Section 4.10:
NOISE

4.10 NOISE

This section evaluates the existing noise environment and potential noise source impacts both on the Project site and to surrounding land uses, as it pertains to implementation of the proposed Project. This section includes analysis of both short-term construction-related impacts and future buildout conditions, and includes Mitigation Measures to avoid or lessen the Project's noise impacts. Information in this section was obtained from the *County Los Angeles General Plan* (1980), *City of Los Angeles General Plan*, and the Municipal Codes for both the County of Los Angeles (County) and City of Los Angeles (City). For the purposes of mobile source noise modeling and contour distribution, traffic information contained in the *Earvin Magic Johnson Park Traffic Impact Analysis* (TIA), prepared by Michael Baker International was used; refer to Appendix I, *Traffic Impact Analysis*, of this EIR. Noise measurement and traffic noise modeling data can be found in Appendix H, *Noise Data,* of this EIR.

ENVIRONMENTAL SETTING

NOISE SCALES AND DEFINITIONS

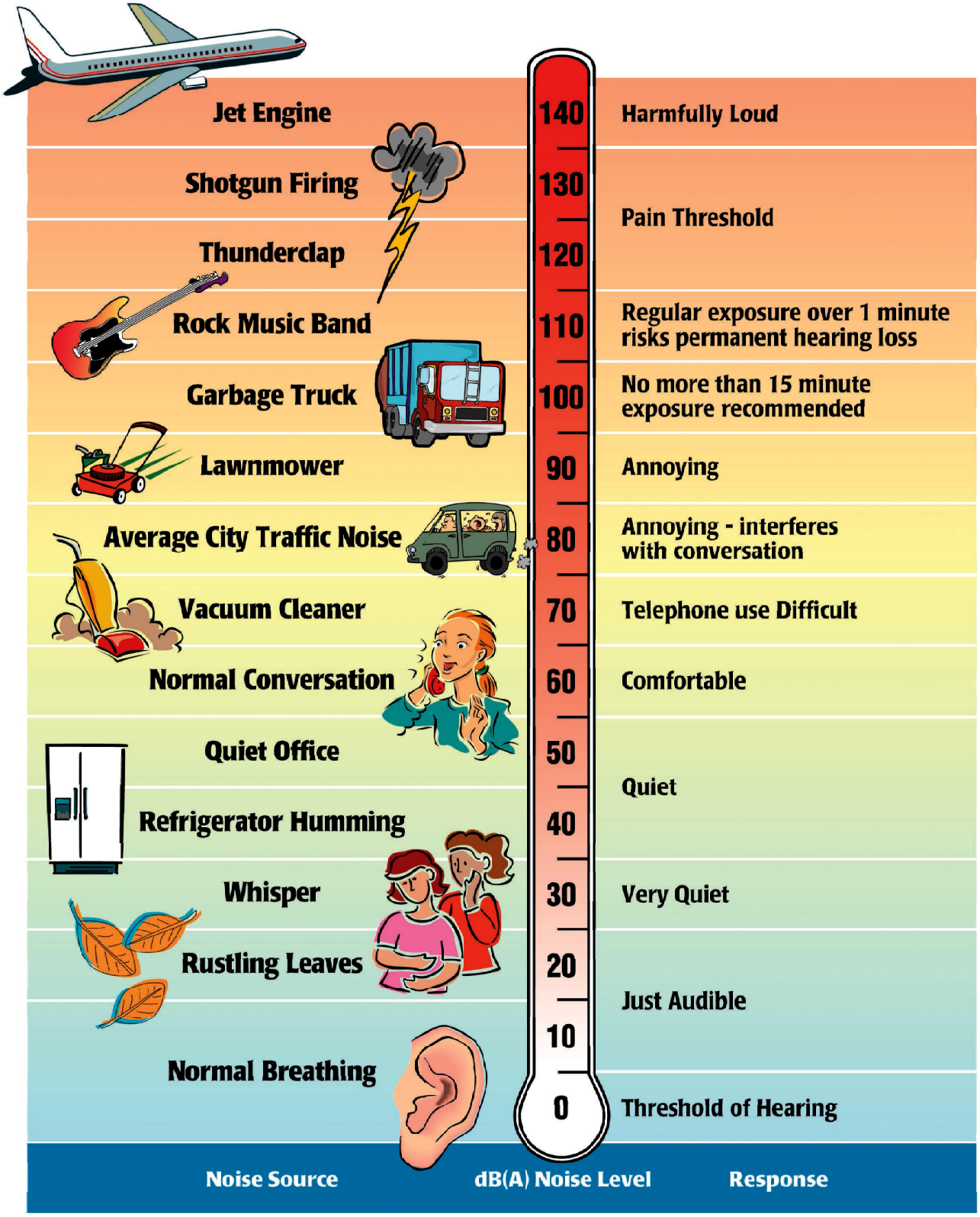
Sound is described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise,

a sound 10 dBA higher than another is judged to be twice as loud, and 20 dBA higher four times as loud, and so forth. Everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). Examples of various sound levels in different environments are illustrated on Exhibit 4.10-1: *Common Environmental Noise Levels*.

Many methods have been developed for evaluating community noise to account for, among other things:

- The variation of noise levels over time;
- The influence of periodic individual loud events; and
- The community response to changes in the community noise environment.



Source:

Melville C. Branch and R. Dale Beland, *Outdoor Noise in the Metropolitan Environment*, 1970.

Environmental Protection Agency, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA/ONAC 550/9-74-004)*, March 1974.

4/28/2015 JN M:\Mdata\140796\MXD\EIR\4.10-1 Common Environmental Noise Levels.mxd

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Common Environmental Noise Levels

Exhibit 4.10-1

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Numerous methods have been developed to measure sound over a period of time; refer to Table 4.10-1.

Table 4.10-1:Noise Descriptors

Term	Definition
Decibel (dB)	The unit for measuring the volume of sound equal to 10 times the logarithm (base 10) of the ratio of the pressure of a measured sound to a reference pressure (20 micropascals).
A-Weighted Decibel (dBA)	A sound measurement scale that adjusts the pressure of individual frequencies according to human sensitivities. The scale accounts for the fact that the region of highest sensitivity for the human ear is between 2,000 and 4,000 cycles per second (hertz).
Equivalent Sound Level (L_{eq})	The sound level containing the same total energy as a time varying signal over a given time period. The L_{eq} is the value that expresses the time averaged total energy of a fluctuating sound level.
Maximum Sound Level (L_{max})	The highest individual sound level (dBA) occurring over a given time period.
Minimum Sound Level (L_{min})	The lowest individual sound level (dBA) occurring over a given time period.
Community Noise Equivalent Level (CNEL)	A rating of community noise exposure to all sources of sound that differentiates between daytime, evening, and nighttime noise exposure. These adjustments are +5 dBA for the evening, 7:00 PM to 10:00 PM, and +10 dBA for the night, 10:00 PM to 7:00 AM.
Day/Night Average (L_{dn})	The L_{dn} is a measure of the 24-hour average noise level at a given location. It was adopted by the U.S. Environmental Protection Agency (EPA) for developing criteria for the evaluation of community noise exposure. It is based on a measure of the average noise level over a given time period called the L_{eq}. The L_{dn} is calculated by averaging the L_{eq}'s for each hour of the day at a given location after penalizing the "sleeping hours" (defined as 10:00 PM to 7:00 AM) by 10 dBA to account for the increased sensitivity of people to noises that occur at night.
Exceedance Level (L_n)	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% (L_{01}, L_{10}, L_{50}, L_{90}, respectively) of the time during the measurement period.
Source: Cyril M. Harris, *Handbook of Noise Control*, dated 1979.	

HEALTH EFFECTS OF NOISE

Human response to sound is highly individualized. Annoyance is the most common issue regarding community noise. However, many factors influence people's response to noise. The factors can include the character of the noise, the variability of the sound level, the presence of tones or impulses, and the time of day of the occurrence. Additionally, non-acoustical factors, such as the person's opinion of the noise source, the ability to adapt to the noise, the attitude towards the source and those associated with it, and the predictability of the noise, all influence people's response. As such, response to noise varies widely from one person to another and with any particular noise, individual responses will range from "not annoyed" to "highly annoyed."

The effects of noise are often only transitory, but adverse effects can be cumulative with prolonged or repeated exposure. The effects of noise on the community can be organized into six broad categories:

- Noise-Induced Hearing Loss;
- Interference with Communication;
- Effects of Noise on Sleep;
- Effects on Performance and Behavior;
- Extra-Auditory Health Effects; and
- Annoyance.

According to the United States Public Health Service, nearly ten million of the estimated 21 million Americans with hearing impairments owe their losses to noise exposure. Noise can mask important sounds and disrupt communication between individuals in a variety of settings. This process can cause anything from a slight irritation to a serious safety hazard, depending on the circumstance. Noise can disrupt face-to-face communication and telephone communication, and the enjoyment of music and television in the home. It can also disrupt effective communication between teachers and pupils in schools, and can cause fatigue and vocal strain in those who need to communicate in spite of the noise.

Interference with communication has proved to be one of the most important components of noise-related annoyance. Noise-induced sleep interference is one of the critical components of community annoyance. Sound level, frequency distribution, duration, repetition, and variability can make it difficult to fall asleep and may cause momentary shifts in the natural sleep pattern, or level of sleep. It can produce short-term adverse effects on mood changes and job performance, with the possibility of more serious effects on health if it continues over long periods. Noise can cause adverse effects on task performance and behavior at work, and non-occupational and social settings. These effects are the subject of some controversy, since the presence and degree of effects depends on a variety of intervening variables. Most research in this area has focused mainly on occupational settings, where noise levels must be sufficiently high and the task sufficiently complex for effects on performance to occur.

Annoyance can be viewed as the expression of negative feelings resulting from interference with activities, as well as the disruption of one's peace of mind and the enjoyment of one's environment. Field evaluations of community annoyance are useful for predicting the consequences of planned actions involving highways, airports, road traffic, railroads, or other noise sources. The consequences of noise-induced annoyance are privately held dissatisfaction, publicly expressed complaints to authorities, and potential adverse health effects, as discussed above. In a study conducted by the United States Department of Transportation, the effects of annoyance to the community were quantified. In areas where noise levels were consistently above 60 dBA CNEL, approximately nine percent of the community is highly annoyed. When levels exceed 65 dBA CNEL, that percentage rises to 15 percent. Although evidence for the various effects of noise have differing levels of certainty, it is clear that noise can affect human health. Most of the effects are, to a varying degree, stress related.

GROUND-BORNE VIBRATION

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. The peak particle velocity (PPV) or the root mean square (RMS) velocity is usually used to describe vibration amplitudes. PPV is defined as the maximum instantaneous peak or

vibration signal, while RMS is defined as the square root of the average of the squared amplitude of the signal. PPV is typically used for evaluating potential building damage, whereas RMS is typically more suitable for evaluating human response. Typically, ground-borne vibration, generated by man-made activities, attenuates rapidly with distance from the source of vibration. Man-made vibration issues are therefore usually confined to short distances (i.e., 500 feet or less) from the source.

Both construction and operation of development projects can generate ground-borne vibration. In general, demolition of structures preceding construction generates the highest vibrations. Construction equipment such as vibratory compactors or rollers, pile drivers, and pavement breakers can generate perceptible vibration during construction activities. Heavy trucks can also generate ground-borne vibrations that vary depending on vehicle type, weight, and pavement conditions.

SENSITIVE RECEPTORS

Human response to noise varies widely depending on the type of noise, time of day, and sensitivity of the receptor. The effects of noise on humans can range from temporary or permanent hearing loss to mild stress and annoyance due to such things as speech interference and sleep deprivation. Prolonged stress, regardless of the cause, is known to contribute to a variety of health disorders. Noise, or the lack thereof, is a factor in the aesthetic perception of some settings, particularly those with religious or cultural significance. Certain land uses are particularly sensitive to noise, including residential units, schools, hospitals, rest homes, long-term medical and mental care facilities, and parks and recreation areas. Residential areas are also considered noise sensitive, especially during the nighttime hours.

Sensitive uses within the immediate Project area include residential uses to the north, east, and west, and Animo Watts Charter High School and New Designs Charter School to the southwest. Additional existing sensitive receptors located in the Project vicinity include hospitals, health care facilities, child care facilities, schools, a library, parks, and places of worship; refer to Table 4.10-2.

Table 4.10-2: Surrounding Offsite Sensitive Receptors

Type	Name	Distance from Project Site (feet)	Direction from Project Site
Residential	Residential Uses	Adjacent	North
		90	North
		90	South
		Adjacent	East
		Adjacent	West
Child Care Facilities	Toddler Town	515	West
	Cuddles Creative Child Care	1,990	South
	CDI Head Start	2,770	South
	Kedren Watts IV	3,095	Northeast
	Kedren Head Start	3,915	North
Schools	Animo Watts Charter High School	Adjacent	Southwest
	New Designs Charter Schools	Adjacent	Southwest
	Los Angeles Adventist Academy	85	South
	Centennial High School	730	Southeast
	122nd Street Elementary School	910	West
	Carver Elementary School	1,500	Northeast
	116th Street Elementary School	1,650	North
	McNair Elementary School	2,190	Southeast
	Vanguard Learning Center Middle School	2,415	Southwest
	Jack H Skirball Middle School	2,670	North
	118th Street Elementary School	2,770	Northwest
	King Drew Magnet High School	3,030	Northeast
	Lincoln Elementary School	3,475	Northeast
	Nickerson Gardens Sage Center	3,545	Northeast
	Watts Learning Center Middle School	3,635	Northeast
	Charles R. Drew University of Medicine and Science	3,775	Northeast
	112th Street Elementary School	3,805	Northeast
	Samuel Gompers Middle School	3,885	Northwest
	Verbum Dei High School	3,905	Northeast
	Avalon Gardens Elementary School	4,155	Southwest
	Willowbrook Middle School	4,215	Southeast
	Barack Obama Charter School	4,250	Northeast

Type	Name	Distance from Project Site (feet)	Direction from Project Site
	Lovelia P. Flournoy Elementary School	4,585	Northeast
	Locke Children's Center	4,675	Northwest
	109th Street Elementary School	4,750	North
	Alain Leroy Locke High School	4,785	North
	Banneker Elementary School	4,950	Southwest
	Lovelia P. Flournoy Elementary School	5,150	Northeast
Places of Worship	Southwood Baptist Church	165	West
	Saint Mark African Methodist Episcopal Church	825	Southwest
	Prayer Assembly Church of God in Christ	850	Southwest
	Bel-Vue Presbyterian Church	1,135	North
	Fuente De Agua Viva	1,220	North
	Greater Pearl Baptist Church	1,500	South
	El Bethel Missionary Baptist Church	1,995	North
	Mount Tabor Missionary Baptist Church	2,085	Southwest
	Cornerstone Community Church	2,300	South
	Living Hope Baptist Church	2,380	West
	Faith Jerusalem Baptist Church	2,540	West
	Christ Full Gospel Baptist Church	2,560	West
	Agape Christian Fellowship	2,600	West
	Carver Park-Jehovah Witnesses	2,625	West
	Community Lutheran Church	2,725	South
	Greater Berean Baptist Church	2,735	West
	Goodwill Missionary Baptist Church	2,790	West
	Tabernacle of Faith Baptist Church	2,910	Northeast
	Faith Temple Church of God	2,940	West
	Ajalon Temple of Truth Baptist Church	2,950	East
	New Mt. Olive Church of God	3,015	West
	Avalon Church of Christ	3,380	South
	Unity Church of God In Christ	3,620	North
	Imperial Church of Christ	3,820	Northwest
	New Way Missionary Baptist Church	4,010	Northeast
	Mt. Beulah Baptist Church	4,390	Northeast
	Centro Cristiano Agape	4,580	Southwest

Type	Name	Distance from Project Site (feet)	Direction from Project Site
Hospital/Health Care Facilities	View Heights Convalescent Hospital	110	West
	Avalon Villa Care Center	700	West
	Graceful Senescence Adult Day Health Care Inc.	3,020	West
	King Drew Medical Center	3,970	East
	Drew Charles R University of Medicine & Science: OB-Gyn	4,220	Northeast
	Dare U To Care	4,300	West
Libraries	A C Bilbrew Library	2,310	West
Parks	Enterprise Park	975	South
	George Washington Carver Park	2,015	Northeast
	Sibrie Park	3,690	East
	Athens Park	4,050	West
Note: 1. Distances are measured from the exterior Project boundary only and not from individual construction projects/areas within the interior of the Project site.			
Source: Google Earth, 2015.			

AMBIENT NOISE MEASUREMENTS

In order to quantify existing ambient noise levels in the Project area, Michael Baker International conducted noise measurements on April 22, 2014; refer to Table 4.10-3. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the Project site; refer to Exhibit 4.10-2, *Noise Measurement Locations*. Ten-minute measurements were taken, between 9:00 AM and 10:30 AM, at each site during the day. Short-term (L_{eq}) measurements are considered representative of the noise levels in the Project vicinity.

Table 4.10-3: Noise Measurements

Site No.	Location	L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)	Peak (dBA)	Time
1	Southwestern portion of the Project site	49.6	46.0	62.8	90.6	8:59 AM
2	Southeastern portion of the Project site	55.5	45.2	71.7	98.4	9:18 AM
3	Western portion of the Project site	52.9	46.2	69.1	88.6	9.37 AM
4	Northern portion of the Project site (South of the East 120th Street)	57.7	42.7	72.5	95.7	9:56 AM
5	Northeastern portion of the Project site	52.9	41.6	73.3	97.3	10:13 AM

Source: Michael Baker International, April 22, 2014.

Meteorological conditions were clear skies, warm, with light wind speeds (0 to 5 miles per hour), and low humidity. Measured noise levels during the daytime measurements ranged from 49.6 to 57.7 dBA L_{eq}. Noise monitoring equipment used for the ambient noise survey consisted of a Brüel & Kjær Hand-held Analyzer Type 2250 equipped with a 4189 pre-polarized freefield microphone. The monitoring equipment complies with applicable requirements of the American National Standards Institute (ANSI) for Type I (precision) sound level meters. The results of the field measurements are indicated in Appendix H, *Noise Data,* of this EIR.

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Noise Measurement Locations

not to scale

Source: Michael Baker International

Exhibit 4.10-2

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MOBILE SOURCES

To assess the potential for mobile source noise impacts, it is necessary to determine the noise currently generated by vehicles traveling through the Project area. The existing roadway noise levels in the Project vicinity were projected. Noise models were run using the Federal Highway Administration's Highway Noise Prediction Model (FHWA RD-77-108) together with several roadway and site parameters. These parameters determine the projected impact of vehicular traffic noise and include the roadway cross-section (such as the number of lanes), roadway width, average daily traffic (ADT), vehicle travel speed, percentages of auto and truck traffic, roadway grade, angle-of-view, and site conditions ("hard" or "soft"). The model does not account for ambient noise levels (i.e., noise from adjacent land uses) or topographical differences between the roadway and adjacent land uses. A 25- to 40-mile per hour (mph) average vehicle speed was assumed for existing conditions based on empirical observations and posted maximum speeds along the adjacent roadways. Noise projections are based on modeled vehicular traffic as derived from the Project's TIA.

Existing noise contours were calculated for major arterial and secondary arterial roadways in the Project vicinity; refer to Table 4.10-4. Noise generation for each roadway link was calculated and the distance to the 60 dBA CNEL, 65 dBA CNEL, and 70 dBA CNEL contours was determined. As shown in Table 4.10-4, the existing traffic noise levels range from a low of 60.7 CNEL along East 120th Street from Avalon Boulevard to Central Avenue to a high of 66.7 CNEL along El Segundo Boulevard from Broadway to Main Street.

Table 4.10-4: Existing Traffic Noise Levels

Roadway Segment	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet) [1]		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
El Segundo Boulevard					
Broadway to Main Street	23,932	66.7	561	177	56
Main Street to San Pedro Street	23,294	66.6	545	172	55
San Pedro Street to Avalon Boulevard	21,042	66.1	493	156	49
Avalon Boulevard to McKinley Avenue	21,789	66.3	511	161	51
McKinley Avenue to Central Avenue	21,087	66.2	494	156	49
East of Central Avenue	18,527	65.7	434	137	43
East 120th Street					
Avalon Boulevard to Central Avenue	10,723	60.7	132	42	13
Avalon Boulevard					
East 120th Street to El Segundo Boulevard	17,300	61.1	148	47	15
Central Avenue					
I-105 to East 120th Street	25,746	65.8	444	140	44
East 120th Street to El Segundo Boulevard	22,831	65.3	394	125	39
South of El Segundo Boulevard	20,815	64.9	359	114	36

Source: Noise modeling is based upon traffic data within the *Earvin Magic Johnson Park Traffic Impact Analysis,* prepared by Michael Baker International, 2014. The results of the Revised *Traffic Impact Analysis* dated August 12, 2015 includes an overall decrease in ADT from the 2014 report. Therefore the noise levels (dBA) calculated and shown in this table are more conservative than would be calculated from ADT in the *Revised Traffic Impact Analysis*.

STATIONARY NOISE SOURCES

The Project area is highly urbanized, consisting primarily of residential, commercial, institutional, and light industrial uses. The primary sources of stationary noise in the Project vicinity are urban-related activities (e.g., mechanical equipment, parking areas, conversations, and commercial areas). The noise associated with these sources may represent a single-event or a continuous occurrence.

REGULATORY FRAMEWORK

This section summarizes the laws, ordinances, regulations, and standards that are applicable to the Project. Regulatory requirements related to environmental noise are typically promulgated at the local level. However, Federal and State agencies provide standards and guidelines to the local jurisdictions.

STATE

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA) was enacted in 1970 and requires that all known environmental effects of a project be analyzed, including environmental noise impacts. Under CEQA, a project has a potentially significant impact if the project exposes people to noise levels in excess of standards established in the local general plan or noise ordinance. Additionally, under CEQA, a project has a potentially significant impact if the project creates a substantial increase in the ambient noise levels in the project vicinity above levels existing without the project. If a project has a potentially significant impact, mitigation measures must be considered. If mitigation measures to reduce the impact to less than significant levels are not feasible due to economic, social, environmental, legal, or other conditions, the most feasible mitigation measures must be considered.

CALIFORNIA GOVERNMENT CODE

California Government Code Section 65302 (f) mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines established by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of "normally acceptable", "conditionally acceptable", "normally unacceptable", and "clearly unacceptable" noise levels for various land use types. Single-family homes are "normally acceptable" in exterior noise environments up

to 60 CNEL and "conditionally acceptable" up to 70 CNEL[1]. Multiple-family residential uses are "normally acceptable" up to 65 CNEL and "conditionally acceptable" up to 70 CNEL. Schools, libraries, and churches are "normally acceptable" up to 70 CNEL, as are office buildings and business, commercial, and professional uses.

LOCAL

LOS ANGELES COUNTY GENERAL PLAN

The General Plan Noise Element guides the development of noise regulations. The purpose of the Noise Element is to reduce and limit the exposure of the general public to excessive noise levels. The Noise Element sets the policy direction for the management of noise in the unincorporated areas such as those applicable to the proposed Project identified below.

Noise Element

Goal	Establish compatible land use adjacent to transportation facilities.
Goal	Alert the public regarding the potential impact of transportation noise.
Goal	Protect areas that are presently quiet from future noise impact.
Policy 6	Promote increased public awareness concerning the effects of noise.

[1] A "conditionally acceptable" designation implies new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use is made and needed noise insulation features are incorporated in the design. By comparison, a "normally acceptable" designation indicates that standard construction can occur with no special noise reduction requirements.

COUNTY OF LOS ANGELES MUNICIPAL CODE

Chapter XI, *Noise Regulation* of the County's Municipal Code establishes acceptable ambient sound levels to regulate intrusive noises (e.g., stationary mechanical equipment and vehicles other than those traveling on public streets) within specific land use zones, and provides procedures and criteria for the measurement of the sound level of noise sources. Table 4.10-5 states the designated noise zone, land use of the receptor property, time, and corresponding exterior noise standards.

Table 4.10-5: Los Angeles County Exterior Noise Standards

Noise Zone	Designated Noise Zone Land Use (Receptor Property)	Time Interval	Exterior Noise Level (dB)	Standard 1 (dB) [1]	Standard 2 (dB) [2]	Standard 3 (dB) [3]	Standard 4 (dB)[4]	Standard 5 (dB)[5]
I	Noise-sensitive area	Anytime	45	45	50	55	60	65
II	Residential properties	10:00 PM – 7:00 AM (Nighttime)	45	45	50	55	60	65
		7:00 AM – 10:00 PM (Daytime)	50	50	55	60	65	70
III	Commercial properties	10:00 PM – 7:00 AM (Nighttime)	55	55	60	65	70	75
		7:00 AM – 10:00 PM (Daytime)	60	60	65	70	75	80
IV	Industrial properties	Anytime	70	70	75	80	85	90

Notes:

1. Standard No. 1 shall be the exterior noise level which may not be exceeded for a cumulative period of more than 30 minutes in any hour. It shall be the applicable noise level from subsection A of this section; or, if the ambient L50 exceeds the foregoing level, then the ambient L50 becomes the exterior noise level for Standard No. 1.
2. Standard No. 2 shall be the exterior noise level which may not be exceeded for a cumulative period of more than 15 minutes in any hour. It shall be the applicable noise level from subsection A of this section plus 5dB; or, if the ambient L25 exceeds the foregoing level, then the ambient L25 becomes the exterior noise level for Standard No. 2.
3. Standard No. 3 shall be the exterior noise level which may not be exceeded for a cumulative period of more than 5 minutes in any hour. It shall be the applicable noise level from subsection A of this section plus 20dB; or, if the ambient L8.3 exceeds the foregoing level, then the ambient L8.3 becomes exterior noise level for Standard No. 3.
4. Standard No. 4 shall be the exterior noise level which may not be exceeded for a cumulative period of more than 1 minute in any hour. It shall be the applicable noise level from subsection A of this section plus 15dB; or, if the ambient L1.7 exceeds the foregoing level, then the ambient L1.7 becomes the exterior noise level for Standard No. 4.
5. Standard No. 5 shall be the exterior noise level which may not be exceeded for any period of time. It shall be the applicable noise level from subsection A of this section plus 20dB; or, if the ambient L0 exceeds the foregoing level then the ambient L0 becomes the exterior noise level for Standard No. 5.

Source: County of Los Angeles Municipal Code, Section 12.08.390.

The following sections of the Municipal Code are applicable to the proposed Project.

§ 12.08.440 CONSTRUCTION NOISE

A. Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between weekday hours of 7:00 PM and 7:00 AM, or at any time on Sundays or holidays, such that the sound therefrom creates a noise disturbance across a residential or commercial real-property line, except for emergency work of public service utilities or by variance issued by the health officer is prohibited.

B. Noise Restrictions at Affected Structures. The contractor shall conduct construction activities in such a manner that the maximum noise levels at the affected buildings will not exceed those listed in the following schedule:

1. At Residential Structures.

a. Mobile Equipment. Maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment (refer to Table 4.10-6).

b. Stationary Equipment. Maximum noise level for repetitively scheduled and relatively long-term operation (periods of 10 days or more) of stationary equipment (refer to Table 4.10-6).

Table 4.10-6: Construction Noise Restrictions at Residential Structures

Type of Equipment	Time Interval	Single-family Residential (dBA)	Multi-family Residential (dBA)	Semi-residential/ Commercial (dBA)
Mobile Equipment	Daily, except Sundays and legal holidays, 7:00 AM to 8:00 PM	75	80	85
	Daily, 8:00 PM to 7:00 AM and all day Sunday and legal holidays	60	64	70
Stationary Equipment	Daily, except Sundays and legal holidays, 7:00 AM to 8:00 PM	60	65	70
	Daily, 8:00 PM to 7:00 AM and all day Sunday and legal holidays	50	55	60
Source: County Municipal Code, Section 12.08.440.				

2. At Business Structures.

    a. Mobile Equipment. Maximum noise levels for nonscheduled, intermittent, short-term operation of mobile equipment: Daily, including Sunday and legal holidays, all hours: maximum of 85dBA.

C. All mobile or stationary internal-combustion-engine powered equipment or machinery shall be equipped with suitable exhaust and air-intake silencers in proper working order.

§ 12.08.560 VIBRATION

Operating or permitting the operation of any device that creates vibration which is above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property, or at 150 feet (46 meters) from the source if on a public space or public right-of-way is prohibited. The perception threshold shall be a motion velocity of 0.01 in/sec over the range of 1 to 100 Hertz.

CITY OF LOS ANGELES GENERAL PLAN

The Noise Element of the *City of Los Angeles General Plan* addresses noise mitigation regulations, strategies and programs and delineates federal, State and City jurisdiction relative to rail, automotive, aircraft and nuisance noise. The Noise Element includes goals and policies that apply to the proposed Project, including those identified below.

Noise Element

Goal: A city where noise does not reduce the quality of urban life.

Objective 2 (Non-airport) Reduce or eliminate non-airport related intrusive noise, especially relative to noise sensitive uses.

Policy 2.2 Enforce and/or implement applicable city, state and federal regulations intended to mitigate proposed noise producing activities, reduce intrusive noise and alleviate noise that is deemed a public nuisance.

Objective 3 (Land Use Development) Reduce or eliminate noise impacts associated with proposed development of land and changes in land use.

Policy 3.1 Develop land use policies and programs that will reduce or eliminate potential and existing noise impacts.

CITY OF LOS ANGELES MUNICIPAL CODE

The City Municipal Code provides noise guidelines and standards for significant noise disturbances in Chapter XI, *Noise Regulation.* This Chapter is intended to prohibit unnecessary, excessive and annoying noises from all sources subject to its police power.

Section 41.40, *Noise Due to Construction, Excavation Work – When Prohibited* of the City Municipal Code indicates regulations for noise due to construction or repair work.

> No person shall, between the hours of 9:00 PM and 7:00 AM of the following day, perform any construction or repair work of any kind upon, or any excavating for, any building or structure, where any of the foregoing entails the use of any power driven drill, riveting machine excavator or any other machine, tool, device or equipment which makes loud noises to the disturbance of persons occupying sleeping quarters in any dwelling hotel or apartment or other place of residence. In addition, the operation, repair or servicing of construction equipment and the job-site delivering of construction materials in such areas shall be prohibited during the hours herein specified. Any person who knowingly and willfully violates the foregoing provision shall be deemed guilty of a misdemeanor punishable as elsewhere provided in this Code.

Section 112.05, *Maximum Noise Level of Powered Equipment or Powered Hand Tools* of the City Municipal Code also specifies the maximum noise level of powered equipment or powered hand tools.

> Between the hours of 7:00 AM and 10:00 PM, in any residential zone of the City or within 500 feet thereof, no person shall operate or cause to be operated any powered equipment or powered hand tool that produces a maximum noise level exceeding the following noise limits at a distance of 50 feet therefrom:
>
> (a) 75dB(A) for construction, industrial, and agricultural machinery including crawler-tractors, dozers, rotary drills and augers, loaders, power shovels, cranes, derricks, motor graders, paving machines, off-highway trucks,

ditchers, trenchers, compactors, scrapers, wagons, pavement breakers, compressors and pneumatic or other powered equipment;

(b) 75dB(A) for powered equipment of 20 HP or less intended for infrequent use in residential areas, including chain saws, log chippers and powered hand tools;

(c) 65dB(A) for powered equipment intended for repetitive use in residential areas, including lawn mowers, backpack blowers, small lawn and garden tools and riding tractors;

Said noise limitations shall not apply where compliance therewith is technically infeasible. Technical infeasibility shall mean that said noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers and/or other noise reduction device or techniques during the operation of the equipment.

CITY OF LOS ANGELES CEQA THRESHOLDS

The City provides CEQA significance thresholds to be used in noise analyses. Table 4.10-7 presents guidelines for determining acceptable and unacceptable community noise exposure limits for various land use categories. Specific significance thresholds are detailed below and include thresholds for construction and operational noise levels.

Table 4.10-7: Guidelines for Noise Compatible Land Use

Land Use Category	Community Noise Exposure (CNEL, dB)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Single-Family, Duplex, Mobile Homes	50 – 60	55 - 70	70-75	Above 70
Multiple Family	50 – 65	60 - 70	70 – 75	Above 70
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 – 70	60 - 70	70 – 80	Above 80
Transient Lodging - Motel, Hotels	50 – 65	60 - 70	70 – 80	Above 80
Auditoriums, Concert Halls, Amphitheaters	-	50 - 70	-	Above 65
Sports Arenas, Outdoor Spectator Sports	-	50 - 75	-	Above 70
Playgrounds, Neighborhood Parks	50 – 70	-	67-75	Above 72
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 – 75	-	70 – 80	Above 80
Office Buildings, Business and Professional Commercial	50 – 70	67-77	Above 75	-
Industrial, Manufacturing, Utilities, Agriculture	50 – 75	70 - 80	Above 75	-

CNEL: Community Noise Equivalent Level; dB: decibel

Notes:

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

Conditionally Acceptable - 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: City of Los Angeles, *City of Los Angeles CEQA Thresholds Guide,* 2006; California Department of Health Services.

IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

THRESHOLDS OF SIGNIFICANCE

The following thresholds of significance are based, in part, on CEQA Guidelines Appendix G. For purposes of this EIR, implementation of the proposed Project may have a significant adverse impact on hazards/hazardous materials if it would do any of the following:

- 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 a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels; and
- 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.

CITY OF LOS ANGELES CEQA THRESHOLDS GUIDELINES

In the context of the above thresholds in CEQA Guidelines Appendix G, the Los Angeles CEQA Thresholds Guide includes thresholds for determining whether noise impacts associated with construction and operation of a project would be significant.

Construction Noise: A project would normally have a significant impact on noise levels from construction if:

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

Operational Noise: A project would normally have a significant impact on noise levels from project operations if the project causes the ambient noise level measured at the property line of affected uses to increase by 3 dBA in CNEL to or within the "normally unacceptable" or "clearly unacceptable" category, or any 5 dBA or greater noise increase reference in Table 4.10-7.

NOISE IMPACT CRITERIA

SIGNIFICANCE OF CHANGES IN TRAFFIC NOISE LEVELS

An offsite traffic noise impact typically occurs when there is a discernible increase in traffic and the resulting noise level exceeds an established noise standard. In community noise considerations, changes in noise levels greater than 3 dB are often identified as substantial, while changes less than 1 dB will not be discernible to local residents. A 5 dB change is generally recognized as a clearly discernible difference.

As traffic noise levels at sensitive uses likely approach or exceed the 65 CNEL standard, a 3.0 dB increase as a result of the Project is used as the increase threshold for the Project. Therefore, the Project would result in a significant noise impact when a permanent increase in ambient noise levels of 3.0 dB occurs upon Project

implementation and the resulting noise level exceeds the applicable exterior standard at a noise sensitive use.

SIGNIFICANCE OF CHANGES IN STATIONARY NOISE LEVELS

The project would normally have a significant noise impact if it would:

- Exceed the stationary source noise criteria for the County as identified in Table 4.10-5 and City as depicted in Table 4.10-7.

SIGNIFICANCE OF CHANGES IN CUMULATIVE TRAFFIC NOISE LEVELS

A project's contribution to a cumulative traffic noise increase would be considered significant when the combined effect exceeds the perception level (i.e., auditory level increase) threshold. The combined effect compares the "cumulative with project" condition to the "existing" conditions. This comparison accounts for the traffic noise increase from the project generated in combination with traffic generated by projects in the cumulative projects list. The following criteria have been utilized to evaluate the combined effect of the cumulative noise increase.

- *Combined Effects*: The cumulative with project noise level ("Future With Project") would cause a significant cumulative impact if a 3.0 dB increase over existing conditions occurs and the resulting noise level exceeds the applicable exterior standard at a sensitive use.

Although there may be a significant noise increase due to the proposed Project in combination with other related projects (combined effects), it must also be demonstrated that the Project has an incremental effect. In other words, a significant portion of the noise increase must be due to the proposed Project. The following criteria have been utilized to evaluate the incremental effect of the cumulative noise increase.

- *Incremental Effects*: The "Future With" scenario causes a 1 dBA increase in noise over the "Future Without Project" noise level.

A significant impact would result only if both the combined and incremental effects criteria have been exceeded and the resulting noise level exceeds the applicable exterior standard at a noise sensitive use.

Based on these significance thresholds and criteria, the proposed Project's effects have been categorized as either "no impact," a "less than significant impact," or a "potentially significant impact." Mitigation measures are recommended for potentially significant impacts. If a potentially significant impact cannot be reduced to a less than significant level through the application of mitigation, it is categorized as a significant unavoidable impact.

PROJECT IMPACTS AND MITIGATION

Threshold:	*Would the Project 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?*

SHORT-TERM CONSTRUCTION NOISE IMPACTS

Impact 4.10-1 **Grading and construction associated with project implementation could result in significant temporary noise impacts to nearby noise sensitive receptors. This impact would be *less than significant with mitigation incorporated.***

Construction activities have a short and temporary duration, lasting from a few days to several months, depending upon the specific activity. Groundborne noise and vibration, as well as other types of construction-related noise impacts, may occur during initial site preparation, which can create the highest levels of noise and vibration. Generally, site preparation has the shortest duration of all construction phases. Activities that occur during this phase include earthmoving and soils compaction. High groundborne noise and other vibration levels and other miscellaneous noise levels can occur during this phase by the operation of heavy-duty trucks, backhoes, and other heavy-duty construction equipment.

Noise from construction activities is generated by two primary sources: 1) the transport of workers and equipment to construction sites, and 2) the noise related to active construction equipment. These noise sources can be a nuisance to local residents and businesses or unbearable to sensitive receptors. The Federal Transit Administration (FTA) has compiled data regarding noise generating characteristics of specific types of construction equipment and typical construction activities. These noise levels would decrease rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance.

Potential future development associated with Project implementation could generate significant amounts of noise and vibration during grading and construction operations. Adjacent sensitive receptors would be exposed to sporadic high noise and vibration levels associated with construction activities (as a result of power tools, jack-hammers, truck noise, etc.). It is anticipated that construction traffic would access the potential construction sites within the Project area from major roadways, including Avalon Boulevard, El Segundo Boulevard, and East 120th Street. As previously stated, various sensitive receptors exist in close proximity to the Project area. The closest sensitive receptors are located immediately adjacent to the north, south, east, and west (residential uses), and south west (Animo Watts Charter High School and New Designs Charter School) of the Project site; refer to Table 4.10-2.

Construction noise can be created by the operation of heavy-duty trucks, backhoes, bulldozers, excavators, front-end loaders, scrapers, and other heavy-duty construction equipment. Table 4.10-8 describes the anticipated construction equipment noise levels and is based on the quantity, type, and Acoustical Use Factor for each equipment type that would be used.

Table 4.10-8: Maximum Noise Levels Generated by Construction Equipment

Type of Equipment	Acoustical Use Factor[1] (percent)	L_{max} at 50 Feet (dBA)
Crane	16	81
Dozer	40	82
Excavator	40	81
Generator	50	81
Grader	40	85
Other Equipment (greater than five horse power)	50	85
Paver	50	77
Pile Driver (impact)	20	101
Pile Driver (sonic)	20	96
Roller	20	80
Tractor	40	84
Truck	40	80
Welder	40	73

Note:
1. Acoustical use factor (percent): Estimates the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

Source: Federal Highway Administration, Roadway Construction Noise Model (FHWA-HEP-05-054), January 2006.

Operating cycles for construction equipment used during these phases may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). These noise level estimates take into account the distance to the receptor, attenuation from molecular absorption, and anomalous excess attenuation.

Construction noise impacts generally occur when construction activities occur in areas immediately adjoining noise sensitive land uses, during noise sensitive times of the day, or when construction durations last over extended periods of time. Construction activities associated with the Project would occur in multiple phases. The closest that construction activities could occur is 50 feet from Animo Watts Charter High School and New Designs Charter School to the southwest and 50 feet from single-family residences to the north. These are the distances from the edge of the Project development to the closest sensitive receptor. These sensitive uses may be exposed to elevated noise levels during Project construction.

Construction activities would begin in one specific development area and subsequently move to the other specific development areas, and ultimately would be driven by the environmental remediation efforts that are currently ongoing. Therefore, construction would not occur in any one location for an extended period of time. All future development within the Project area is anticipated to be built out by 2030 and would be subject to compliance with the implementing policies of the County and City General Plans. Pursuant to County Municipal Code Section 12.08.440, construction activities are prohibited between weekday hours of 7:00 PM and 7:00 AM, or at any time on Sundays or holidays, such that the sound therefrom creates a noise disturbance across a residential or commercial real-property line. In accordance with City Municipal Code Section 41.40, construction activities may only occur between the hours of 7:00 AM and 9:00 PM, since such activities would generate loud noises and disturb persons occupying sleeping quarters in any adjacent dwelling, hotel, apartment or other place of residence. These permitted hours of construction are included in the code in recognition that construction activities undertaken during daytime hours are a typical part of living in an urban environment and do not cause a significant disruption.

Construction activities that occur within the City would also be required to comply with City Municipal Code Section 112.05, maximum noise levels of powered equipment or powered hand tools may not exceed 75 dBA at a distance of 50 feet. In addition, construction activities within 500 feet of residential areas would not occur before 8:00 AM or after 6:00 PM, unless otherwise approved by the City.

Additionally, implementation of Mitigation Measure NOI-1 would reduce construction noise associated with future development by requiring preparation of a Construction Noise Management Plan that includes limiting construction to the less noise-sensitive periods of the day (i.e., pursuant to the standards set forth in County Municipal Code Section 12.08.440 and City Municipal Code Section 41.40), and ensuring that proper operating procedures are followed during construction so that nearby sensitive receptors are not adversely affected by noise. It should be noted that sensitive receptors are located within 50 feet of the northwest and southwest of the Project site. As a result, construction noise levels have the potential to exceed the City's 75 dBA standard for construction. Therefore, implementation of Mitigation Measure NOI-1 is required to reduce construction noise to a less than significant level.

Mitigation Measures:

MM NOI-1 *The County shall require the contractor to implement the following noise management procedures during construction. The measures outlined below shall be included in the construction specifications and periodically verified by the County's Construction Manager:*

- *All construction equipment shall be equipped with mufflers and sound control devices (e.g., intake silencers and noise shrouds) no less effective than those provided on the original equipment and no equipment shall have an un-muffled exhaust.*
- *All construction equipment shall be maintained and tuned-up to minimize noise emissions.*
- *Stationary equipment shall be placed so as to maintain the greatest possible distance to the sensitive receptors.*
- *All cement crushing activities onsite and associated noise generating equipment to reuse existing pavement shall be performed such that emitted noise is directed the greatest possible distance away from the sensitive receptors.*

- *All equipment servicing shall be performed so as to maintain the greatest possible distance to the sensitive receptors.*
- *Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for Project construction shall be hydraulically or electronically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever feasible.*
- *A qualified "Noise Disturbance Coordinator" shall be retained amongst the construction crew who shall be responsible for responding to any local complaints about construction noise. When a complaint is received, the Disturbance Coordinator shall notify the County and City within 24 hours of the complaint and determine the cause of the noise complaint (e.g., starting too early, malfunctioning muffler, etc.) and shall implement reasonable measures to resolve the compliant, as deemed acceptable by the County of Los Angeles Department of Public Health.*
- *Construction activities shall not take place outside of the allowable hours specified by the City of Los Angeles Municipal Code Section 41.40 (7:00 AM and 9:00 PM) and shall not exceed maximum noise levels specified in the County of Los Angeles Municipal Code Section 12.08.440 and City of Los Angeles Municipal Code Section 112.05.*

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

Impact 4.10-2 **Implementation of the proposed Project would result in significant vibration impacts to nearby sensitive receptors. This impact would be *significant and unavoidable even with mitigation incorporated.***

Project construction can generate varying degrees of ground-borne vibration, depending on the construction procedure and equipment used. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Ground-borne vibrations from construction activities rarely reach levels that damage structures.

The FTA has published standard vibration velocities for construction equipment operations. In general, the FTA architectural damage criterion for continuous vibrations (i.e., 0.2 inch/second) appears to be conservative. Pile driving levels often exceed 0.2 inch/second at distances of 50 feet, and 0.5 inch/second at 25 feet without any apparent damage to buildings. However, pile driving would not occur during Project construction.

Construction vibration impacts include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. Ordinary buildings that are not particularly fragile would not experience any cosmetic damage (e.g., plaster cracks) at distances beyond 30 feet. This distance can vary substantially depending on the soil composition and underground geological layer between vibration source and receiver. In addition, not all buildings

respond similarly to vibration generated by construction equipment. The vibration produced by construction equipment, is illustrated in Table 4.10-9.

As indicated in Table 4.10-9, based on the FTA data, vibration velocities from typical heavy construction equipment that would be used during Project construction range from 0.001 to 0.031 inch-per-second peak particle velocity (PPV) at 50 feet from the source of activity. With regard to the proposed Project, groundborne vibration would be generated primarily during demolition and grading activities onsite and by offsite haul-truck travel. The nearest sensitive land uses are Animo Watts Charter High School located approximately 50 feet to the south of the Project site development boundary and single family residences located approximately 50 feet to the north of the Project site.

Table 4.10-9: Typical Vibration Levels for Construction Equipment

Equipment	Approximate peak particle velocity at 50 feet (inches/second)[1]	Approximate peak particle velocity at 75 feet (inches/second)[2]	Approximate peak particle velocity at 100 feet (inches/second)[2]
Large bulldozer	0.031	0.006	0.004
Loaded trucks	0.027	0.005	0.003
Small bulldozer	0.001	0.000	0.000
Jackhammer	0.012	0.002	0.002
Vibratory compactor/roller	0.074	0.014	0.009

Notes:

1. Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Guidelines*, May 2006.
2. Calculated using the following formula:

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

where: PPV (equip) = the peak particle velocity in in/sec of the equipment adjusted for the distance
PPV (ref) = the reference vibration level in in/sec from Table 12-2 of the FTA *Transit Noise and Vibration Impact Assessment Guidelines*
D = the distance from the equipment to the receiver

Section 12.08.560 of the County Municipal Code considers the vibration perception threshold is a motion velocity of 0.01 inch-per-second. As demonstrated in Table 4.10-9, the anticipated vibration levels at 50 feet of the single-family residences and

institutional uses would range from approximately 0.001 to 0.074, and would exceed the 0.01 inch-per-second PPV significance threshold during construction operations occurring along the Project's northwestern and southwestern boundary. At a distance of 100 feet, the vibration level from the largest equipment shown in Table 4.10-9, a large bulldozer, a loaded truck, and a vibratory compactor/roller, would not exceed 0.01 inch-per-second. In order to limit vibration at the single-family residences and institutional uses to the greatest extent feasible, Mitigation Measure NOI-2 is required and would require that the County notify adjacent residences of upcoming use of large bulldozers, large loaded trucks, and vibratory compactor/rollers on the Project site within 100 feet of occupied residential structures and coordination with school administration to schedule any use of these types of construction equipment within 100 feet institutional structures to times when school is not in session or if in session at times when administrative staff deems it the least disruptive to school activities. It should be noted that the majority of single-family residences to the northeast, east, west, and south are 100 feet away from the Project site boundary. In addition, the 0.01 inch-per-second PPV is a conservative threshold as 0.2 inch-per-second PPV is the construction vibration damage criteria for non-engineered timber and masonry buildings.[2] Also the DWP 75-foot wide easement serves as natural set back along the western boundary of EMJ Park and the eastern boundary of the school. No hardscaping is proposed in the DWP easement and therefore large construction equipment would not be used in that area, only smaller equipment used for minor grading and landscaping. Although implementation of Mitigation Measure NOI-2, would lessen vibration impacts to residences along the northern boundary and schools along the southwest boundary it will not reduce them below the 0.01 inch-per-second threshold and therefore impacts are considered significant and unavoidable.

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

Mitigation Measures:

MM NOI-2 *Prior to large bulldozers, large loaded trucks, and vibratory compactor/rollers being operated on the Project site within 100 feet of an occupied residence the County will notify the affected residential property owners in writing of upcoming construction including the anticipated start and end dates and hours of operation. Prior to large bulldozers, large loaded trucks, and vibratory compactor/rollers being operated on the Project site within 100 feet of an institutional structure the County will contact the school administration and coordinate with them to identify and schedule construction activities on the best dates and times to minimize disruption of school activities. Consistent with Section 12.08.560 of the Los Angeles County Municipal Code, this restriction does not apply to trucks on a public right-of-way.*

Threshold:	*Would the Project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*

LONG-TERM (MOBILE) NOISE IMPACTS

Impact 4.10-3 **Traffic generated by the proposed Project would not significantly contribute to existing traffic noise in the area or exceed the County's and City's established standards. This impact would be *less than significant.***

Project implementation would result in traffic and associated noise increases on local roadways. Using noise modeling techniques specified by the Federal Highway Administration FHWA-RD-77-108 with updated California Vehicle Noise Emission factors and traffic volumes presented in this report, noise levels changes due to Project-related traffic increases on local roadways were estimated and the results are presented below. It should be noted that the FHWA RD-77-108 models do not account for variations in topography, intervening landscaping, structures, or soundwalls.

OFFSITE NOISE CONDITIONS

EXISTING TRAFFIC NOISE

Based upon traffic data within the TIA, the "Existing" and "Existing With Project" were compared for future noise conditions along roadway segments in the Project vicinity. In Table 4.10-10, the noise level (dBA at 100 feet from centerline) equates to what would typically be heard 100 feet perpendicular to the roadway centerline. As indicated in Table 4.10-10 under "Existing" conditions, noise levels at a distance of 100 feet from the centerline would range from approximately 60.7 dBA to 66.7 dBA.

The highest noise levels under "Existing" conditions would occur along El Segundo Boulevard from Broadway to Main Street. Similarly, under "Existing With Project" conditions, noise levels at a distance of 100 feet from the centerline would range from approximately 60.8 dBA to 66.8 dBA, with the highest noise levels occurring along the same segment.

Table 4.10-10 also compares the "Existing" conditions to the "Existing With Project" conditions. The Project would increase noise levels on the surrounding roadways by a maximum of 0.3 dBA along El Segundo Boulevard, between Avalon Boulevard and McKinley Avenue, and would not exceed a 3 dBA increase. As stated under the *Significance Criteria*, a significant impact would occur if noise levels increase by 3.0 dBA or more. Therefore, noise impacts resulting from the Project's increase in traffic would be less than significant under "Existing With Project" conditions.

FUTURE YEAR 2020 TRAFFIC NOISE

The "2020 Without Project" and "2020 With Project" scenarios were compared for the Project area's cumulative year traffic noise conditions. In Table 4.10-11, the noise levels (dBA at 100 feet from centerline) depict what would typically be heard 100 feet perpendicular to the roadway centerline. As indicated in Table 4.10-11 under the "2020 Without Project" scenario, noise levels at a distance of 100 feet from the centerline would range from approximately 61.5 dBA to 67.2 dBA. The highest noise levels under "2020 Without Project" conditions would occur along El Segundo Boulevard, between Avalon Boulevard and McKinley Avenue. Under the "2020 With Project" scenario, noise levels at a distance of 100 feet from the centerline would range from

approximately 61.7 dBA to 67.3 dBA. The highest noise levels occurring under these conditions would continue to occur along El Segundo Boulevard, between Avalon Boulevard and McKinley Avenue.

FUTURE YEAR 2035 TRAFFIC NOISE

Table 4.10-12 compares the "2035 Without Project" and "2035 With Project" scenarios to evaluate future traffic noise conditions for the year 2035. As indicated in Table 4.10-12 under the "2035 Without Project" scenario, noise levels at a distance of 100 feet from the centerline would range from approximately 61.7 dBA to 67.4 dBA. The highest noise levels under "2035 Without Project" conditions would occur along El Segundo Boulevard, between Avalon Boulevard and McKinley Avenue. Under the "2035 With Project" scenario, noise levels at a distance of 100 feet from the centerline would range from approximately 61.8 dBA to 67.5 dBA. The highest noise levels occurring under these conditions would continue to occur along El Segundo Boulevard, between Avalon Boulevard and McKinley Avenue. As indicated in Table 4.10-12, the proposed Project would increase noise levels on the surrounding roadways by a maximum of 0.3 dBA along El Segundo Boulevard, between San Pedro Street and Avalon Boulevard for the year 2035. Therefore, noise levels resulting from the proposed Project would be less than significant.

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Table 4.10-10: Existing and Existing With Project Roadway Traffic Noise Levels

Roadway Segment	Existing					Existing With Project					Difference in dBA @ 100 feet from Roadway	Potentially Significant Impact?
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet) 60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet) 60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour		
El Segundo Boulevard												
Broadway to Main Street	23,932	66.7	561	177	56	24,630	66.8	578	183	58	0.1	***No***
Main Street to San Pedro Street	23,294	66.6	545	172	55	24,131	66.7	566	179	57	0.1	***No***
San Pedro Street to Avalon Boulevard	21,042	66.1	493	156	49	22,019	66.3	516	163	52	0.2	***No***
Avalon Boulevard to McKinley Avenue	21,789	66.3	511	161	51	23,010	66.6	540	171	54	0.3	***No***
McKinley Avenue to Central Avenue	21,087	66.2	494	156	49	22,343	66.4	523	165	52	0.2	***No***
East of Central Avenue	18,527	65.7	434	137	43	18,876	65.8	442	140	44	0.1	***No***
East 120th Street												
Avalon Boulevard to Central Avenue	10,723	60.7	132	42	13	11,177	60.8	138	44	14	0.1	***No***
Avalon Boulevard												
East 120th Street to El Segundo Boulevard	17,300	61.1	148	47	15	17,823	61.2	153	48	15	0.1	***No***
Central Avenue												
I-105 to East 120th Street	25,746	65.8	444	140	44	26,514	66.0	457	144	46	0.2	***No***
East 120th Street to El Segundo Boulevard	22,831	65.3	394	125	39	23,354	65.4	403	127	40	0.1	***No***
South of El Segundo Boulevard	20,815	64.9	359	114	36	21,164	65.0	365	115	36	0.1	***No***

Source: Noise modeling is based upon traffic data from the *Traffic Impact Analysis,* prepared by Michael Baker International, October 2014.

Table 4.10-11: Future Year 2020 With Project Roadway Traffic Noise Levels

Roadway Segment	2020 Without Project					2020 With Project					Difference in dBA @ 100 feet from Roadway	Potentially Significant Impact?
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)				
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour		
El Segundo Boulevard												
Broadway to Main Street	27,094	67.2	635	201	63	27,792	67.3	651	206	65	0.1	***No***
Main Street to San Pedro Street	26,400	67.1	619	196	62	27,237	67.2	638	202	64	0.1	***No***
San Pedro Street to Avalon Boulevard	23,951	66.7	562	178	56	24,927	66.9	584	185	58	0.2	***No***
Avalon Boulevard to McKinley Avenue	24,974	66.9	585	185	59	26,195	67.1	614	194	61	0.2	***No***
McKinley Avenue to Central Avenue	24,211	66.8	567	179	57	25,467	67.0	597	189	60	0.2	***No***
East of Central Avenue	20,930	66.2	491	155	49	21,279	66.3	499	158	50	0.1	***No***
East 120th Street												
Avalon Boulevard to Central Avenue	13,592	61.7	168	53	17	14,046	61.8	173	55	17	0.1	***No***
Avalon Boulevard												
East 120th Street to El Segundo Boulevard	19,229	61.5	165	52	17	19,753	61.7	170	54	17	0.2	***No***
Central Avenue												
I-105 to East 120th Street	30,941	66.6	534	169	53	31,709	66.7	546	173	55	0.1	***No***
East 120th Street to El Segundo Boulevard	26,710	66.0	460	146	46	27,233	66.1	469	148	47	0.1	***No***
South of El Segundo Boulevard	23,663	65.5	408	129	41	24,012	65.5	414	131	41	0.0	***No***

Source: Noise modeling is based upon traffic data from the *Traffic Impact Analysis,* prepared by Michael Baker International, October 2014.

Table 4.10-12: Future Year 2035 With Project Roadway Traffic Noise Levels

Roadway Segment	2035 Without Project					2035 With Project					Difference in dBA @ 100 feet from Roadway	Potentially Significant Impact?
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)				
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour		
El Segundo Boulevard												
Broadway to Main Street	28,069	67.4	657	208	66	28,767	67.5	674	213	67	0.1	***No***
Main Street to San Pedro Street	27,350	67.3	641	203	64	28,188	67.4	660	209	66	0.1	***No***
San Pedro Street to Avalon Boulevard	27,350	67.3	641	203	64	25,790	67.0	605	191	61	0.3	***No***
Avalon Boulevard to McKinley Avenue	25,873	67.1	607	192	61	27,095	67.3	636	201	64	0.2	***No***
McKinley Avenue to Central Avenue	25,082	66.9	588	186	59	26,338	67.1	618	195	62	0.2	***No***
East of Central Avenue	21,684	66.4	508	161	51	22,033	66.5	516	163	52	0.1	***No***
East 120th Street												
Avalon Boulevard to Central Avenue	14,082	61.8	174	55	17	14,535	62.0	179	57	18	0.2	***No***
Avalon Boulevard												
East 120th Street to El Segundo Boulevard	19,922	61.7	171	54	17	20,445	61.8	176	56	18	0.1	***No***
Central Avenue												
I-105 to East 120th Street	32,055	66.8	553	175	55	32,823	66.9	566	179	57	0.1	***No***
East 120th Street to El Segundo Boulevard	27,671	66.1	477	151	48	28,195	66.2	487	154	49	0.1	***No***
South of El Segundo Boulevard	24,515	65.6	423	134	42	24,864	65.7	429	136	43	0.1	***No***

Source: Noise modeling is based upon traffic data from the *Traffic Impact Analysis,* prepared by Michael Baker International, October 2014.

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

LONG-TERM (STATIONARY) NOISE IMPACTS

Impact 4.10-4 **The proposed Project would result in a significant increase in long-term stationary ambient noise levels. This impact would be *less than significant with mitigation incorporated.***

The proposed Project land uses include recreation (i.e., equestrian facilities center, aquatic center, multi-purpose stadium, outdoor athletic fields, group picnic areas, amphitheater, skate park, outdoor basketball areas, children's play area, lake, wedding pavilion, dog park, sculpture garden, civic plaza, walking trails, and exercise equipment station areas), and office uses. Primary noise sources associated with these facilities are mechanical equipment, parking lot noise, event noise, and outdoor loudspeakers.

Mechanical Equipment. The proposed Project would require the use of heating, ventilation, and air conditioning units (HVAC) for the indoor gym, community center, and South Agency Headquarters. HVAC systems typically result in noise levels that average between 40 and 50 dBA L_{eq} at 50 feet from the equipment. HVAC units would be installed in or on the roof of the building. Noise impacts from these sources would be infrequent and intermittent. Since the closest sensitive receptors are existing residential uses 90 feet from the closest potential location of the HVAC equipment, potential noise levels would be below the County's limits of 50 to 65 dBA for residential uses.[3] Potential noise levels would be below the County's noise standards. Therefore, long-term stationary noise impacts resulting from mechanical equipment would be less than significant.

[3] Refer to Table 4.10-5, as acceptable exterior noise levels for residential properties range from 50 to 65 dBA for a limited cumulative period of minutes in any hour.

Parking Lots. Traffic associated with parking lots is typically not of sufficient volume to exceed community noise standards, which are based on a time-averaged scale such as the CNEL scale. Parking lot noise is considered a "stationary" noise source; however, parking lot noise would not occur on a consistent basis after park hours (approximately 11:00 PM). Estimates of the maximum noise levels associated with certain parking lot activities are presented in Table 4.10-13.

Table 4.10-13: Maximum Noise Levels Generated by Parking Lots

Noise Source	Maximum Noise Levels (A-weighted decibels) at 50 Feet from Source
Car door slamming	63 equivalent sound level
Car starting	60 equivalent sound level
Car idling	61 equivalent sound level

The Project proposes surface parking areas throughout the Project site. It should be noted that parking lots are currently located on-site. Conversations in parking areas may also be an annoyance to adjacent sensitive receptors, including Animo Watts Charter High School and residential uses, which are located approximately 50 feet to the southwest and approximately 75 to 90 feet on all sides, respectively. Additionally, parking lot noise currently exists in the Project vicinity, and is associated with the Animo Watts Charter High School to the southwest and commercial uses intersperses to the west, south, and east of the Project site. Because the proposed surface parking lots would not result in substantially greater noise levels than what currently exists on and surrounding the Project site, a less than significant impact would occur.

Equestrian Event Noise**.** The proposed equestrian facilities center located in the western portion of the Project site may include occasional noise-generating events. The equestrian facility would also utilize the offsite equestrian trail system, which is proposed along the perimeter of EMJ Park, that may result in infrequent instantaneous noises at nearby receptors. This facility would operate seven days a week from 5:00 AM to 11:00 PM. The equestrian center would include both covered and uncovered arenas and stables, covered wash racks, a rental corral, maintenance yard, and turnouts/round

pens. The equestrian facilities center would support up to 85 boarders, and a corral with tack rooms for 20 rental horses.

The closest sensitive receptors to equestrian events would be existing single-family residential uses located approximately 275 feet north of the equestrian center and rental corral. In addition, residential uses to the north, east, south, and west would be as close as 70 feet from the proposed equestrian trail that circumnavigates the Project site. Noise generated along the proposed equestrian trail would be infrequent and would generate nominal noise levels. Noise associated with equestrian events (cheering crowds and public address (PA) system) would be the most prominent noise source from the proposed equestrian facilities. The actual noise levels during equestrian events would depend on various factors, including the type and specifications of the PA system, the number of loudspeakers, the size of the crowd, the direction that the loudspeakers and crowd would be facing, intervening structures and topography, etc.

Crowd noise is dependent on several factors including vocal effort, impulsiveness, and the random orientation of the crowd members. Crowd noise is estimated at 60 dBA at one meter (3.28 feet) away for raised normal speaking.[4] This noise level would have a +5 dBA adjustment for the impulsiveness of the noise source, and a -3 dBA adjustment for the random orientation of the crowd members.[5] Therefore, crowd noise would be 62 dBA at one meter from the source. Noise has a decay rate due to distance attenuation, which is calculated based on the Inverse Square Law. Based upon the Inverse Square Law, sound levels decrease by 6 dBA for each doubling of distance from the source.[6] As a result, crowd noise would be 56.0 dBA at 6.56 feet and 52.3 dBA at 10 feet. Crowd noise at the closest sensitive receptor (275 feet away) would be 23.5 dBA, which is well below the County's 50 dBA standard for residential properties.[7]

[4] M.J. Hayne, et al, *Prediction of Crowd Noise*, Acoustics, November 2006.

[5] Ibid.

[6] Cyril M. Harris, *Noise Control in Buildings*, 1994.

[7] Refer to Table 4.10-5, as acceptable exterior noise levels for residential properties is 50 dBA between 7:00 AM and 10:00 PM (Daytime) and 45 dBA between 10:00 PM and 7:00 AM (Nighttime).

Typical PA system can generate 87.5 dBA at 20 feet. The nearest sensitive receptors are residential uses located approximately 275 feet to the north. The generated noise from the PA system would potentially result in a noise level of 64.7 dBA at these residential uses. As a result, use of the proposed PA system for announcements and sound event starter buzzers/horns could potentially result in substantial temporary increases in ambient noise levels at sensitive receptors in the project vicinity. Therefore, Mitigation Measure NOI-3 is recommended to ensure that events at the training track and equestrian facility comply with City and County noise standards.

In order to reduce the potential impact to a less than significant level, the speakers must be mounted and directionally shielded to direct sound away from the residential properties north of the project site (i.e., they should be directionally focused to the south and/or downward to the center of the event). In addition, the sound system would be required to include and always utilize a processor to control the maximum output that the speakers can reach, so that even if the announcer shouts into the microphone, the levels will be controlled to the maximum allowable level programmed into the processor. The maximum output noise level would be set to not exceed 88.5 dBA L_{max} as measured at one meter (3.28 feet) from the source. With implementation of this noise level limit, the sound level would be 50 dBA at the residential uses to the north and would be consistent with the County exterior noise level standards.[8] In addition, use of the PA system would be strictly limited to the hours of 7:00 AM to 10:00 PM. Such restrictions would ensure that operational noise levels of the PA system would not result in an exceedance of the normally acceptable noise standard for residential land uses.

Mitigation Measure NOI-3 includes the option for the preparation of a future noise study upon confirmation of the types, sizes, and frequency of the proposed equestrian events on the Project site. The Noise Study would include, but is not limited to, specifications for a monitoring system and sound wall barrier or berm, and noise-level

[8] Ibid.

limits for the use of a public address/announcement systems on the Project site, as well as preparation of a Noise Reduction Program (if necessary). Upon implementation of Mitigation Measure NOI-3, impacts in this regard would be less than significant.

Aquatic Center Noise. The aquatic center would be located in the southeastern portion of the Project area. The closest sensitive receptors to the aquatic center would be existing residential uses, located 510 feet to the east.

- *Pool Equipment Noise*. Mechanical equipment, such as pool pumps and filters typically produce noise levels of 55 dBA at 50 feet from the source. Since the equipment noise would be a constant noise source, it would require compliance with the County's standard of 50 to 65 dBA (exterior) for residential uses.[9] Mitigation Measure NOI-4 requires that the mechanical pool equipment be fully enclosed. Fully enclosing the pool equipment within the pump room would attenuate noise levels by approximately 20 dBA. Therefore, the noise level would be reduced to 35 dBA, which would be within the County's noise standards and therefore impacts in this regard would be less than significant. Mitigation Measure NOI-4 has been included, in order to ensure that pool equipment is fully enclosed and noise impacts from pool mechanical equipment would be below the County's threshold of significance.
- *Swim Event Spectator and Pool Activity Noise*. The swim center's spectator and pool activity noise described below is conceptual and provided for noise analysis purposes only. The pools would be utilized for various activities including instructional and practice purposes, swim meets and competitions, leisure and activity. Crowd seating includes outdoor spectator space/stands.

  The closest sensitive receptors to swim events and pool activities would be existing single-family residential uses located approximately 510 feet east of the Aquatic Center. As stated above, crowd noise would be 52.3 dBA at 10 feet.

[9] Ibid.

Crowd noise at the closest sensitive receptor (510 feet away) would be 18.1 dBA, which is well below the County's 50 dBA standard for residential properties. [10]

In addition, a PA system may be utilized, run by a centralized amplifier to control the sound. As described above, typical PA systems can generate 87.5 dBA at 20 feet. The generated noise from the PA system would result in a noise level of 59.4 dBA at the residential uses. As a result, use of the proposed PA system for announcements could potentially result in substantial temporary increases in ambient noise levels at sensitive receptors in the project vicinity. Therefore, Mitigation Measure NOI-3 is recommended to ensure that events at the Aquatic Center comply with City and County noise standards.

In order to reduce the potential impact to a less than significant level, the speakers must be mounted and directionally shielded to direct sound away from the residential properties east of the project site (i.e., they should be directionally focused to the west and/or downward to the center of the event). In addition, the sound system would be required to include and always utilize a processor to control the maximum output that the speakers can reach. The maximum output noise level would be set to not exceed 93.8 dBA L_{max} as measured at one meter (3.28 feet) from the source. With implementation of this noise level limit, the sound level would be 50 dBA at the residential uses to the east and would be consistent with the County exterior noise level standards. In addition, use of the PA system would be strictly limited to the hours of 7:00 AM to 10:00 PM. Such restrictions would ensure that operational noise levels of the PA system would not result in an exceedance of the normally acceptable noise standard for residential land uses. When swim center events and activities are more defined, Mitigation Measure NOI-3 provides the option for a future Noise Study to be prepared to determine the noise levels associated with specific activities at the aquatic center (starter system, PA system associated with swim meets, etc.).

[10] Refer to Table 4.10-5, as acceptable exterior noise levels for residential properties is 50 dBA between 7:00 AM and 10:00 PM (Daytime) and 45 dBA between 10:00 PM and 7:00 AM (Nighttime).

Mitigation Measure NOI-3 requires the Noise Study to provide recommendations for noise control measures and/or a Noise Reduction Program, if necessary, to ensure compliance with the County's noise standards. Upon implementation of Mitigation Measure NOI-3, impacts in this regard would be less than significant.

Overall, noise associated with the swim center includes pool equipment, swim event spectators, and pool activities. For swim event spectator and pool activities, the PA system could exceed the County's exterior noise standard for residential uses. Mitigation Measure NOI-3 requires specific control measures to ensure noise impacts from spectator and pool activities would comply with the County's noise standards. Pool mechanical equipment would produce constant noise levels of 55 dBA at 50 feet from the source, exceeding the County's standard of 50 dBA (exterior) for residential uses. Implementation of Mitigation Measure NOI-4 is required to ensure that noise impacts from mechanical equipment would be less than significant, as the pool equipment would be enclosed in the pump room, which would attenuate noise levels to a reduced noise level of 35 dBA and within the County's noise standards. Therefore, upon compliance with Mitigation Measures NOI-3 and NOI-4, impacts in this regard would be less than significant.

Multi-purpose Sports Stadium, Athletic Fields, Basketball Courts, Skate Park. The multi-purpose sports stadium, multi-purpose soccer and football fields, outdoor basketball courts, and skate park would be located at the southern portion of the Project site, adjacent to the aquatic center. The closest sensitive receptors to the multi-purpose athletic areas would be the existing residential uses located approximately 120 feet to the south and 170 feet to the east. The major noise source associated the proposed athletic facilities would emanate from the multi-purpose stadium consisting of spectator bleachers, lighting for nighttime events, restrooms, ticket booths, and concession stands. The stadium would be open seven days a week from 5:00 AM to 11:00 PM.

During athletic games, crowd noise and cheers would be the most potentially disruptive noises to nearby sensitive receptors. As stated above, crowd noise would be

52.3 dBA at 10 feet. Crowd noise at the closest sensitive receptor (120 feet away) would be 30.7 dBA, which is well below the County's 50 dBA standard for residential properties.[11]

Additionally, as stated above, typical PA systems can generate 87.5 dBA at 20 feet. The generated noise from a typical PA system would result in a noise level of 71.9 dBA at the nearest residential uses. As a result, use of the proposed PA system for announcements and sound event starter buzzers/horns could potentially result in substantial temporary increases in ambient noise levels at sensitive receptors in the project vicinity. Therefore, Mitigation Measure NOI-3 is recommended to ensure that events at the multi-purpose sports stadium comply with City and County noise standards.

In order to reduce the potential impact to a less than significant level, the speakers must be mounted and directionally shielded to direct sound away from the residential properties south and east of the project site (i.e., they should be directionally focused to the north and west and/or downward to the center of the event). In addition, the sound system would be required to include and always utilize a processor to control the maximum output. The maximum output noise level would be set to not exceed 81.0 dBA L_{max} as measured at one meter (3.28 feet) from the source. With implementation of this noise level limit, the sound level would be 50 dBA at the residential uses to the south and would be consistent with the County exterior noise level standards.[12] In addition, use of the PA system would be strictly limited to the hours of 7:00 AM to 10:00 PM. Such restrictions would ensure that operational noise levels of the PA system would not result in an exceedance of the normally acceptable noise standard for residential land uses.

[11] Refer to Table 4.10-5, as acceptable exterior noise levels for residential properties is 50 dBA between 7:00 AM and 10:00 PM (Daytime) and 45 dBA between 10:00 PM and 7:00 AM (Nighttime).

[12] Ibid.

Mitigation Measure NOI-3 provide the option for the preparation of a future noise study upon confirmation of the types, sizes, and frequency of the proposed multi-purpose sports stadium events on the Project site. The Noise Study would include, but is not limited to, specifications for a monitoring system and sound wall barrier or berm, and noise-level limits for the use of a public address/announcement systems on the Project site, as well as preparation of a Noise Reduction Program (if necessary). The impacts associated with construction of a sound barrier would be nominal, as the required construction activities would be a relatively small proportion of the overall construction required for the Project. Upon implementation of Mitigation Measure NOI-3, impacts in this regard would be less than significant.

Amphitheater and Wedding Pavilion. The proposed Project includes a 1,500 seat outdoor amphitheater adjacent to the equestrian facilities center, and a 1,250 square-foot wedding pavilion adjacent to the reflecting pool in the western portion of the Project site. The amphitheater and wedding pavilion would be open seven days a week from 5:00 AM to 11:00 PM. The proposed amphitheater would have the potential to be accessed by groups of people intermittently for outdoor events, and the wedding pavilion would be utilized for weddings able to accommodate 100-200 people. As noted above, crowd noise would be approximately 62 dBA at one meter from the source (amphitheater and wedding pavilion). Due to distance attenuation, crowd noise would be approximately 23.4 dBA at the nearest sensitive receptor (Animo Watts Charter High School, located approximately 280 feet southwest of the proposed amphitheater), which would not exceed the County's exterior noise standards of 50 dBA. A less than significant impact would occur.

Mitigation Measures:

MM NOI-3 *Prior to issuance of building permits for the equestrian facilities center, aquatic center, and/or multi-purpose sports stadium at EMJ Park, the County Building Official shall ensure that the public address (PA) systems shall include and utilize a processor to control the maximum output that the speakers can reach; so that even if the announcer shouts into the microphone, the levels will be controlled to the*

maximum allowable level programmed into the processor. The maximum output noise level shall be set to not exceed the following limits as measured at one meter (3.28 feet) from the source:

- *Equestrian Event: 88.5 dBA L_{max};*
- *Aquatic Center Event: 93.8 dBA L_{max}; and*
- *Multi-purpose Sports Stadium: 81.0 dBA L_{max}.*

Additionally, the speakers of the proposed PA system shall be located and shielded to directionally focus the emitted sound away from the residential land uses located surrounding the project site (i.e., residential land uses to the north of the Equestrian Event, residential land uses to the east of the Aquatic Center, and residential land uses to the south and east of the Multi-purpose Sports Stadium). In addition, the hours of operation of the PA system shall be restricted to daytime (between 7:00 AM and 10:00 PM) in order to not cause additional impacts related to sleep disturbance of nearby residential property owners.

Alternatively, a future Noise Study may be prepared to determine their specific noise-generating sources and associated noise levels at nearby sensitive receptors. The Noise Study may include, but is not limited to, recommendations for noise attenuation (e.g., sound wall barrier or berm, noise-level limits on the use of a public address/announcement systems, etc.) to ensure Project compliance with the City of Los Angeles and County of Los Angeles noise standards. The Noise Study shall be submitted for review and approval to the County of Los Angeles Regional Planning Department.

MM NOI-4 *Prior to issuance of building permits for the aquatic center at EMJ Park, the County of Los Angeles Regional Planning Department shall ensure that pool mechanical equipment, such as pool pumps and filters, are fully enclosed on the Project site in order to provide proper attenuation at nearby sensitive receptors.*

Threshold:	*For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*
Threshold:	*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*?

AIRPORT NOISE IMPACTS

Impact 4.10-5 **The proposed Project would not result in significant impacts related to aircraft noise. This impact would be *less than significant.***

The Project site is located approximately two miles from a public airport, the Compton/Woodley Airport (airport identifier CPM). The County Airport Land Use Commission (ALUC) governs land use within airport land use areas around each airport. According to the Airport Land Use Compatibility document for this airport, the Project site is well outside of the airport's designated Airport Influence Area. In addition, the Project site is located outside the 65 dBA CNEL noise contour.[13] Therefore,

[13] County of Los Angeles, Department of Regional Planning Website, Los Angeles County Airport Land Use Commission, *Compton Airport - Airport Influence Area Map*, http://planning.lacounty.gov/assets/upl/project/aluc_airport-compton.pdf, Accessed April 21, 2015.

the proposed Project would not expose people working or visiting EMJ Park to excessive noise levels associated with CPM. A less than significant impact would occur.

CUMULATIVE IMPACTS

Table 4-13-12 identifies the related projects and other possible development in the area determined as having the potential to interact with the proposed Project to the extent that a significant cumulative effect may occur. The following discussions are included per topic area to determine whether a significant cumulative effect would occur.

SHORT-TERM CONSTRUCTION NOISE IMPACTS

- **Development associated with implementation of the proposed Project and other related cumulative projects would not result in significant short-term noise impacts to nearby noise sensitive receivers, following implementation of mitigation measures. This impact would be *less than significant with mitigation incorporated.***

Construction activities associated with the proposed Project and cumulative projects may overlap, resulting in construction noise in the Project area. However, as analyzed above, construction noise impacts primarily affect the areas immediately adjacent to the construction site. Construction noise for the proposed Project was determined to be less than significant following compliance with the Noise Elements of the County and City General Plans, the Municipals Codes for both the County and City, and Mitigation Measure NOI-1. The closest cumulative project is the Salinas Avenue Single Family Residential Project, which is a residential development that is located approximately 700 feet south of the proposed Project site. The Los Angeles Adventist Academy is located between the two project areas, which would buffer construction noise. Due to the distance and the intervening use and structures, the Salinas Avenue Single Family Residential construction noise would not interact with the Project's construction noise. In addition, each project would be required to comply with applicable County and City Municipal Code limitations on allowable hours of construction. The proposed Project would also implement Mitigation Measure NOI-1 to reduce construction noise impacts

to less than significant levels. Therefore, the Project would not contribute to cumulative impacts and impacts in this regard are not cumulatively considerable.

Mitigation Measures: Refer to Mitigation Measure NOI-1.

Level of Significance: Less Than Significant Impact With Mitigation Incorporated.

VIBRATION IMPACTS

- **Project implementation combined with other related cumulative projects would not result in significant vibration impacts to nearby sensitive receptors. This impact would be *less than significant with mitigation incorporated.***

As stated above, construction activities associated with the proposed Project and cumulative projects may overlap. Further, groundborne vibration generated at the Project site during construction would be in exceedance of the County Municipal Code 0.01 inch/second PPV significance threshold. Implementation of Mitigation Measure NOI-2 is required to ensure vibration impacts are reduced to less than significant levels. As such, there would be no vibration impacts associated with operations at the Project site.

The nearest cumulative project (Salinas Avenue Single Family Residential Project) is located 700 feet to the proposed Project site. It is anticipated that structures associated with the cumulative project could be located within 100 feet of occupied residential structures and recreational uses. Sensitive uses including single-family residences and Enterprise Park are adjacent to the Salinas Avenue Single Family Residential Project site to the west, south, and east and potential vibration impacts could exceed the County's 0.01 inch/second PPV significance threshold during construction activities (refer to Table 4.10-9). Therefore, each cumulative development project would be required to conduct a site-specific noise impact analysis and implement any required mitigation measures that may be prescribed pursuant to CEQA provisions. With implementation of Mitigation Measure NOI-2, vibration impacts of the proposed Project would not be cumulatively considerable. Therefore, the proposed Project and identified cumulative

projects would not contribute to cumulative impacts, and impacts in this regard are not cumulatively considerable.

LONG-TERM (MOBILE) NOISE IMPACTS

- **Traffic generated by the proposed Project combined with other related cumulative projects would not significantly contribute to existing traffic noise in the area or exceed the County's or City's established standards. This impact would be *less than significant.***

The cumulative mobile noise analysis is conducted in a two-step process. First, the combined effects from both the proposed Project and other projects are compared. Second, for combined effects that are determined to be cumulatively significant, the Project's incremental effects then are analyzed. The Project's contribution to a cumulative traffic noise increase would be considered significant when the combined effect exceeds perception level (i.e., auditory level increase) threshold. The combined effect compares the "cumulative with Project" condition to "existing" conditions. This comparison accounts for the traffic noise increase from the Project generated in combination with traffic generated by projects in the cumulative projects list. The following criteria have been utilized to evaluate the combined effect of the cumulative noise increase.

Combined Effects. The cumulative with Project noise level ("2035 With Project") would cause a significant cumulative impact if a 3.0 dB increase over existing conditions occurs and the resulting noise level exceeds the applicable exterior standard at a sensitive use.

Although there may be a significant noise increase due to the proposed Project in combination with other related projects (combined effects), it must also be demonstrated that the Project has an incremental effect. In other words, a significant portion of the noise increase must be due to the proposed Project. The following criteria have been utilized to evaluate the incremental effect of the cumulative noise increase.

Incremental Effects. The "2035 With Project" causes a 1 dBA increase in noise over the "2035 Without Project" noise level.

A significant impact would result only if both the combined and incremental effects criteria have been exceeded. Noise by definition is a localized phenomenon, and drastically reduces as distance from the source increases. Consequently, only proposed projects and growth due to occur in the general vicinity of the Project site would contribute to cumulative noise impacts. Table 4.10-14 lists the traffic noise effects along roadway segments in the project vicinity for "Existing", "2035 Without Project", and "2035 With Project" scenarios, including incremental and net cumulative impacts.

First, it must be determined whether the "2035 With Project" increase above existing conditions (*Combined Effects*) is exceeded. Per Table 4.10-14, this criteria is not exceeded along any of the segments. Next, under the *Incremental Effects* criteria, cumulative noise impacts are defined by determining if the forecast ambient ("2035 Without Project") noise level is increased by 1 dB or more. Based on the results of Table 4.10-14, this criterion is not exceeded along any of the segments. There would not be any roadway segments that would result in significant impacts, as they would not exceed both the combined and incremental effects criteria. The proposed Project would not result in long-term mobile noise impacts based on Project-generated traffic, as well as cumulative and incremental noise levels. Therefore, the Project would not contribute to cumulative impacts, and impacts in this regard are not cumulatively considerable.

LONG-TERM (STATIONARY) NOISE IMPACTS

- **The proposed Project combined with other related cumulative projects would not result in a significant increase in long-term stationary ambient noise levels. This impact would be *less than significant with mitigation incorporated.***

Although related cumulative projects have been identified within the study area (refer to Table 4-13-12), the noise generated by stationary equipment onsite cannot be quantified given the conceptual nature of each development and since speculation would be involved. However, each cumulative project would require separate site-specific noise impact analysis, discretionary approval and CEQA assessment, which would address potential noise impacts and identify necessary attenuation measures,

where appropriate. Additionally, as noise dissipates as it travels away from its source, noise impacts from stationary sources would be limited to each of the respective development sites and their vicinities.

As noted above, the Salinas Avenue Single Family Residential Project is located approximately 700 feet south of the proposed Project site. Operational activities associated with the Salinas Avenue Single Family Residential Project would involve stationary noise sources such as occasional noise from residential uses. However, as noted above, the Los Angeles Adventist Academy is located between the Project site and Salinas Avenue Single Family Residential Project, which would buffer noise levels generated at each site. Stationary noise sources would be limited in their impacts as the cumulative project and proposed Project would be separated by intervening structures. Due to site distances and these intervening uses and structures, cumulative stationary noise impacts would be less than significant. Implementation of Mitigation Measure NOI-4 would ensure that the proposed Project would not result in significant stationary noise impacts in regards to mechanical equipment. Additionally, Mitigation Measure NOI-3 is required for specific control measures to ensure noise impacts from equestrian, aquatic, and multi-purpose sports stadium events and activities would comply with the County's noise standards. As a result, upon compliance with Mitigation Measures NOI-3 and NOI-4, impacts in this regard would be less than significant. Therefore, it can be reasonably inferred that the proposed Project and identified cumulative projects are anticipated to result in a less than significant cumulative impact with implementation of Mitigation Measures NOI-3 and NOI-4.

Table 4.10-14: Cumulative Noise Scenario

Roadway Segment	*Existing*	*2035 Without Project*	*2035 With Project*	*Combined Effects*	*Incremental Effects*	*Cumulatively Significant Impact?*
	dBA @ 100 Feet from Roadway Centerline	*dBA @ 100 Feet from Roadway Centerline*	*dBA @ 100 Feet from Roadway Centerline*	*Difference in dBA Between Existing and 2035 With Project*	*Difference in dBA Between 2035 Without Project and 2035 With Project*	
El Segundo Boulevard						
Broadway to Main Street	*66.7*	*67.4*	*67.5*	*0.7*	*0.1*	***No***
Main Street to San Pedro Street	*66.6*	*67.3*	*67.4*	*0.7*	*0.1*	***No***
San Pedro Street to Avalon Boulevard	*66.1*	*67.3*	*67.0*	*1.2*	*0.3*	***No***
Avalon Boulevard to McKinley Avenue	*66.3*	*67.1*	*67.3*	*0.8*	*0.2*	***No***
McKinley Avenue to Central Avenue	*66.2*	*66.9*	*67.1*	*0.7*	*0.2*	***No***
East of Central Avenue	*65.7*	*66.4*	*66.5*	*0.7*	*0.1*	***No***
East 120th Street						
Avalon Boulevard to Central Avenue	*60.7*	*61.8*	*62.0*	*1.1*	*0.2*	***No***
Avalon Boulevard						
East 120th Street to El Segundo Boulevard	*61.1*	*61.7*	*61.8*	*1.6*	*0.1*	***No***
Central Avenue						
I-105 to East 120th Street	*65.8*	*66.8*	*66.9*	*1.0*	*0.1*	***No***
East 120th Street to El Segundo Boulevard	*65.3*	*66.1*	*66.2*	*0.8*	*0.1*	***No***
South of El Segundo Boulevard	*64.9*	*65.6*	*65.7*	*0.7*	*0.1*	***No***

Source: Noise modeling is based upon traffic data from the Traffic Impact Analysis, prepared by Michael Baker International, October 2014.

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