5.4 NOISE

This section of the Monterey Park Market Place Supplemental EIR (SEIR) evaluates the potential for the Monterey Park Market Place Precise Plan (MPMP Precise Plan) to impact the ambient noise environment. The analysis compares the impacts identified in the 2000 Monterey Park Town Plaza EIR (MPTP EIR) to impacts of the MPMP Precise Plan. The noise analysis discusses the fundamentals of sound and examines federal, state, and local noise guidelines, policies, and standards. This evaluation uses procedures and methodologies as specified by California Department of Transportation (Caltrans), the Federal Transit Administration (FTA), and the Federal Highway Administration (FHWA). Noise modeling data sheets used in this analysis are included as Appendix D.

5.4.1 Methodology

Noise modeling for operation of the revised project was completed using FHWA's Highway Traffic Noise Prediction Model (FHWA 77-108). Vibration modeling was conducted using the methodology provided by the FTA. Construction noise modeling was conducted using methodology provided by the United States Environmental Protection Agency (EPA). Potential vibration impacts were evaluated based on the FTA methodology for vibration perceptibility and structural vibration-induced damage. Potential noise impacts were evaluated based on the apparent change in loudness for mobile-source noise impacts and local criteria as established by the City of Monterey Park for stationary-source noise control.

5.4.2 Impacts Identified in the 2000 MPTP EIR

The analysis was based on the City of Monterey Park's General Plan and Noise Ordinance, both of which have been updated since the 2000 MPTP EIR.

- **Construction-Related Impacts:** Construction activities were determined to have less than significant impacts provided they were restricted to the hours of 7 AM to 7 PM weekdays and 9 AM to 6 PM on Saturday, Sundays, and holidays.

- **Vehicular Noise Impacts:** Traffic noise was evaluated using FHWA's Highway Traffic Noise Prediction Model based on the traffic study prepared for the 2000 MPTP EIR. Traffic noise levels were calculated for 18 roadway segments at 100 feet from the roadway centerline. The 2000 MPTP EIR identified that substantial (+3 dBA) noise increases would occur at Greenwood Avenue (south of Potrero Grande Drive) and Neil Armstrong Street (Town Plaza Entrance to Paramount Boulevard), and marginal noise increase (+1 dBA) would occur on Neil Armstrong (Arroyo to Town Plaza Entrance) and Potrero Grande (Markland to Greenwood). However, substantial (+3) increases would only occur at access points where there are no sensitive receivers and therefore no significant impacts were identified.

- **Caltrans Berm Modification:** The 2000 MPTP EIR evaluated impacts associated with modification to a berm within Caltrans's SR-60 right-of-way. The analysis found that modification of the berm within the right-of-way of SR-60 would not expose noise-sensitive land uses to noise levels that exceed FHWA's Noise Abatement Criteria of 67 dBA L_{eq}, and therefore no significant impacts occurred as a result of this former action.

- **Stationary (Onsite) Noise Impacts:** The 2000 MPTP EIR identified that operation of the commercial center would include delivery/unloading of heavy goods using forklifts, maintenance activities (e.g., refuse collection, parking lot sweeping, stacking or retrieval of temporary outdoor storage), and early morning truck traffic, all of which could result in a nuisance at nearby homes. Because existing

noise-sensitive land uses were separated from onsite retail facilities by 1,000 feet or more, commercial activities would not be audible at noise-sensitive land uses. Therefore, no significant impacts were identified.

5.4.3 Environmental Setting

Terminology/Noise Descriptors

Noise is most often defined as unwanted sound. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness."

The following are brief definitions of terminology used in this chapter:

- **Sound.** A disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Decibel (dB).** A unitless measure of sound on a logarithmic scale.
- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Equivalent Continuous Noise Level (L_{eq}).** The mean of the noise level averaged over the measurement period, regarded as an average level.
- **Day-Night Level (L_{dn}).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the sound levels occurring during the period from 10:00 PM to 7:00 AM.
- **Community Noise Equivalent Level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period with 5 dB added to the levels occurring during the period from 7:00 PM to 10:00 PM and 10 dB added to the sound levels occurring during the period from 10:00 PM to 7:00 AM.

L_{dn} and CNEL values rarely differ by more than 1 dB. As a matter of practice, L_{dn} and CNEL values are considered equivalent and are treated as such in this assessment.

Characteristics of Sound

When an object vibrates, it radiates part of its energy as acoustical pressure in the form of a sound wave. Sound can be described in terms of amplitude (loudness), frequency (pitch), or duration (time). The human hearing system is not equally sensitive to sound at all frequencies. Therefore, to approximate the human, frequency-dependent response, the A-weighted filter system is used to adjust measured sound levels. The normal range of human hearing extends from approximately 0 dBA to 140 dBA.

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale, represented by points on a sharply rising curve. Because of the physical characteristics of noise transmission and

perception, the relative loudness of sound does not closely match the actual amounts of sound energy. Table 5.4-1, *Change in Sound Pressure Level, dB*, presents the subjective effect of changes in sound pressure levels.

Table 5.4-1
Change in Sound Pressure Level, dB

Change in Apparent Loudness	
± 3 dB	Threshold of human perceptibility
± 5 dB	Clearly noticeable change in noise level
± 10 dB	Half or twice as loud
± 20 dB	Much quieter or louder

Source: Bies and Hansen 1988.

Sound is generated from a source and decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. This phenomenon is known as spreading loss.

When sound is measured for distinct time intervals, the statistical distribution of the overall sound level during that period can be obtained. The L_{eq} is the most common parameter associated with such measurements. The L_{eq} metric is a single-number noise descriptor of average sound level over a given period of time. For example, L_{50} is the noise level that is exceeded 50 percent of the time: half the time the noise exceeds this level and half the time it is less than this level. This is also the level that is exceeded 30 minutes in an hour. Similarly, the L_{02}, L_{08}, and L_{25} values are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour. Other values typically noted during a noise survey are the L_{min} and L_{max}. These values are the minimum and maximum root-mean-square noise levels obtained over the measurement period.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law requires that, for planning purposes, an artificial dB increment be added to quiet-time noise levels in the CNEL/L_{dn}.

Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. Extended periods of noise exposure above 90 dBA would result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear, called the threshold of pain. A sound level of 160 to 165 dBA will result in dizziness or loss of equilibrium. The ambient or background noise problem is widespread and generally more concentrated in urban areas than in outlying less developed areas. Elevated ambient noise levels can result in noise interference (e.g., speech interruption/masking, sleep disturbance, disturbance of concentration) and cause annoyance. Table 5.4-2 shows *Typical Noise Levels from Noise Sources*.

Table 5.4-2
Typical Noise Levels from Noise Sources

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet Flyover at 1,000 feet		
	100	
Gas Lawn Mower at three feet		
	90	
Diesel Truck at 50 feet, at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: California Department of Transportation. Traffic Noise Analysis Protocol, Table 9-2136.2., October 1998.

Vibration Fundamentals

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities such as railroads or vibration-intensive stationary sources, but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers. Vibration displacement is the distance that a point on a surface moves away from its original static position. The instantaneous speed that a point on a surface moves is the velocity and the rate of change of the speed is the acceleration. Each of these descriptors can be used to correlate vibration to human response, building damage, and acceptable equipment vibration levels. During project construction, the operation of construction equipment can cause groundborne vibration. During the operational phase of a project, receptors may be subject to levels of vibration that can cause annoyance due to noise generated from vibration of a structure or items within a structure. This type of vibration is best measured in velocity and acceleration.

The three main wave types of concern in the propagation of groundborne vibrations are surface or Rayleigh waves, compression or P-waves, and shear or S-waves.

- Surface or Rayleigh waves travel along the ground surface. They carry most of their energy along an expanding cylindrical wave front, similar to the ripples produced by throwing a rock into a lake. The

particle motion is more or less perpendicular to the direction of propagation (known as retrograde elliptical).

- Compression or P-waves are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal, in a push-pull motion. P-waves are analogous to airborne sound waves.

- Shear or S-waves are also body waves, carrying their energy along an expanding spherical wave front. Unlike P-waves, however, the particle motion is transverse, or perpendicular to the direction of propagation.

The peak particle velocity (PPV) or the root mean square (RMS) velocity is usually used to describe vibration amplitudes. PPV is the maximum instantaneous peak of the vibration signal and RMS is the square root of the average of the squared amplitude of the signal. PPV is more appropriate for evaluating potential building damage, whereas RMS is typically more suitable for evaluating human response.

The units for PPV and RMS velocity are normally inches per second (in/sec). Often, vibration is presented and discussed in dB units in order to compress the range of numbers required to describe the vibration. In this study, all PPV and RMS velocity levels are in in/sec and all vibration levels are in dB relative to one microinch per second (abbreviated as VdB). The threshold of perception is approximately 65 VdB. Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Even the more persistent Rayleigh waves decrease relatively quickly as they move away from the source of the vibration. Manmade vibration problems are, therefore, usually confined to short distances (500 feet or less) from the source.

Construction operations generally include a wide range of activities that can generate groundborne vibration. In general, blasting and demolition of structures generate the highest vibrations. Vibratory compactors or rollers, pile drivers, and pavement breakers can generate perceptible amounts of vibration at up to 200 feet. Heavy trucks can also generate groundborne vibrations, which vary depending on vehicle type, weight, and pavement conditions. Potholes, pavement joints, discontinuities, differential settlement of pavement, etc., all increase the vibration levels from vehicles passing over a road surface. Construction vibration is normally of greater concern than vibration of normal traffic on streets and freeways with smooth pavement conditions. Trains generate substantial quantities of vibration due to their engines, steel wheels, and heavy loads.

Regulatory Framework

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. The City of Monterey Park regulates noise through the City of Monterey Park Municipal Code, Chapter 9.53, Noise. Potential noise and vibration impacts were evaluated based on the City of Monterey Park Municipal Code and General Plan and on FTA methodology to determine whether a significant adverse noise impact would result from the construction and operation of the proposed project.

Caltrans Noise Abatement Criteria

The existing berm along SR-60, west of Paramount Boulevard and SR-60 ramps, is within Caltrans's jurisdiction. Caltrans identifies noise abatement criteria (NAC) for various land use activity categories. For residential land uses, Caltrans identifies an exterior NAC of 67 dBA L_{eq}. Caltrans also considers impacts potentially significant if noise levels are within 1 dB of the NAC identified (i.e., 66 dBA L_{eq} for residential areas).

City of Monterey Park Land Use Compatibility Criteria

The City of Monterey Park, through its General Plan, has adopted standards for noise compatibility for land uses. The guidelines, shown in Table 5.4-3, provide urban planners with a tool to gauge the compatibility of new land uses relative to existing and future noise levels.

Table 5.4-3
Land Use Compatibility for Community Noise Environments

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

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

Normally Unacceptable:
New construction should be discouraged. If new construction does process, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Conditionally Acceptable:
New construction should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.

Clearly Unacceptable:
New construction clearly should not be undertaken.

Source: Monterey Park 2001.

City of Monterey Park Stationary Noise Standard: Noise Nuisance

Monterey Park regulates noise through Chapter 9.53, Noise, of the City of Monterey Park Municipal Code, which has established noise standards for stationary source noise levels at various categories of land uses. The City applies these standards to nontransportation noise sources (see Table 5.4-4). These standards do not gauge the compatibility of developments in the noise environment, but provide restrictions on the amount and duration of noise generated at a property, as measured at the property line of the noise receptor. According to the City's municipal code, no person shall operate or cause to operate any source of sound or noise at any location within the City, or allow the creation of any noise on property to exceed ambient noise levels or the levels shown in Table 5.4-4 at the receiving land use. In general, noise complaints related to the noise standards of the municipal code are enforced by the City of Monterey Park Code Enforcement Department. The City of allows certain increases in the noise levels:

- 5 dBA increase for noise events occurring for no more than 15 minutes in an hour.
- 10 dBA increase for noise events occurring for no more than 5 minutes in an hour.
- 15 dBA increase for noise events occurring for no more than 1 minute in an hour.
- 20 dBA increase for noise events occur for less than 1 minute in an hour.

Table 5.4-4
City of Monterey Park Exterior Noise Standards

Zones	*Time of Day*	*Maximum Permissible Noise Levels Based on Ambient or* [1, 2, 3, 4]
Residential	7:00 AM to 10:00 PM	55 dBA
	10:00 PM to 7:00 AM	50 dBA
Commercial	7:00 AM to 10:00 PM	65 dBA
	10:00 PM to 7:00 AM	55 dBA
Industrial	Anytime	70 dBA

Source: Monterey Park Municipal Code, Chapter 9.53, Noise, Section 9.53.040.

[1] The noise standards shall be the actual measured median ambient noise level or the following presumed ambient noise level, whichever is greater.

[2] the intruding noise source is continuous and cannot be reasonably discontinued for sufficient time in which the ambient noise level can be determined, the above presumed ambient noise levels shall be used.

[3] If the property where the noise is received is located on the boundary between two different noise zones, the lower noise level standard applicable to the quieter zone shall apply.

[4] Noise standards set in this chapter shall be increased by 5 dBA for any noise source which emits an impulsive sound.

City of Monterey Park Construction Hours

The City of Monterey Park exempts noise associated with construction, repair, remodeling, or grading of any real property from the noise limitations of the municipal code, provided that construction activities do not take place between the hours of 7:00 PM and 7:00 AM on weekdays, and the hours of 6:00 PM and 9:00 AM on Saturdays, Sundays, and holidays (Municipal Code Section 9.53.070(6)).

FTA Vibration Criteria

Vibration Annoyance

Groundborne noise is the vibration of floors and walls that may cause rattling of items such as windows or dishes on shelves, or a rumbling noise. The rumbling is created by the motion of the room surfaces, which act like a giant loudspeaker. The FTA provides criteria for acceptable levels of groundborne vibration based on the relative perception of a vibration event for vibration-sensitive land uses (see Table 5.4-5).

Table 5.4-5
Groundborne Vibration and Noise Impact Criteria, Human Annoyance

Land Use Category	Max L_v (VdB)[1]	Description
Workshop	90	Distinctly felt vibration. Appropriate to workshops and nonsensitive areas
Office	84	Felt vibration. Appropriate to offices and nonsensitive areas.
Residential – Daytime	78	Barely felt vibration. Adequate for computer equipment.
Residential – Nighttime	72	Vibration not felt, but groundborne noise may be audible inside quiet rooms.

Source: FTA 2006.
[1] As measured in 1/3-octave bands of frequency over the frequency ranges of 8 to 80 Hz.

Vibration-Related Structural Damage

The level at which groundborne vibration is strong enough to cause structural damage has not been determined conclusively. The most conservative estimates are reflected in the FTA standards, shown in Table 5.4-6.

Table 5.4-6
Groundborne Vibration and Noise Impact Criteria, Structural Damage

Building Category	PPV (in/sec)	VdB
I. Reinforced concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Nonengineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

Source: FTA 2006.
RMS velocity calculated from vibration level (VdB) using the reference of one microinch/second.

Vibration-related problems generally occur due to resonances in the structural components of a building. The maximum vibration amplitudes of the floors and walls of a building will often be at the resonance frequencies of various components of the building. That is, structures amplify groundborne vibration. Resonant response is frequency dependent, and 1/3-octave band charts are best for describing vibration behavior. Wood-frame buildings, such as typical residential structures, are more easily excited by ground vibration than heavier buildings. According to the Caltrans's *Transportation Related Earthborne Vibration* (2002), extreme care must be taken when sustained pile driving occurs within 25 feet of any building; the threshold at which there is a risk of architectural damage to normal houses with plastered walls and ceilings is 0.2 in/sec.

Existing Noise Environment

The City of Monterey Park is impacted by a multitude of noise sources, many of them directly connected with major arterials that divide the City. Mobile sources, especially cars and trucks, are the most common and significant sources of noise in most communities. The project site is adjacent to SR-60, which is the dominant noise source affecting the project site and adjacent land uses.

Noise Monitoring

Noise monitoring was conducted at the project site for a period of 24 hours on March 9 through March 10, 2011, using a Type 1 Larson Davis sound level meter. Noise monitoring was conducted at two separate locations to capture noise levels near the multifamily complex to the north (behind the berm) and from the unobstructed SR-60. The noise monitoring locations are shown on Figure 5.4-1. The results of the noise monitoring are presented in Table 5.4-7. The predominant noise source was vehicles traveling on SR-60. Secondary noise sources included maintenance vehicles traveling onsite and noise generated by the processing plant in the west-central portion of the site.

Table 5.4-7
Noise Monitoring of Existing Noise Levels

Noise Monitoring Location	*Noise Level (dBA CNEL)*
Monitoring Site 1[1]	84
Monitoring Site 2[2]	69

[1] The noise meter was placed in the eastern portion of the project site along the southern ridge adjacent to and with a direct-line-of-sight of SR-60. It was approximately 135 feet from the centerline of SR-60.
[2] The noise meter was placed in the eastern portion of the project site along the northern ridgeline, approximately 395 feet from the centerline of SR-60.

Transportation Noise Modeling

Noise from motor vehicles is generated by engine vibrations, the interaction between tires and the road, and the exhaust system. Reducing the average motor vehicle speed reduces the noise exposure of receptors adjacent to the road. Each reduction of five miles per hour reduces noise by about 1 dBA. 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. Noise modeling of existing traffic noise levels was conducted using the FHWA's Highway Traffic Noise Prediction Model (FHWA-RD-77-108) based on average daily traffic (ADT) volumes provided by Arch Beach Consulting. Table 5.4-8 lists noise levels on roadways in the vicinity of the project site at 50 feet from the roadway centerline. Existing noise levels are based on traffic volumes generated by existing conditions and do not include trips from units under construction or from approved projects. The results of this modeling indicate that average 24-hour noise levels along roadways currently range from approximately 62 dBA to 75 dBA CNEL at 50 feet from the roadway centerline.

Table 5.4-8
Existing Traffic Noise Levels

Roadway Segment	ADT	Noise Level dBA CNEL
Neil Armstrong Street/ Market Place Drive		
west of Paramount Boulevard	2,170	56.8
Greenwood Avenue		
east of Potrero Grande Drive	150	50.0
Paramount Boulevard		
btwn Montebello and SR-60 EB Ramps	23,540	74.1
btwn SR-60 EB Ramps and SR-60 Ramps	27,750	74.8
btwn SR-60 WB Ramps and Arroyo	18,130	72.9
btwn Arroyo and San Gabriel	13,550	71.7
north of San Gabriel	14,800	72.0
Arroyo Drive		
west of Neil Armstrong	6,100	67.2
btwn Neil Armstrong and Paramount	6,400	67.4
east of Paramount	2,870	62.8
San Gabriel Boulevard		
west of Paramount	13,590	71.7
btwn Paramount and Town Center Dr	22,040	73.8
btwn Town Center and Rosemead	21,400	73.6
Town Center Drive		
btwn Paramount and SR-60 EB Ramps	5,110	65.3
btwn SR-60 EB Ramps and San Gabriel	18,420	70.9
Montebello Boulevard		
btwn Town Center and Paramount	11,100	69.8
btwn Lincoln and Beverly	23,110	73.0
Potrero Grande Drive		
btwn Pomona and Markland	8,520	70.6
btwn Markland and Greenwood	15,470	73.2
east of Greenwood	15,170	73.1
Markland Drive		
btwn Via Campo and Potrero Grande	12,070	69.0
Pomona Boulevard		
btwn Garfield and Wilcox	16,620	72.5
east of Wilcox	16,550	72.5
Via Campo		
btwn Garfield and Wilcox	20,230	72.4
btwn Wilcox and Markland	18,390	72.0
east of Markland	15,620	71.3
Garfield Avenue		
north of Pomona	20,170	72.4
btwn Pomona and Via Campo	24,400	73.2
south of Via Campo	30,370	74.2
Wilcox Avenue		
north of Pomona	7,660	67.1
btwn Pomona and Via Campo	14,250	70.9
south of Via Campo	19,870	72.3

Source: Federal Highway Administration (FHWA), Highway Traffic Noise Prediction Model (FHWA-RD-77-108).
Noise levels are at a distance of 50 feet from the centerline of the roadway. Traffic noise modeling is based on traffic volumes and speed limits obtained from the traffic analysis prepared by Arch Beach Consulting.

Noise Monitoring Location Map



Site Boundary

① Noise Monitoring Locations

0 900
Scale (Feet)

Source: Google Earth Pro 2010

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Sensitive Receptors

Certain land uses are particularly sensitive to noise and vibration. These uses include residential, school, and open space/recreation areas where quiet environments are necessary for enjoyment, public health, and safety. Adjacent office, commercial, and industrial land uses surrounding the project site are not considered noise/vibration-sensitive land uses. Noise/vibration-sensitive land uses include the Resurrection Cemetery to the northeast of the site along Potrero Grande Drive and single- and multifamily residences in the cities of Montebello, Rosemead, and Monterey Park that surround the site. The nearest residential land uses are approximately 500 feet northeast of the proposed commercial land uses.

5.4.4 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on he environment if the project would result in:

N-1 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.

N-2 Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

N-3 A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

N-4 A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

N-5 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, expose people residing or working in the project area to excessive noise levels.

N-6 For a project within the vicinity of a private airstrip, expose people residing or working the project area to excessive noise levels.

The Initial Study, included as Appendix A, substantiates that impacts associated with the following thresholds would be less than significant: N-5 and N6. These impacts will not be addressed in the following analysis.

City of Monterey Park Thresholds

Noise Compatibility

The noise standards specified in the City of Monterey Park Noise Element are used to evaluate the acceptability of the noise levels at noise-sensitive land uses. The project site does not contain noise-sensitive land uses and therefore this threshold is not applicable to the project.

Stationary-Source Noise

The City's Noise Ordinance establishes the maximum permissible noise level that may intrude into a neighbor's property and therefore defines noise that is a nuisance (see Table 5.4-4). The City's Municipal Code is the basis for evaluating stationary noise impacts at noise-sensitive land uses.

Substantial Increase in Traffic Noise Levels

The traffic noise thresholds used by the City are based on human tolerance to noise and are widely used for assessing traffic noise impacts. In general, people tend to compare intruding noise with the existing background noise. If the new noise is readily identifiable or considerably louder than the background noise level, it has the potential to be objectionable or annoying (Caltrans 1998). Consequently, the noise threshold for increase in traffic noise levels is based on the potential for traffic noise to become considerably louder than the ambient noise level. In general, noise levels must increase by 10 dBA in order to double ambient noise levels. An increase of 5 dBA is readily perceptible and a 3 dBA increase is barely perceptible to the average healthy human ear (Caltrans 1998). Based on its conditionally acceptable noise compatibility criteria of 65 dBA CNEL for residential uses, the City considers audible (3+ dBA) increases in project-related traffic noise to be substantial when the ambient noise environment with the project exceeds 65 dBA CNEL and marginally detectable when there is a 1+ dBA increase in traffic noise levels when the ambient noise environment with the project exceeds 65 dBA CNEL. In addition, the City considers impacts to be significant when the project generates a 10 dBA increase regardless of ambient noise levels.

Construction

The noise ordinance regulates the timing of construction activities and includes special provisions for sensitive land uses. No construction shall be permitted outside of the hours specified under Section 9.53.070(6) of the City of Monterey Park Municipal Code (7:00 AM to 7:00 PM on weekdays and 9:00 AM to 6:00 PM on Saturdays, Sundays, and holidays). The potential for construction noise impacts to be objectionable depends on the magnitude of noise generated by the construction equipment, the frequency of noise sources during the construction day, and total duration of construction activities.

Vibration

Based on the FTA vibration criteria, vibration annoyance impacts are considered significant when average vibration levels produced by construction equipment would produce perceptible levels of vibration (78 VdB) during the daytime at offsite vibration-sensitive structures. In addition, vibration that is strong enough to cause structural damage based on the FTA criteria (0.2 in/sec for typical wood-framed buildings or 0.5 in/sec at reinforced concrete, steel, or timber) would be considered significant.

5.4.5 Environmental Impacts

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

IMPACT 5.4-1 PROJECT-RELATED NOISE INCREASES WOULD NOT EXCEED LOCAL STANDARDS. [THRESHOLDS N-1 AND N-3]

Impact Analysis: Stationary noise sources include parking lots and heating, ventilation, and air conditioning (HVAC) units from truck deliveries/unloading/loading activities and mobile sources such as project-generated traffic. The following describes long-term mobile-source noise impacts associated with the project.

Mobile-Source Noise Impacts

Noise modeling for traffic sources was conducted for the 2000 MPTP for the years 1999 and 2000. The 2000 MPTP EIR identified that substantial (+3 dBA) noise increases would occur at Greenwood (south of Potrero Grande) and Neil Armstrong (Town Plaza Entrance to Paramount), and marginal noise increases (+1 dBA)

would occur on Neil Armstrong (Arroyo to Town Plaza Entrance) and Potrero Grande (Markland to Greenwood). However, substantial (+3) increases would only occur at access points where there are no sensitive receivers and therefore no significant impacts were identified.

Noise modeling was conducted for the MPMP Precise Plan at buildout of the project in 2015 and General Plan buildout in 2025. Traffic noise modeling was conducted using the FHWA's Highway Traffic Noise Prediction Model. Based on the traffic study prepared for this project by Arch Beach Consulting (2010), buildout of the project in 2015 would generate a net increase of 19,719 trips during the weekday. The 24-hour CNEL traffic noise levels are shown in Table 5.4-9 as modeled at 50 feet from the edge of the roadway. Noise levels in Table 5.4-10 show noise levels in year 2025 under the buildout of the General Plan.

Substantial (+3 dBA) traffic noise increases and marginally detectable (+1 dBA) traffic noise increases are in **bold** and underlined in the tables, respectively, when noise levels are above 65 dBA. Analyzed roadways would not have a substantial change in noise levels with the exception of Greenwood Avenue (east of Potrero Grand Drive) and Market Place Drive (west of Paramount Boulevard).

> Greenwood Avenue would have traffic noise increases of 8.8 and 8.6 dBA CNEL for the years 2015 and 2025, respectively. Although changes in the noise environment of this magnitude are substantial, no noise-sensitive uses are close to the site, and noise levels at the nearest noise-sensitive uses would not exceed the City of Monterey Park's clearly acceptable standards for noise sensitive residential uses of 65 dBA CNEL.
>
> Market Place Drive would have a noise increase of 9.7 in the year 2015 and 9.5 dB under 2025 conditions. Noise exposure levels of 65 dBA CNEL would occur at 65 feet from the center line of Market Place Drive. As noted in Tables 5.4-9 and 5.4-10, noise levels were assessed at 50 feet from the roadway centerline. The nearest multifamily residential uses to Market Place Drive are approximately 130 feet from the centerline of this proposed roadway. Noise levels at these multifamily residential units would be approximately 60 dBA CNEL from traffic along Market Place Drive.

Consequently, existing residential uses would not be exposed to excessive traffic noise associated with the proposed project, and traffic noise impacts are considered less than significant under the MPMP Precise Plan. The 2000 MPTP EIR did not identify significant traffic-related noise impacts, and impacts would remain less than significant under the MPMP Precise Plan.

Berm Modification

Both the 2000 MPMT and the MPMP Precise Plan involve the modification of the berm along the SR-60 to the south of the project site. The 2000 MPTP EIR evaluated impacts associated with modification to a berm within the Caltrans SR-60 right-of-way. The analysis found that modification of this berm would not expose noise-sensitive land uses to noise levels that approach or exceed FHWA's Noise Abatement Criteria of 67 dBA L_{eq}, and therefore no significant impacts occurred.

The MPMP Precise Plan will involve the same modifications to the SR-60 berm as identified in the 2000 MPTP EIR. However, the existing ambient noise environment has changed along SR-60 since the 2000 MPTP. Noise monitoring conducted for the MPMP Precise Plan shows that the Oak Hill Apartments are exposed to noise levels of up to 65.5 dBA CNEL, primarily freeway noise. The highest recorded noise levels of 61 dBA L_{eq} occur between 5 AM and 6 AM in the morning. Previous noise measurements conducted for the 2000 MPTP showed noise levels of up to 62 dBA L_{eq} at the apartment complex during the peak hour. Noise monitoring shows that traffic noise levels along SR-60 have increased by approximately 1 dBA over the past

10 years during the traffic peak hour. In addition, traffic volumes along SR-60 are projected to increase by 23 percent over the next 15 years during the morning peak hour resulting in an additional 0.9 dB increase in noise levels total.

The noise modeling in the 2000 MPTP EIR identified noise levels of 65.0 dBA L_{eq} at the multifamily residential uses along Neil Armstrong Street with removal of the Caltrans berm, an approximately 3 dBA increase. Based on the updated noise monitoring and modeling of freeway traffic noise in year 2025 (buildout), residential homes to the north of the site would experience noise levels of 66.9 dBA L_{eq} at buildout. Consequently, noise levels would approach but not exceed the NAC of 67 dBA L_{eq}. The 2000 MPTP EIR did not identify significant traffic-related noise impacts. No changes to the berm modification are proposed by the MPMP Precise Plan that differ from those analyzed in the 2000 MPTP EIR, and removal of the berm would increase ambient noise levels by the same amount identified (3 dBA). Since ambient noise levels in the vicinity of the project have increased as a result of traffic growth on SR-60, noise levels at the residences is projected to approach the NAC. However, no noise-sensitive outdoor areas (such as balconies/patios) directly face SR-60 (i.e., the first floor of the complex is parking and no balconies face SR-60). Buildings typically provide attenuation of 24 dBA between exterior to interior noise levels with windows closed (SAE 1971). Since noise levels would not exceed 69 dBA L_{eq}, interior noise levels would be less than 45 dBA (e.g., the building standard for new construction). Consequently, while noise levels would approach the NAC, there are no outdoor noise-sensitive areas on the southern portion of the Oak Hills Apartments, and indoor noise levels would not be significantly affected. Impacts would remain less than significant under the MPMP Precise Plan.

Onsite Stationary Noise Sources

The 2000 MPTP EIR identified that operation of the commercial center would involve delivery/unloading of heavy goods using forklifts, maintenance activities (e.g., refuse collection, parking lot sweeping, stacking or retrieval of temporary outdoor storage), and early morning truck traffic all of which could result in a nuisance at nearby homes. Because existing noise-sensitive land uses were separated from onsite retail facilities by 1,000 feet or more, commercial activities would not be audible at noise-sensitive land uses. Therefore, no significant impacts were identified in the 2000 MPTP EIR.

Development of the project site would introduce new stationary-source noise generated by parking lot activities, truck deliveries, landscaping activities, and HVAC units. The City's municipal code prohibits any noise from these types of sources that would result in a nuisance at nearby sensitive properties. The nearest noise-sensitive uses are approximately 430 feet from the parking lots proposed in the MPMP Precise Plan. Noise levels from parking lot usage would be 41 dBA, which is below the ambient noise level of 62 to 64 dBA CNEL. The truck loading dock and HVAC units would be more than 1,000 feet from the nearest residential use and would result in noise exposures below the ambient noise level. Landscaping activities would intermittently occur, but these noise levels would generally be indiscernible due to the large distance between this activity and the nearest noise-sensitive residential uses. Therefore, onsite stationary noise sources associated with the MPMP Precise Plan would result in less than significant noise impacts from onsite stationary sources of noise. Impacts would remain less than significant under the MPMP Precise Plan.

Table 5.4-9
Buildout Year 2015 Traffic Noise Levels
(dBA CNEL)

Segment	Existing Year 2010		2015 Without Project		2015 With Project		Increase in dBA	
	ADT Volumes	CNEL	ADT Volumes	CNEL	ADT Volumes	CNEL	From Existing	Due to the Project
Market Place Drive								
west of Paramount Boulevard	2,170	56.8	2,250	57.0	20,983	66.7	9.9	9.7
Greenwood Avenue								
east of Potrero Grande Drive	150	50.0	150	50.0	1,136	58.8	8.8	8.8
Paramount Boulevard								
btwn Montebello and SR-60 EB Ramps	23,540	74.1	27,440	74.7	28,820	74.9	0.9	0.2
btwn SR-60 EB Ramps and SR-60 Ramps	27,750	74.8	30,850	75.2	36,988	76.0	1.2	0.8
btwn SR-60 WB Ramps and Arroyo	18,130	72.9	19,760	73.3	21,140	73.6	0.7	0.3
btwn Arroyo and San Gabriel	13,550	71.7	14,990	72.1	16,370	72.5	0.8	0.4
north of San Gabriel	14,800	72.0	15,650	72.3	16,636	72.6	0.5	0.3
Arroyo Drive								
west of Neil Armstrong	6,100	67.2	6,340	67.4	6,340	67.4	0.2	0
btwn Neil Armstrong and Paramount	6,400	67.4	6,660	67.6	6,660	67.6	0.2	0
east of Paramount	2,870	62.8	2,970	63.0	2,970	63.0	0.1	0
San Gabriel Boulevard								
west of Paramount	13,590	71.7	14,270	71.9	14,270	71.9	0.2	0
btwn Paramount and Town Center Dr	22,040	73.8	23,280	74.0	23,477	74.0	0.3	0
btwn Town Center and Rosemead	21,400	73.6	22,540	73.9	22,737	73.9	0.3	0
Town Center Drive								
btwn Paramount and SR-60 EB Ramps	5,110	65.3	5,290	65.5	5,290	65.5	0.2	0
btwn SR-60 EB Ramps and San Gabriel	18,420	70.9	19,290	71.1	19,389	71.1	0.2	0
Montebello Boulevard								
btwn Town Center and Paramount	28,590	73.9	31,270	74.3	31,467	74.3	0.4	0
btwn Lincoln and Beverly	23,110	73.0	24,700	73.3	25,686	73.5	0.5	0.2
Potrero Grande Drive								
btwn Pomona and Markland	8,520	70.6	8,890	70.8	11,429	71.8	1.3	1.1
btwn Markland and Greenwood	15,470	73.2	16,150	73.3	22,608	74.8	1.6	1.5
east of Greenwood	15,170	73.1	15,810	73.3	16,304	73.4	0.3	0.1
Markland Drive								
btwn Via Campo and Potrero Grande	12,070	69.0	12,590	69.2	16,016	70.3	1.2	1.0

Table 5.4-9
Buildout Year 2015 Traffic Noise Levels
(dBA CNEL)

Segment	Existing Year 2010		2015 Without Project		2015 With Project		Increase in dBA	
	ADT Volumes	CNEL	ADT Volumes	CNEL	ADT Volumes	CNEL	From Existing	Due to the Project
Pomona Boulevard								
btwn Garfield and Wilcox	16,620	72.5	17,340	72.7	19,091	73.1	0.6	0.4
east of Wilcox	16,550	72.5	17,280	72.7	19,819	73.3	0.8	0.6
Via Campo								
btwn Garfield and Wilcox	20,230	72.4	21,080	72.6	22,831	72.9	0.5	0.3
btwn Wilcox and Markland	18,390	72.0	19,200	72.2	21,739	72.7	0.7	0.5
east of Markland	15,620	71.3	16,300	71.5	16,793	71.6	0.3	0.1
Garfield Avenue								
north of Pomona	20,170	72.4	21,040	72.6	22,618	72.9	0.5	0.3
btwn Pomona and Via Campo	24,400	73.2	25,410	73.4	26,495	73.6	0.4	0.2
south of Via Campo	30,370	74.2	31,590	74.4	32,182	74.4	0.3	0.1
Wilcox Avenue								
north of Pomona	7,660	67.1	7,990	67.2	8,976	67.8	0.7	0.5
btwn Pomona and Via Campo	14,250	70.9	14,840	71.1	15,629	71.3	0.4	0.2
south of Via Campo	19,870	72.3	20,680	72.5	21,272	72.6	0.3	0.1

Source: Federal Highway Administration (FHWA), Highway Traffic Noise Prediction Model (FHWA-RD-77-108).
Noise levels are at a distance of 50 feet from the centerline of the roadway. Traffic noise modeling is based on traffic volumes and speed limits obtained from the traffic analysis prepared by Arch Beach Consulting.
Bold: Significant; Underline: Marginally detectable

Table 5.4-10
General Plan Buildout Year 2025 Traffic Noise Levels
(dBA CNEL)

Segment	Existing Year 2010		2025 Without Project		2025 With Project		Increase in dBA	
	ADT Volumes	CNEL	ADT Volumes	CNEL	ADT Volumes	CNEL	From Existing	Due to the Project
Market Place Drive								
West of Paramount Boulevard	2,170	56.8	2,390	57.3	21,123	66.7	9.9	9.5
Greenwood Avenue								
east of Potrero Grande Drive	150	50.0	160	50.3	1,146	58.8	8.8	8.6
Paramount Boulevard								
btwn Montebello and SR-60 EB Ramps	23,540	74.1	30,780	75.2	32,160	75.4	1.4	0.2
btwn SR-60 EB Ramps and SR-60 Ramps	27,750	74.8	33,890	75.6	40,028	76.4	1.6	0.7
btwn SR-60 WB Ramps and Arroyo	18,130	72.9	21,700	73.7	23,080	74.0	1.0	0.3
btwn Arroyo and San Gabriel	13,550	71.7	16,580	72.5	17,960	72.9	1.2	0.3
north of San Gabriel	14,800	72.0	17,070	72.7	18,056	72.9	0.9	0.2
Arroyo Drive								
west of Neil Armstrong	6,100	67.2	6,830	67.7	6,830	67.7	0.5	0
btwn Neil Armstrong and Paramount	6,400	67.4	7,170	67.9	7,170	67.9	0.5	0
east of Paramount	2,870	62.8	3,200	63.3	3,200	63.3	0.5	0
San Gabriel Boulevard								
west of Paramount	13,590	71.7	15,370	72.2	15,370	72.2	0.5	0
btwn Paramount and Town Center Dr	22,040	73.8	25,570	74.4	25,767	74.5	0.7	0
btwn Town Center and Rosemead	21,400	73.6	24,910	74.3	25,107	74.3	0.7	0
Town Center Drive								
btwn Paramount and SR-60 EB Ramps	5,110	65.3	5,700	65.8	5,700	65.8	0.5	0
btwn SR-60 EB Ramps and San Gabriel	18,420	70.9	20,950	71.4	21,049	71.5	0.6	0
Montebello Boulevard								
btwn Town Center and Paramount	28,590	73.9	34,010	74.7	34,207	74.7	0.8	0
btwn Lincoln and Beverly	23,110	73.0	27,010	73.7	27,996	73.8	0.8	0.2
Potrero Grande Drive								
btwn Pomona and Markland	8,520	70.6	9,570	71.1	12,109	72.1	1.5	1.0
btwn Markland and Greenwood	15,470	73.2	17,400	73.7	23,858	75.0	1.9	1.4
east of Greenwood	15,170	73.1	17,040	73.6	17,534	73.7	0.6	0.1

Table 5.4-10
General Plan Buildout Year 2025 Traffic Noise Levels
(dBA CNEL)

Segment	Existing Year 2010		2025 Without Project		2025 With Project		Increase in dBA	
	ADT Volumes	CNEL	ADT Volumes	CNEL	ADT Volumes	CNEL	From Existing	Due to the Project
Markland Drive								
btwn Via Campo and Potrero Grande	12,070	69.0	13,550	69.5	16,976	70.5	1.5	1.0
Pomona Boulevard								
btwn Garfield and Wilcox	16,620	72.5	18,670	73.1	20,421	73.4	0.9	0.4
east of Wilcox	16,550	72.5	18,610	73.0	21,149	73.6	1.1	0.6
Via Campo								
btwn Garfield and Wilcox	20,230	72.4	22,710	72.9	24,461	73.2	0.8	0.3
btwn Wilcox and Markland	18,390	72.0	20,670	72.5	23,209	73.0	1.0	0.5
east of Markland	15,620	71.3	17,540	71.8	18,033	71.9	0.6	0.1
Garfield Avenue								
north of Pomona	20,170	72.4	22,650	72.9	24,228	73.2	0.8	0.3
btwn Pomona and Via Campo	24,400	73.2	27,380	73.7	28,465	73.9	0.7	0.2
south of Via Campo	30,370	74.2	34,020	74.7	34,612	74.7	0.6	0.1
Wilcox Avenue								
north of Pomona	7,660	67.1	8,610	67.6	9,596	68.0	1.0	0.5
btwn Pomona and Via Campo	14,250	70.9	15,980	71.4	16,769	71.6	0.7	0.2
south of Via Campo	19,870	72.3	22,280	72.8	22,872	72.9	0.6	0.1

Source: Federal Highway Administration (FHWA), Highway Traffic Noise Prediction Model (FHWA-RD-77-108).
Noise levels are at a distance of 50 feet from the centerline of the roadway. Traffic noise modeling is based on traffic volumes and speed limits obtained from the traffic analysis prepared by Arch Beach Consulting.
Bold: Significant; Underline: Marginally detectable

IMPACT 5.4-2: CONSTRUCTION ACTIVITIES WOULD RESULT IN TEMPORARY NOISE INCREASES IN THE VICINITY OF THE PROPOSED PROJECT. [THRESHOLD N-4]

Impact Analysis: The 2000 MPTP identified less than significant impacts from project-related construction activities at noise-sensitive land uses. Short-term noise impacts are associated with site preparation, grading, and building construction of the proposed land uses. Two types of short-term noise impacts could occur during construction. First, the transport of workers and movement of materials to and from the site could incrementally increase noise levels along local access roads. The second type of short-term noise impact is related to demolition, site preparation, grading, and/or physical construction. Construction is performed in distinct steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. However, despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase.

Construction-Related Vehicles

Construction Worker Vehicles and Material Delivery Trucks

The transport of workers and equipment to the construction site would incrementally increase noise levels along site access roadways. However, the amount of construction traffic is typically small in relation to the total daily traffic volumes on those roadway segments. Additionally, the truck trips would be spread throughout the workday and would primarily occur during nonpeak traffic periods. Therefore, these impacts are less than significant at noise receptors along the construction routes.

Construction Equipment Noise

Noise generated during construction is a function of the construction equipment used, its location , and the timing and duration of the noise-generating activities. The proposed project would be constructed in multiple phases starting in June 2011 with the project opening in 2015. Approximately 51 acres would be disturbed (42.1-acre North Parcel plus the 9.0-acre SCE easement). The first phase of construction would involve removal of the berm between the site and SR-60 to construct the maintenance access road. Phase 2 consists of development of the North Parcel for the commercial/retail development. Based on information from the applicant, construction associated with Phase 2 is assumed to be phased in as demand for retail/commercial uses increases.

Construction noise levels in *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances* were used to estimate future construction noise levels for the proposed project (Bolt, Beranek and Newman 1971). Typically, the estimated construction noise levels are governed by the loudest pieces of equipment. The nearest noise-sensitive residential land use is approximately 425 feet to the east/northeast of the project boundary. Other noise-sensitive residential uses are located beyond 1,000 feet to the south and west of the project site boundaries. Other noise-sensitive uses include the Resurrection Cemetery 500 feet to the north. Table 5.4-11 lists the noise levels at the nearest noise-sensitive uses.

Table 5.4-11
Noise Levels at the Nearest Noise-Sensitive Uses to the Project Site (dBA Leq)

Construction Phase	Closest Distance from Residential Uses
Northern Residences (Resurrection Cemetery, 500 feet away)	
Ground Clearing	64
Excavation	59
Foundation Construction	58
Building Construction	55
Finishing and Site Cleanup	55
Eastern Residences (Armstrong Street Multifamily Residences, 425 feet away)	
Ground Clearing	65
Excavation	60
Foundation Construction	59
Building Construction	56
Finishing and Site Cleanup	56
Southern Residences across SR-60 (1,325 feet away)	
Ground Clearing	56
Excavation	51
Foundation Construction	50
Building Construction	47
Finishing and Site Cleanup	47
Western Residences (1,920 feet away)	
Ground Clearing	52
Excavation	47
Foundation Construction	46
Building Construction	43
Finishing and Site Cleanup	43
Market Place Drive Roadway Construction (Armstrong Street Multifamily Residences, 50 feet away at closest point)	
Demolition	84
Excavation	78
Foundation Construction	88
Finishing and Site Cleanup	84

Source: Bolt, Beranek and Newman 1971. Based on noise levels from commercial/institutional buildings with minimum applicable equipment in use.

Composite construction noise is best characterized by Bolt, Beranek and Newman. In their study, construction noise for development ranges from 77 to 89 dBA L_{eq} when measured at a distance of 50 feet. These values take into account both the number of pieces and spacing of the heavy equipment used in the construction effort. During building assembly, noise levels are typically reduced from these values and the physical structures further break up line-of-sight noise propagation. Construction of individual developments associated with buildout of the proposed project would temporarily increase the ambient noise environment. According to Section 9.53.070(6) of the City of Monterey Park Municipal Code, construction activities are confined to 7:00 AM to 7:00 PM on weekdays and 9:00 AM to 6:00 PM on Saturdays, Sundays, and holidays.

The 2000 MPTP EIR found that construction noise would result in less than significant noise impacts due to construction activities occurring in the least-noise-sensitive portions of the day; the limited duration for which heavy construction equipment would be used; the distance construction activities would occur from the nearest noise-sensitive uses as well as the reduced noise levels associated with building construction due structural obstructions; and the lower noise levels associated with building construction compared to other

construction phases. Construction noise impacts under the MPMP Precise Plan would also result in less than significant impacts for these same reasons. In addition, noise levels from construction of the MPMP Precise Plan would be comparable to the monitored noise levels of 62 to 64 dBA CNEL. The only exception to this is during construction of Market Place Drive, which is 50 feet to the south (at its closest point) of existing multifamily residential uses. Noise levels would range from 78 to 84 dBA during roadway construction at its closest point. Noise levels from roadway construction would diminish with distance and would be limited to the first two phases of construction for a duration of approximately seven to eight months, similar to the previous project. However, noise impacts from the construction of Market Place Drive would be less than significant through compliance with Section 9.53.070(6) of the City of Monterey Park Municipal Code.

IMPACT 5.4-3: THE PROJECT WOULD CREATE SUBSTANTIAL LEVELS OF SHORT-TERM GROUNDBORNE VIBRATION, WHICH IS A NEW SIGNIFICANT IMPACT NOT IDENTIFIED IN THE 2000 MPTP EIR. [THRESHOLD N-2]

Impact Analysis: The 2000 MPTP did not evaluate the potential for project-related vibration impacts during the construction and operations phases of the project. Operation of the project does not have the potential to generate strong levels of vibration, but construction activity does. Construction activities can generate varying degrees of ground vibration depending on the procedures and equipment. Construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. Groundborne vibration is almost never annoying to people who are outdoors and is therefore evaluated in terms of indoor receivers (FTA 2006). Vibration is typically sensed at nearby structures when objects within the structure generate noise from the vibration, such as rattling windows or picture frames. The effect on buildings near the construction site varies depending on soil type, ground strata, and receptor building construction. The results from vibration can range from no perceptible effects at the lowest levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight damage at the highest levels. Ground vibration from construction activities rarely reaches levels that can damage structures, but it can achieve the audible and perceptible ranges in buildings close to a construction site (FTA 2006). The nearest vibration sensitive uses to the project site are the multifamily residences along Neil Armstrong Street and the retail use at the corner of Neil Armstrong Street and Paramount Boulevard.

Groundborne vibration would be generated by the proposed project during construction activities, primarily during the demolition, grading, and foundation phases. Unless there are extremely large generators of vibration, such as pile drivers, or receptors in close proximity to construction equipment, vibration is generally only perceptible at structures when it rattles windows, picture frames, and other objects (FTA 2006).

Vibration Annoyance

Maximum and average levels of vibration from heavy construction equipment were identified in order to evaluate human annoyance from daytime construction activities. Table 5.4-12 lists vibration levels that would be experienced at the nearest vibration-sensitive uses to the project site. Levels of vibration produced by construction equipment are evaluated against the FTA's significance thresholds for vibration annoyance: 78 VdB for daytime activities at residential uses and 84 VdB for office and nonsensitive uses. Average and maximum vibration levels are shown to provide typical and worst-case vibration exposures. Average vibration levels are used for the overall finding of significance because maximum or worst-case conditions are of short duration and do not represent the typical exposure. As shown in this table, vibration levels from heavy construction equipment would not exceed the FTA threshold for vibration annoyance at any of the analyzed sensitive uses under average conditions. Though maximum conditions during the construction of Market Place Drive would exceed the FTA vibration annoyance threshold when construction equipment is operating closest to the retail and multifamily residential uses north of Market Place Drive (Neil Armstrong Street),

average vibration levels at these uses would be below the level of perceptibility. Therefore, less than significant vibration impacts would result from construction activities associated with the MPMP Precise Plan.

Table 5.4-12
Vibration Source Levels for Construction Equipment at Nearest Offsite Receptors, Vibration Annoyance

	Selected Construction Equipment									
	Large Construction Equipment[1]		Small Construction Equipment[2]		Vibratory Roller		Jackhammers		Loaded Trucks	
Vibration-Sensitive Use	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg
Market Place Drive Construction to Office Uses at Paramount Boulevard/Neil Armstrong Street										
Vibration Level (VdB)	94	63	65	34	101	70	86	55	93	62
Significance Threshold (VdB)	84	84	84	84	84	84	84	84	84	84
Exceeds Significance Threshold	Yes	No	No	No	Yes	No	Yes	No	Yes	No
Market Place Drive Construction to Residences at Neil Armstrong Street										
Vibration Level (VdB)	82	64	53	35	89	71	74	56	81	63
Significance Threshold (VdB)	78	78	78	78	78	78	78	78	78	78
Exceeds Significance Threshold	Yes	No	No	No	Yes	No	No	No	Yes	No
Main Project Site Construction to Residences at Neil Armstrong Street										
Vibration Level (VdB)	62	51	33	22	69	58	54	43	61	50
Significance Threshold (VdB)	78	78	78	78	78	78	78	78	78	78
Exceeds Significance Threshold	No	No	No	No	No	No	No	No	No	No

Source: Based on methodology from the United States Department of Transportation, Federal Transit Administration, *Transit Noise and Vibration Impact Assessment,* 2006.
Max=Maximum; Avg=Average
[1] Vibration levels from the listed off-road construction equipment are equivalent to vibration levels generated by a large bulldozer.
[2] Vibration levels from the listed off-road construction equipment are equivalent to vibration levels generated by a small bulldozer.

Vibration-Related Structural Damage Assessment

In addition to vibration-induced annoyance, project-related construction vibration was evaluated for its potential to cause structural damage in comparison to the FTA's structural damage criteria (see Table 5.4-6). For nonhistoric buildings that are nonengineered wood-framed structures, levels of vibration produced by construction equipment are evaluated against the FTA's significance threshold for vibration-induced structural damage of 0.20 inch per second for the PPV.

Table 5.4-13 lists the estimated range in ground vibration levels that would be expected during construction at the closest offsite buildings, which are multifamily residential uses along Neil Armstrong Street and the commercial structure at the corner of Paramount Boulevard and Neil Armstrong Street. As shown in Table 5.4-13, vibration levels from construction equipment would exceed the FTA criteria for vibration-induced structural damage from construction of Market Place Drive. When large construction vehicles, heavily loaded trucks traveling on uneven terrain, or a vibratory paver operate within 30 feet of buildings, there is a potential for structural damage. Therefore, significant vibration impacts from structural damage could potentially occur due to construction of the MPMP Precise Plan. Because vibration impacts were not addressed in the 2000 MPTP EIR, this is a new potentially significant impact.

Table 5.4-13
Vibration-Induced Structural Damage from Construction Equipment

Equipment	Approximate RMS Velocity at Nearest Structure (in/sec)	Significance Threshold (VdB)	Exceeds Significance Threshold?
Market Place Drive Construction: 11 feet to Office Uses at Paramount Boulevard/Neil Armstrong Street			
Large Bulldozer	0.30	0.2	**Yes**
Small Bulldozer	0.01	0.2	No
Vibratory Roller	0.72	0.2	**Yes**
Jackhammer	0.12	0.2	No
Loaded Trucks	0.26	0.2	**Yes**
Market Place Drive Construction: 45 feet to Residences at Neil Armstrong Street			
Large Bulldozer	0.04	0.2	No
Small Bulldozer	0.00	0.2	No
Vibratory Roller	0.09	0.2	No
Jackhammer	0.01	0.2	No
Loaded Trucks	0.03	0.2	No

Source: Based on methodology from the United States Department of Transportation Federal Transit Administration, *Transit Noise and Vibration Impact Assessment,* 2006.
RMS velocity calculated from vibration level (VdB) using the reference of 1 micro-inch/second.

5.4.6 Cumulative Impacts

Cumulative noise impacts occur when multiple sources of noise, though individually not substantial, combine and lead to excessive cumulative noise exposure at noise-sensitive uses.

Temporary Construction Activities

Cumulative construction noise impacts have the potential to occur when multiple construction projects in the local area generate noise within the same time frame and contribute to the local ambient noise environment. Like stationary-source noise, cumulative construction noise and vibration impacts are confined to a local area of impact. Consequently, cumulative impacts would only occur if other projects are being constructed in the vicinity of the project at the same time as construction of the project. The traffic impact analysis prepared by Arch Beach Consulting (August 2010) has identified future projects in the vicinity of the proposed project.

According to the traffic study, four related projects in the vicinity of the proposed project that are currently under review are the development of a 4,652-square-foot shopping center at Walnut Grove and Rush Street, a 52-room hotel at 888 Montebello Boulevard, a 14-student day care center at 1630 Del Mar Avenue, and the Montebello Hills Specific Plan. These projects would not be within 1,000 feet of the MPMP Precise Plan site. Based on distance between these projects and the close proximity of the project site to the SR-60, construction noise from the MPMP Precise Plan would not substantially elevate ambient noise levels and significantly contribute to the cumulative noise environment. Therefore, it is not anticipated that substantial cumulative construction noise and vibration impacts would occur.

Mobile-Source Noise

Near Term

Traffic noise levels on local roadways in the vicinity of the project site were calculated in Table 5.4-9. The difference in traffic noise between the existing noise environment and buildout year 2015 With Project conditions represents cumulative noise increases. Project-related cumulative noise impacts may occur if

Year 2015 With Project noise levels exceed the exterior noise standard of 65 dBA CNEL for residential land uses and the cumulative noise increase is substantial, that is, 3 dBA or more. As shown in Table 5.4-9, Year 2015 With Project conditions would result in cumulative noise levels that exceed 65 dBA CNEL on the local roadways in the study area. Substantial traffic noise increases (9.9 dB) would occur at Market Place Drive, but would result in noise levels of 60 dBA CNEL (less than 65 dBA CNEL noise standard) at the nearest noise-sensitive residential uses, which are approximately 130 feet north of the centerline of Market Place Drive. Greenwood Avenue (east of Potrero Grande Drive) would also experience large noise increases (8.8 dBA), but due to the low volume of traffic, noise levels would be substantially below the 65 dBA CNEL noise standard. Consequently, project-related traffic would not significantly contribute to future cumulative traffic noise levels in the vicinity of the project for Year 2015 conditions.

Long Term

Noise modeling of traffic was also conducted for the long-term buildout of the General Plan. The change in noise levels between existing and General Plan Buildout conditions is shown in Table 5.4-10. As with near-term cumulative traffic noise, all the evaluated roadways would result in noise level increases that are below the City's exterior noise standard of 65 dBA CNEL for residential land uses or would have less than significant cumulative noise increases (3 dBA or less) when existing noise levels are in excess of 65 dBA CNEL. As discussed earlier, Market Place Drive and Greenwood Avenue would have substantial traffic noise increases; however, the overall noise levels would be below the City's exterior noise standard of 65 dBA CNEL at the nearest noise-sensitive uses to these roadways. Therefore, cumulative traffic noise increases would result in less than significant noise impacts.

Stationary-Source Noise

Unlike transportation noise sources, whose effects can extend well beyond the limits of the project site, stationary noise generated by the project only impacts sensitive receptors adjacent to the project site. No substantial stationary noise impacts from project implementation were identified and the City of Monterey Park would restrict stationary noise generated on a property from creating a nuisance to other offsite noise-sensitive receptors through implementation of the noise limits in the City's Municipal Code. Stationary-source noise generated by the proposed project would not substantially cumulatively contribute to the ambient noise environment.

5.4.7 Existing Regulations and Standard Conditions

- **City of Monterey Park Municipal Code, Chapter 9.53.** Establishes nuisance noise standards restricting the amount and duration of noise generated at a property.

- **City of Monterey Park, Municipal Code Section 9.53.070(6).** This code exempts noise associated with construction, repair, remodeling, or grading of any real property from the noise limitations of the municipal code, provided that construction activities do not take place between the hours of 7:00 PM and 7:00 AM on weekdays, and 6:00 PM and 9:00 AM on Saturdays, Sundays, and holidays.

5.4.8 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impacts would be less than significant: 5.4-1 and 5.4-2.

Without mitigation, the following impacts would be **potentially significant**:

- Impact 5.4-3 Construction of Market Place Drive has the potential to result in structural damage if vibration-intensive construction equipment operates within 30 feet of existing buildings.

5.4.9 Mitigation Measures

Impact 5.4-3

Mitigation Measures from the 2000 MPTP EIR

No significant impacts were identified in the 2000 MPTP EIR related to noise and therefore no mitigation measures were adopted as part of the 2000 MPTP EIR.

Additional Mitigation

4-1 During construction, the construction site supervisor shall ensure that the following minimum operating distances are maintained between construction equipment and the buildings along Market Place Drive:

- Loaded trucks and jackhammers: 20 feet
- Large construction equipment (equivalent to a large bulldozer): 40 feet
- Vibratory roller: 50 feet

5.4.10 Level of Significance After Mitigation

Impact 5.4-3

Mitigation Measure 4-1 would reduce potential significant impacts associated with vibration-induced structural damage to a level that is less than significant (see Table 5.4-14). Therefore, no significant unavoidable adverse impacts relating to noise or vibration remain.

Table 5.4-14
Vibration-Induced Structural Damage from Construction Equipment with Mitigation

Equipment	Approximate RMS Velocity at Nearest Structure (in/sec)	Significance Threshold (VdB)	Exceeds Significance Threshold?
Market Place Drive Construction: 11 feet to Office Uses at Paramount Boulevard/Neil Armstrong Street			
Large Bulldozer	0.04	0.2	No
Small Bulldozer	0.01	0.2	No
Vibratory Roller	0.07	0.2	No
Jackhammer	0.12	0.2	No
Loaded Trucks	0.11	0.2	No
Market Place Drive Construction: 45 feet to Residences at Neil Armstrong Street			
Large Bulldozer	0.04	0.2	No
Small Bulldozer	0.00	0.2	No
Vibratory Roller	0.09	0.2	No
Jackhammer	0.01	0.2	No
Loaded Trucks	0.03	0.2	No

Source: Based on methodology from the United States Department of Transportation Federal Transit Administration, *Transit Noise and Vibration Impact Assessment,* 2006.
Notes: RMS velocity calculated from vibration level (VdB) using the reference of 1 micro-inch/second.
Assumes implementation of Mitigation Measure 4-1.