for this analysis:

- Exceeding the "presumed ambient noise level", as defined in Table 2, by 5 dB(A) would be considered a significant impact.

Vibration Thresholds

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 Federal Railroad Administration (FRA) 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.

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 residential land uses.

Impact Analysis:

Vehicle Noise

Vehicle Noise – Off Site – 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 the Traffic, Circulation and Parking report. Specifically, forecasts were calculated by comparing the existing noise to existing plus project. The results of the modeled weekday roadway noise levels are provided below in Table 6, Operational Roadway Noise Levels. There will be no change in CNEL levels resulting from the proposed project. None of the roadway segments would result in an increase in CNEL of greater than 3 dB(A) during the weekday resulting from the project's development. Potential impacts are, therefore, considered to be less than significant.

Table 6
Operational Roadway Noise Levels

Receptor	Location	Existing Noise Levels Without Project	Existing Noise Levels Plus Project	Change in Noise Levels	Significant Project Impact
TNM01	Los Feliz Road, east of Central Ave	70.4	70.4	0.0	NO
TNM02	East of Central Ave	66.8	66.8	0.0	NO
TNM03	West of Central Ave, East of San Fernando Road	59.2	59.2	0.0	NO
TNM04	West of San Fernando Road	53.7	53.7	0.0	NO
TNM05	West of San Fernando Road	68.9	68.9	0.0	NO
TNM06	West of San Fernando Road	58.4	58.4	0.0	NO
TNM07	East of Central, South of Los Feliz Road	72.5	72.5	0.0	NO

All values are listed in dB(A)
Source: Veneklasen Associates. Model results are contained in the Appendix.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Vehicle Noise – On Site - As shown in Table 6, existing plus project modeled noise levels on the project site near the intersection of Central Avenue and Los Feliz Road would be approximately 72.5 dB(A) CNEL. This noise levels are consistent with the monitored results around the project site of between 69 dB(A) to 72 dB(A) CNEL. Exterior noise levels would be in the 'Conditionally Acceptable' to 'Normally Unacceptable' ranges as shown in Figure 3. Interior noise levels in the building along Los Feliz Road, Central Ave and San Fernando Road could be above the interior threshold of 55 dB(A) during the daytime and 45 dB(A) during the nighttime resulting in significant interior noise level.

Sirens noise from ambulances associated with the nearby Glendale Memorial Hospital could be potentially deemed annoying or intrusive by the future residents. However, since siren noise will be infrequent and short in duration they will not influence the CNEL at the project site since the CNEL is averaged over a 24 hour period. If allowable, ambulances should turn off sirens as soon as possible after entering hospital.

Level of Significance Before Mitigation: Significant.

Mitigation Measures: The following mitigation measure is provided to reduce interior noise level to acceptable levels*:*

(1) Noise sensitive residential land uses proposed in areas exceeding the exterior 65 dB(A) CNEL (such as those dwelling units facing Los Feliz Road, San Fernando Road and Central) shall be designed so that interior average noise levels attributable to exterior sources do not exceed 55 dB(A) during the daytime and 45 dB(A) during the nighttime when doors and windows are closed. In additiona a CNEL of 45 shall not be exceeded. An acoustical analysis of the noise insulation effectiveness of proposed construction shall be required and documented during permit review, showing that the building materials and construction specifications are adequate to meet the interior noise standard. Examples of building materials and construction specifications which may be used to meet the interior noise standard include the following:

- Windows and sliding glass doors with exposure to San Fernando Road, Los Feliz Road or Central Avenue shall be doubled paned, mounted in low air filtration rate frames, and have a sound transmission coefficient rating of 30 or greater;

- Air conditioning units to be provided to allow for windows to remain closed

Level of Significance After Mitigation: Less than significant.

Parking Structures – Development of the proposed project would introduce a four-level subterranean parking garage on the project site. Subterranean parking levels would not be a source of noise due to being fully enclosed.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Retail Noise

On-Site Retail Uses – Future residents within the project site may experience noise due to human activity within the area from patrons using commercial/retail businesses and the public open proposed on site. Potential noise sources associated with retail uses on site include people talking, music from dining uses, and other noise associated with commercial activity. Typical noise levels in retail-commercial areas in common are approximately 65 dB(A).[3] In the area of the project site where commercial activities are located, the noise level based on monitoring within 50 feet of the adjacent roadways during the hours of 10:00 PM to 7:00 AM ranges from approximately 61-64 dB(A) L_{eq}., from 7:00 AM to 10:00 AM ranges from approximately 65-70 dB(A) L_{eq}, and from 10:00 AM to 7:00 PM ranges from approximately 66-69 dB(A) L_{eq}. Consequently, roadway noise would be a more prominent noise source and, therefore, noise generated by human activity would not result in a significant impact.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Residential Noise

Residential On-Site Development – Future residents located on the project site, as well as off-site uses, may experience noise due to an increase in human activity within the area. Potential residential-type

3 California Department of Transportation, Technical Noise Supplement, October 1998, Table N-2136.2.

noise sources include people talking, doors slamming, stereos, domestic animals, and other noises associated with human activity. These noise sources are not unique and generally contribute to the ambient noise levels experienced in all residential areas. Noise levels for residential areas are typically between 48 to 52 dB(A) CNEL.[4] Overall, the noise generated by the project's residential land uses would not exceed the City's compatibility thresholds and is considered to 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.

Construction Noise

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 28 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 and haul trucks. 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 and removal on a worst-case day would involve the use of standard construction equipment, including a loader, bull dozer, backhoe and crane. In addition, this phase would include up to 24 demolition haul truck round trips per day. This phase is anticipated to take one week to complete.

Phase II (Grading/Excavation) would involve the excavation of existing fill materials and replacement with properly compacted fill materials. Activities on a worst-case day would involve the use of a bull dozer, one hydraulic crane, a scraper, vibratory roller and compactor, which would be stored on site during construction to minimize disruption of the surrounding land uses. In addition, this phase would involve approximately 147 truck/trailer combos per day for export and import of soil. This phase is anticipated to take three months to complete.

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4 U.S. Environmental Protection Agency, ***Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety***, March 1974.

Phase III would consist of sub-grade construction, and Phase IV would involve above-grade construction (Phase III and IV constitute Building Construction). Activities during this phase on a worst-case day would involve the use of standard construction equipment, including one crane, front end loader, concrete pump, and bull dozer. In addition, during the peak period, these phases are anticipated generate a total of 6 material delivery trucks per day along with a total of 10 concrete trucks per day. This phase is anticipated to take approximately 27 months to complete.

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 hospital and patrons of the commercial and offices 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 Table 7, 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 95 feet from existing commercial and office uses and 130 from the Glendale Memorial Hospital. Noise levels generated during each of the project phase are presented in Table 8, 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 65 dB(A) for the hospital and 70 dB(A) for central business district, as allowed by the Municipal Code.

[1] California Department of Transportation, Division of Environmental Analysis, Transportation Related Earthborne Vibrations, (Sacramento, California: California Department of Transportation, Division of Environmental Analysis, February 20, 2002) 17.

Table 7 - Noise Levels of Typical Construction Equipment

Noise Levels of Typical Construction Equipment
taken from the FHWA Roadway Construction Noise Model

Construction Equipment	Sound Level dBA @ 50'
Front Loader	75
Trucks	77
Cranes	73
Vibratory Roller	73
Compactor	76
Pumps	78
Large Bull Dozer	74
Scraper/Grader	80
Back Hoe	74

Table 8
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: Model results are contained in Appendix.

Besides equipment 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 project roadways, although noise levels from such trips would be less than peak hour noise levels generated by project trips during project operation. Given that it takes a doubling of average daily trips on roadways to increase noise by 3 dB(A) and that average daily trips from construction activities would not result in a doubling of trip volume, the noise level increases 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 noise levels associated with construction:

(3) All construction activity within the City shall be conducted in accordance with Section 8.36.080 of the City of Glendale Municipal Code.

(4) 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;
- 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 , 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;
- 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 and residents 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.

(5) 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.

(6) Heavily loaded trucks used during construction shall be routed away from residential streets. .

Level of Significance After Mitigation: Significant and unavoidable.

Construction Vibration

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

Impact Analysis: 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 very close to the site. The primary and most intensive vibration source associated with the development of the project would be the use of bulldozers 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 9, Vibration Source Levels for Construction Equipment, lists vibration source levels for construction equipment.

Table 9
Vibration Source Levels for Construction Equipment

Equipment	Peak Particle Velocity at 25'	Approximate Lv at 25 feet in VdB (re: 1x10-6 in/sec.)
Vibratory Roller	0.210 in/sec	94
Large Bulldozer	0.089 in/sec	87
Hoe Ram	0.089 in/sec	87
Loaded trucks	0.076 in/sec	86
Jackhammer	0.035 in/sec	79
Small bulldozer	0.003 in/sec	58

Source: Federal Transit Administration, 2006.

The closest sensitive land use is the Glendale Memorial Hospital which is approximately 130 feet from the project site. This land use has the most stringent vibration criteria surrounding the project site as the other land uses consist of mostly commercial and office uses. Phase 2, Excavation/Grading, represents the worst case scenario for vibration producing equipment. For this phase the calculated vibration level at the hospital, based on the calculation method described in the FTA Noise and Vibration Assessment Manual, will be 65 VdB. Since the criteria for a hospital is 65 VdBA as defined by the Federal Railroad Administration, the vibration impacts are considered significant for the hospital. Figure 6 shows the

location of receptors for construction noise and vibration calculations and Table 10 presents the results of the maximum expected vibration due to construction activity at these locations.

Figure 6 - Construction Noise and Vibration Receptor Locations

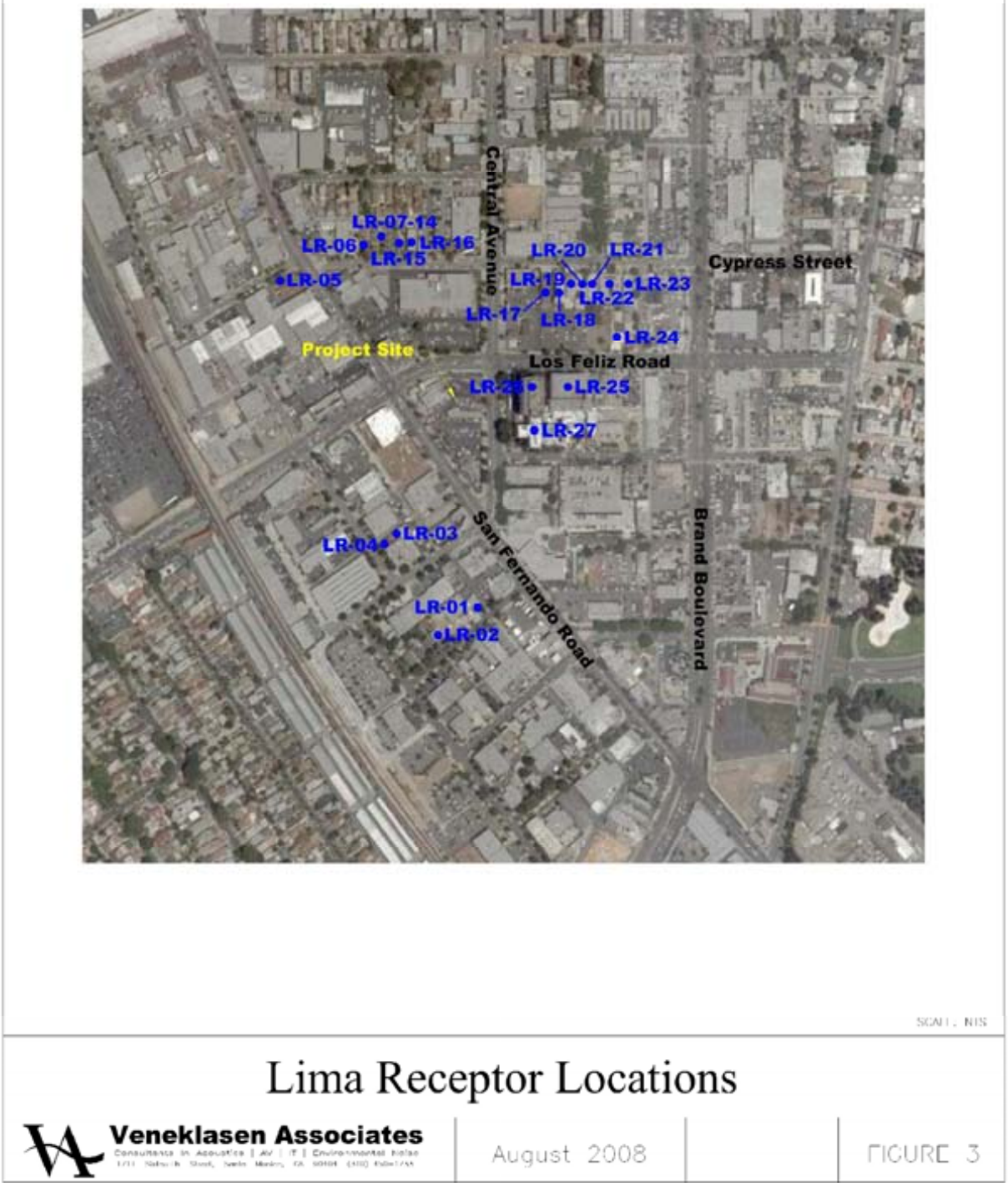

Table 10 - Maximum Expected Lv in terms of VdB (re: 1x10-6 in/sec)

Receptor Location	Maximum Expected Vibration Level	Criteria	Exceed Criteria?
LR01	61 VdB	72	No
LR02	47 VdB	72	No
LR03	51 VdB	72	No
LR04	51 VdB	72	No
LR05	44 VdB	72	No
LR06	45 VdB	72	No
LR07	46 VdB	72	No
LR08	45 VdB	72	No
LR09	44 VdB	72	No
LR10	44 VdB	72	No
LR11	44 VdB	72	No
LR12	45 VdB	72	No
LR13	45 VdB	72	No
LR14	46 VdB	72	No
LR15	46 VdB	72	No
LR16	47 VdB	72	No
LR17	51 VdB	72	No
LR18	50 VdB	72	No
LR19	48 VdB	72	No
LR20	47 VdB	72	No
LR21	46 VdB	72	No
LR22	46 VdB	72	No
LR23	44 VdB	72	No
LR24	49 VdB	72	No
LR25	56 VdB	65	No
LR26	65 VdB	65	Yes
LR27	65 VdB	65	Yes

Level of Significance Before Mitigation: Temporary but significant impact.

Mitigation Measures: No known feasible mitigation to reduce vibration impact due to project limitations.

Level of Significance After Mitigation: Temporary but significant impact.

Railroad Vibration

Railroad Vibration - Trains are also a source of groundborne vibration. According to Caltrans, vibration generated by a moving train passes below the threshold of perception at a distance of 90 meters, or approximately 295 feet, from the railroad tracks.[1] As the project site is located 500 feet from the Union Pacific Railroad/Metropolitan Transportation Authority right-of-way, train-generated vibration would not be perceptible at the project site. Therefore, 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.

Cumulative Impacts

For purposes of this analysis, development of the related projects 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.

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 residential 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 noise impacts is not considered to be 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 the project conditions was determined. Refer to Table 11, Cumulative Roadway Noise Levels. As shown, no increase above 0.9 dB(A) CNEL is anticipated. Consequently, there would be no cumulatively significant impact 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 less than significant.

Table 11
Cumulative Roadway Noise Levels

Receptor	Location	Existing Noise Levels Without Project	Future Noise Levels With Project	Cumulative Change in Noise Levels	Significant Project Impact
TNM01	Los Feliz Road, east of Central Ave	70.4	71	0.6	NO
TNM02	East of Central Ave	66.8	67.7	0.9	NO
TNM03	West of Central Ave, East of San Fernando Road	59.2	59.8	0.6	NO
TNM04	West of San Fernando Road	53.7	54.5	0.8	NO
TNM05	West of San Fernando Road	68.9	69.3	0.4	NO
TNM06	West of San Fernando Road	58.4	58.9	0.5	NO
TNM07	East of Central, South of Los Feliz Road	72.5	73.3	0.8	NO

Source: Veneklasen Associates. Model results are contained in Appendix.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

APPENDIX

Table A.1 – Definitions of Noise-Related Terms

Term	Definition
Decibel, dB	A unit describing the amplitude of sound equivalent to 20 times the logarithm, to the base 10, of the ratio of the pressure of the sound to the reference pressure of 20 μPa.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured in a A-weighting filter network. The A-weighting de-emphasizes the very low frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are in the A-weighted scale.
L_0 (L_{max}), L_2, L_8, L_{25}, L_{50}	The A-weighted noise levels that are exceeded 0 percent (maximum noise level), 2 percent, 8 percent, 25 percent, and 50 percent of the time during the measurement period.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the stated measurement period.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 P.M. to 10:00 P.M., and after addition of 10 decibels to noise levels in the night between 10:00 P.M. and 7:00 A.M.
Day-Night Noise Level, Ldn	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 P.M. and 7:00 A.M.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Impulsive Noise	Sound of short duration. Typically associated with an abrupt onset and rapid decay (i.e., gun-shots, etc.).
Pure Tones	A sound wave, residing over a small range of frequencies, which has a sinusoidal behavior over time.

VdB

Unit of measurement used by FHWA to describe ground-borne vibration. Equivalent to 20 times the logarithm, to the base 10, of the ratio of the root mean square ground-borne velocity to the reference of reference of $1x10^{-6}$ in/sec.

Table A.2 – Data Entered into TNM

Existing Day				
Street	**Cars**	**Medium Trucks**	**Heavy Trucks**	**Speed**
NB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	7504	156	62	40
SB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	7504	156	62	40
NB San Fernando Road, between Los Feliz Road and Central Avenue	5844	121	48	40
SB San Fernando Road, between Los Feliz Road and Central Avenue	5844	121	48	40
NB San Fernando Road, between Central Avenue and Brand Boulevard	8136	169	67	40
SB San Fernando Road, between Central Avenue and Brand Boulevard	8136	169	67	40
EB Los Feliz Road, between Seneca Avenue and San Fernando Road	9291	193	76	40
WB Los Feliz Road, between Seneca Avenue and San Fernando Road	9291	193	76	40
EB Los Feliz Road, between San Fernando Road and Central Avenue	6488	135	53	40
WB Los Feliz Road, between San Fernando Road and Central Avenue	6488	135	53	40
EB Los Feliz Road, between Central Avenue and Brand Boulevard	5193	108	43	40
WB Los Feliz Road, between Central Avenue and Brand Boulevard	5193	108	43	40
NB Central Avenue, between Chevy Chase Drive and Los Feliz Road	5897	122	48	40
SB Central Avenue, between Chevy Chase Drive and Los Feliz Road	5897	122	48	40
NB Central Avenue, between Los Feliz Road and San Fernando Road	3666	76	30	40
SB Central Avenue, between Los Feliz Road and San Fernando Road	3666	76	30	40
Existing Evening				
Street	**Cars**	**Medium Trucks**	**Heavy Trucks**	**Speed**
NB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	1226	9	2	40
SB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	1226	9	2	40
NB San Fernando Road, between Los Feliz Road and Central Avenue	955	7	2	40
SB San Fernando Road, between Los Feliz Road and Central Avenue	955	7	2	40

NB San Fernando Road, between Central Avenue and Brand Boulevard	1330	10	2	40
SB San Fernando Road, between Central Avenue and Brand Boulevard	1330	10	2	40
EB Los Feliz Road, between Seneca Avenue and San Fernando Road	1518	11	3	40
WB Los Feliz Road, between Seneca Avenue and San Fernando Road	1518	11	3	40
EB Los Feliz Road, between San Fernando Road and Central Avenue	1060	8	2	40
WB Los Feliz Road, between San Fernando Road and Central Avenue	1060	8	2	40
EB Los Feliz Road, between Central Avenue and Brand Boulevard	849	6	2	40
WB Los Feliz Road, between Central Avenue and Brand Boulevard	849	6	2	40
NB Central Avenue, between Chevy Chase Drive and Los Feliz Road	964	7	2	40
SB Central Avenue, between Chevy Chase Drive and Los Feliz Road	964	7	2	40
NB Central Avenue, between Los Feliz Road and San Fernando Road	599	5	1	40
SB Central Avenue, between Los Feliz Road and San Fernando Road	599	5	1	40
Existing Night				
Street	**Cars**	**Medium Trucks**	**Heavy Trucks**	**Speed**
NB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	927	13	6	40
SB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	927	13	6	40
NB San Fernando Road, between Los Feliz Road and Central Avenue	722	10	4	40
SB San Fernando Road, between Los Feliz Road and Central Avenue	722	10	4	40
NB San Fernando Road, between Central Avenue and Brand Boulevard	1005	15	6	40
SB San Fernando Road, between Central Avenue and Brand Boulevard	1005	15	6	40
EB Los Feliz Road, between Seneca Avenue and San Fernando Road	1148	17	7	40
WB Los Feliz Road, between Seneca Avenue and San Fernando Road	1148	17	7	40
EB Los Feliz Road, between San Fernando Road and Central Avenue	802	12	5	40
WB Los Feliz Road, between San Fernando Road and Central Avenue	802	12	5	40
EB Los Feliz Road, between Central Avenue and Brand Boulevard	642	9	4	40
WB Los Feliz Road, between Central Avenue and Brand Boulevard	642	9	4	40
NB Central Avenue, between Chevy Chase Drive and Los Feliz Road	729	11	4	40
SB Central Avenue, between Chevy Chase Drive and Los Feliz Road	729	11	4	40
NB Central Avenue, between Los Feliz Road and San Fernando Road	453	7	3	40
SB Central Avenue, between Los Feliz Road and San Fernando Road	453	7	3	40

Existing Plus Project Day				
Street	**Cars**	**Medium Trucks**	**Heavy Trucks**	**Speed**
NB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	7511	156	62	40
SB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	7511	156	62	40
NB San Fernando Road, between Los Feliz Road and Central Avenue	6015	125	50	40
SB San Fernando Road, between Los Feliz Road and Central Avenue	6015	125	50	40
NB San Fernando Road, between Central Avenue and Brand Boulevard	8148	169	67	40
SB San Fernando Road, between Central Avenue and Brand Boulevard	8148	169	67	40
EB Los Feliz Road, between Seneca Avenue and San Fernando Road	9292	193	76	40
WB Los Feliz Road, between Seneca Avenue and San Fernando Road	9292	193	76	40
EB Los Feliz Road, between San Fernando Road and Central Avenue	6693	139	55	40
WB Los Feliz Road, between San Fernando Road and Central Avenue	6693	139	55	40
EB Los Feliz Road, between Central Avenue and Brand Boulevard	5208	108	43	40
WB Los Feliz Road, between Central Avenue and Brand Boulevard	5208	108	43	40
NB Central Avenue, between Chevy Chase Drive and Los Feliz Road	5898	123	49	40
SB Central Avenue, between Chevy Chase Drive and Los Feliz Road	5898	123	49	40
NB Central Avenue, between Los Feliz Road and San Fernando Road	3426	72	29	40
SB Central Avenue, between Los Feliz Road and San Fernando Road	3426	72	29	40
Existing Plus Project Evening				
Street	**Cars**	**Medium Trucks**	**Heavy Trucks**	**Speed**
NB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	1228	9	2	40
SB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	1228	9	2	40
NB San Fernando Road, between Los Feliz Road and Central Avenue	983	7	2	40
SB San Fernando Road, between Los Feliz Road and Central Avenue	983	7	2	40
NB San Fernando Road, between Central Avenue and Brand Boulevard	1332	10	2	40
SB San Fernando Road, between Central Avenue and Brand Boulevard	1332	10	2	40
EB Los Feliz Road, between Seneca Avenue and San Fernando Road	1519	11	2	40
WB Los Feliz Road, between Seneca Avenue and San Fernando Road	1519	11	2	40
EB Los Feliz Road, between San Fernando Road and Central Avenue	1094	8	2	40

WB Los Feliz Road, between San Fernando Road and Central Avenue	1094	8	2	40
EB Los Feliz Road, between Central Avenue and Brand Boulevard	851	6	1	40
WB Los Feliz Road, between Central Avenue and Brand Boulevard	851	6	1	40
NB Central Avenue, between Chevy Chase Drive and Los Feliz Road	964	7	2	40
SB Central Avenue, between Chevy Chase Drive and Los Feliz Road	964	7	2	40
NB Central Avenue, between Los Feliz Road and San Fernando Road	566	4	1	40
SB Central Avenue, between Los Feliz Road and San Fernando Road	566	4	1	40
Existing Plus Project Night				
Street	**Cars**	**Medium Trucks**	**Heavy Trucks**	**Speed**
NB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	928	13	6	40
SB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	928	13	6	40
NB San Fernando Road, between Los Feliz Road and Central Avenue	743	11	4	40
SB San Fernando Road, between Los Feliz Road and Central Avenue	743	11	4	40
NB San Fernando Road, between Central Avenue and Brand Boulevard	1007	15	6	40
SB San Fernando Road, between Central Avenue and Brand Boulevard	1007	15	6	40
EB Los Feliz Road, between Seneca Avenue and San Fernando Road	1148	17	7	40
WB Los Feliz Road, between Seneca Avenue and San Fernando Road	1148	17	7	40
EB Los Feliz Road, between San Fernando Road and Central Avenue	827	12	5	40
WB Los Feliz Road, between San Fernando Road and Central Avenue	827	12	5	40
EB Los Feliz Road, between Central Avenue and Brand Boulevard	644	9	4	40
WB Los Feliz Road, between Central Avenue and Brand Boulevard	644	9	4	40
NB Central Avenue, between Chevy Chase Drive and Los Feliz Road	729	11	4	40
SB Central Avenue, between Chevy Chase Drive and Los Feliz Road	729	11	4	40
NB Central Avenue, between Los Feliz Road and San Fernando Road	428	6	3	40
SB Central Avenue, between Los Feliz Road and San Fernando Road	428	6	3	40
Future Pre-Project Day				
Street	**Cars**	**Medium Trucks**	**Heavy Trucks**	**Speed**
NB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	8432	175	69	40
SB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	8432	175	69	40
NB San Fernando Road, between Los Feliz Road and Central	6682	139	55	40

Avenue				
SB San Fernando Road, between Los Feliz Road and Central Avenue	6682	139	55	40
NB San Fernando Road, between Central Avenue and Brand Boulevard	9117	189	75	40
SB San Fernando Road, between Central Avenue and Brand Boulevard	9117	189	75	40
EB Los Feliz Road, between Seneca Avenue and San Fernando Road	12155	253	100	40
WB Los Feliz Road, between Seneca Avenue and San Fernando Road	12155	253	100	40
EB Los Feliz Road, between San Fernando Road and Central Avenue	8295	172	68	40
WB Los Feliz Road, between San Fernando Road and Central Avenue	8295	172	68	40
EB Los Feliz Road, between Central Avenue and Brand Boulevard	5886	122	48	40
WB Los Feliz Road, between Central Avenue and Brand Boulevard	5886	122	48	40
NB Central Avenue, between Chevy Chase Drive and Los Feliz Road	7500	156	62	40
SB Central Avenue, between Chevy Chase Drive and Los Feliz Road	7500	156	62	40
NB Central Avenue, between Los Feliz Road and San Fernando Road	4625	96	38	40
SB Central Avenue, between Los Feliz Road and San Fernando Road	4625	96	38	40
Future Pre-Project Evening				
Street	**Cars**	**Medium Trucks**	**Heavy Trucks**	**Speed**
NB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	1378	10	2	40
SB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	1378	10	2	40
NB San Fernando Road, between Los Feliz Road and Central Avenue	1092	8	2	40
SB San Fernando Road, between Los Feliz Road and Central Avenue	1092	8	2	40
NB San Fernando Road, between Central Avenue and Brand Boulevard	1490	11	2	40
SB San Fernando Road, between Central Avenue and Brand Boulevard	1490	11	2	40
EB Los Feliz Road, between Seneca Avenue and San Fernando Road	1987	15	3	40
WB Los Feliz Road, between Seneca Avenue and San Fernando Road	1987	15	3	40
EB Los Feliz Road, between San Fernando Road and Central Avenue	1356	10	2	40
WB Los Feliz Road, between San Fernando Road and Central Avenue	1356	10	2	40
EB Los Feliz Road, between Central Avenue and Brand Boulevard	962	7	2	40
WB Los Feliz Road, between Central Avenue and Brand Boulevard	962	7	2	40
NB Central Avenue, between Chevy Chase Drive and Los Feliz Road	1226	9	2	40
SB Central Avenue, between Chevy Chase Drive and Los Feliz Road	1226	9	2	40
NB Central Avenue, between Los Feliz Road and San Fernando	756	6	1	40

Road				
SB Central Avenue, between Los Feliz Road and San Fernando Road	756	6	1	40
Future Pre-Project Night				
Street	**Cars**	**Medium Trucks**	**Heavy Trucks**	**Speed**
NB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	1042	15	6	40
SB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	1042	15	6	40
NB San Fernando Road, between Los Feliz Road and Central Avenue	826	12	5	40
SB San Fernando Road, between Los Feliz Road and Central Avenue	826	12	5	40
NB San Fernando Road, between Central Avenue and Brand Boulevard	1126	16	7	40
SB San Fernando Road, between Central Avenue and Brand Boulevard	1126	16	7	40
EB Los Feliz Road, between Seneca Avenue and San Fernando Road	1502	22	9	40
WB Los Feliz Road, between Seneca Avenue and San Fernando Road	1502	22	9	40
EB Los Feliz Road, between San Fernando Road and Central Avenue	1025	15	6	40
WB Los Feliz Road, between San Fernando Road and Central Avenue	1025	15	6	40
EB Los Feliz Road, between Central Avenue and Brand Boulevard	727	11	4	40
WB Los Feliz Road, between Central Avenue and Brand Boulevard	727	11	4	40
NB Central Avenue, between Chevy Chase Drive and Los Feliz Road	927	13	6	40
SB Central Avenue, between Chevy Chase Drive and Los Feliz Road	927	13	6	40
NB Central Avenue, between Los Feliz Road and San Fernando Road	571	8	3	40
SB Central Avenue, between Los Feliz Road and San Fernando Road	571	8	3	40
Future with Project Day				
Street	**Cars**	**Medium Trucks**	**Heavy Trucks**	**Speed**
NB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	8439	175	69	40
SB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	8439	175	69	40
NB San Fernando Road, between Los Feliz Road and Central Avenue	6852	142	56	40
SB San Fernando Road, between Los Feliz Road and Central Avenue	6852	142	56	40
NB San Fernando Road, between Central Avenue and Brand Boulevard	9129	190	75	40
SB San Fernando Road, between Central Avenue and Brand Boulevard	9129	190	75	40
EB Los Feliz Road, between Seneca Avenue and San Fernando Road	1255	253	100	40
WB Los Feliz Road, between Seneca Avenue and San Fernando	1255	253	100	40

Road				
EB Los Feliz Road, between San Fernando Road and Central Avenue	8500	177	70	40
WB Los Feliz Road, between San Fernando Road and Central Avenue	8500	177	70	40
EB Los Feliz Road, between Central Avenue and Brand Boulevard	5902	123	49	40
WB Los Feliz Road, between Central Avenue and Brand Boulevard	5902	123	49	40
NB Central Avenue, between Chevy Chase Drive and Los Feliz Road	7500	156	62	40
SB Central Avenue, between Chevy Chase Drive and Los Feliz Road	7500	156	62	40
NB Central Avenue, between Los Feliz Road and San Fernando Road	4420	92	36	40
SB Central Avenue, between Los Feliz Road and San Fernando Road	4420	92	36	40
Future with Project Evening				
Street	**Cars**	**Medium Trucks**	**Heavy Trucks**	**Speed**
NB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	1397	10	2	40
SB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	1397	10	2	40
NB San Fernando Road, between Los Feliz Road and Central Avenue	1120	8	2	40
SB San Fernando Road, between Los Feliz Road and Central Avenue	1120	8	2	40
NB San Fernando Road, between Central Avenue and Brand Boulevard	1492	11	2	40
SB San Fernando Road, between Central Avenue and Brand Boulevard	1492	11	2	40
EB Los Feliz Road, between Seneca Avenue and San Fernando Road	1987	15	3	40
WB Los Feliz Road, between Seneca Avenue and San Fernando Road	1987	15	3	40
EB Los Feliz Road, between San Fernando Road and Central Avenue	1389	10	2	40
WB Los Feliz Road, between San Fernando Road and Central Avenue	1389	10	2	40
EB Los Feliz Road, between Central Avenue and Brand Boulevard	965	7	2	40
WB Los Feliz Road, between Central Avenue and Brand Boulevard	965	7	2	40
NB Central Avenue, between Chevy Chase Drive and Los Feliz Road	1226	9	2	40
SB Central Avenue, between Chevy Chase Drive and Los Feliz Road	1226	9	2	40
NB Central Avenue, between Los Feliz Road and San Fernando Road	723	5	1	40
SB Central Avenue, between Los Feliz Road and San Fernando Road	723	5	1	40
Future with Project Night				
Street	**Cars**	**Medium Trucks**	**Heavy Trucks**	**Speed**
NB San Fernando Road, between Chevy Chase Drive and Los Feliz Road	1043	15	6	40
SB San Fernando Road, between Chevy Chase Drive and Los Feliz	1043	15	6	40

Road				
NB San Fernando Road, between Los Feliz Road and Central Avenue	847	12	5	40
SB San Fernando Road, between Los Feliz Road and Central Avenue	847	12	5	40
NB San Fernando Road, between Central Avenue and Brand Boulevard	1128	16	7	40
SB San Fernando Road, between Central Avenue and Brand Boulevard	1128	16	7	40
EB Los Feliz Road, between Seneca Avenue and San Fernando Road	1502	22	9	40
WB Los Feliz Road, between Seneca Avenue and San Fernando Road	1502	22	9	40
EB Los Feliz Road, between San Fernando Road and Central Avenue	1050	15	6	40
WB Los Feliz Road, between San Fernando Road and Central Avenue	1050	15	6	40
EB Los Feliz Road, between Central Avenue and Brand Boulevard	729	11	4	40
WB Los Feliz Road, between Central Avenue and Brand Boulevard	729	11	4	40
NB Central Avenue, between Chevy Chase Drive and Los Feliz Road	927	13	6	40
SB Central Avenue, between Chevy Chase Drive and Los Feliz Road	927	13	6	40
NB Central Avenue, between Los Feliz Road and San Fernando Road	546	8	3	40
SB Central Avenue, between Los Feliz Road and San Fernando Road	546	8	3	40

Table A.3 – Expected Maximum Hourly Leq Levels During Construction

Location	Presumed Ambient or Lowest Measured Leq During Allowed Construction Hours (dBA)	Maximum Expected Hourly Leq During Construction (dBA)	Impact?
Demolition (Approximately 7 Days)			
LR01	55	59	no
LR02	55	57	no
LR03	55	56	no
LR04	55	56	no
LR05	55	55	no
LR06	60	60	no
LR07	55	56	no
LR08	55	56	no
LR09	55	56	no
LR10	60	60	no
LR11	55	55	no
LR12	55	55	no
LR13	55	55	no
LR14	55	57	no
LR15	55	55	no
LR16	60	60	no
LR17	60	62	no
LR18	60	62	no
LR19	55	58	no
LR20	60	61	no
LR21	60	61	no
LR21	60	61	no
LR22	60	61	no
LR23	60	61	no
LR24	55	59	no
LR25	60	67	Yes
LR26	65	75	Yes
LR27	65	74	Yes
Grading/Excavation (Approximately 90 Days)			
LR01	55	61	Yes
LR02	55	59	no
LR03	55	57	no
LR04	55	57	no
LR05	55	55	no
LR06	60	61	no
LR07	55	57	no
LR08	55	57	no
LR09	55	57	no
LR10	60	61	no
LR11	55	56	no
LR12	55	56	no
LR13	55	55	no
LR14	55	57	no
LR15	55	56	no
LR16	60	60	no

Location	Presumed Ambient or Lowest Measured Leq During Allowed Construction Hours (dBA)	Maximum Expected Hourly Leq During Construction (dBA)	Impact?
LR17	60	63	no
LR18	60	63	no
LR19	55	60	Yes
LR20	60	62	no
LR21	60	62	no
LR21	60	62	no
LR22	60	62	no
LR23	60	61	no
LR24	55	61	Yes
LR25	60	70	Yes
LR26	65	78	Yes
LR27	65	77	Yes
Sub-Grade Building Construction (Approximately 365 Days)			
LR01	55	60	no
LR02	55	58	no
LR03	55	57	no
LR04	55	57	no
LR05	55	55	no
LR06	60	61	no
LR07	55	56	no
LR08	55	56	no
LR09	55	56	no
LR10	60	60	no
LR11	55	56	no
LR12	55	55	no
LR13	55	55	no
LR14	55	57	no
LR15	55	55	no
LR16	60	60	no
LR17	60	63	no
LR18	60	62	no
LR19	55	59	no
LR20	60	60	no
LR21	60	62	no
LR21	60	61	no
LR22	60	61	no
LR23	60	61	no
LR24	55	60	Yes
LR25	60	69	Yes
LR26	65	76	Yes
LR27	65	75	Yes
Above-Grade Building Construction (Approximately 455 Days) Same as Sub Grade Building Construction			