Section 3.5
Noise and Vibration

This section identifies and evaluates noise sensitive receptors in the project area and describes the potential noise and vibration effects that would be attributable to the proposed project. The analysis that follows includes a description of the existing conditions of the project site and surrounding area, the regulatory framework that guides the decision-making process, thresholds for determining if the proposed project would result in a significant impact, potential noise impacts, mitigation measures where necessary to reduce the severity of potentially significant impacts, and the level of significance after mitigation. Details of the analysis are provided in Appendix E.

3.5.1 Introduction

Sound is mechanical energy characterized by the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level (amplitude). The human ear experiences sound as pressure on the ear. The sound pressure level is the logarithmic ratio of that pressure to a reference pressure, and is expressed in decibels (dB). Approximately zero dB corresponds to the threshold of human hearing.

Environmental sounds are measured with the A-weighted scale of a sound level meter. The A-scale simulates the frequency response of the human ear by giving more weight to the middle frequency sounds and less to the low and high frequency sounds. A-weighted sound levels are designated as dBA. Figure 3.5-1, Common Indoor and Outdoor Noises, shows the range of sound levels of common indoor and outdoor activities, in dBA.

Because sounds in the environment usually vary with time, they cannot simply be described with a single number. One method used to describe variable sounds is the equivalent noise level, which is derived from a large number of moment-to-moment A-weighted noise level measurements. The equivalent noise level (L_{eq}) is the constant sound level that in a given period has the same sound energy level as the actual time-varying sound pressure level. L_{eq} provides a methodology for combining noise from individual events and steady state sources into a measure of cumulative noise exposure.

The day-night average noise level (L_{dn}) represents the 24-hour energy average noise level with a 10-dBA penalty (addition) applied to noise levels between 10:00 p.m and 7:00 a.m. The L_{dn} is a useful metric of community noise impact because people in their homes are much more sensitive to noise at night than during the daytime. In the State of California, the community equivalent noise level (CNEL) is widely used. The CNEL is also a 24-hour cumulative noise descriptor that considers the sensitivity of humans to noise at night. However, in addition to the 10-dBA penalty between 10:00 p.m. and 7:00 a.m., the CNEL adds a 5-dBA penalty for nighttime hours between 7:00 p.m. and 10:00 p.m.

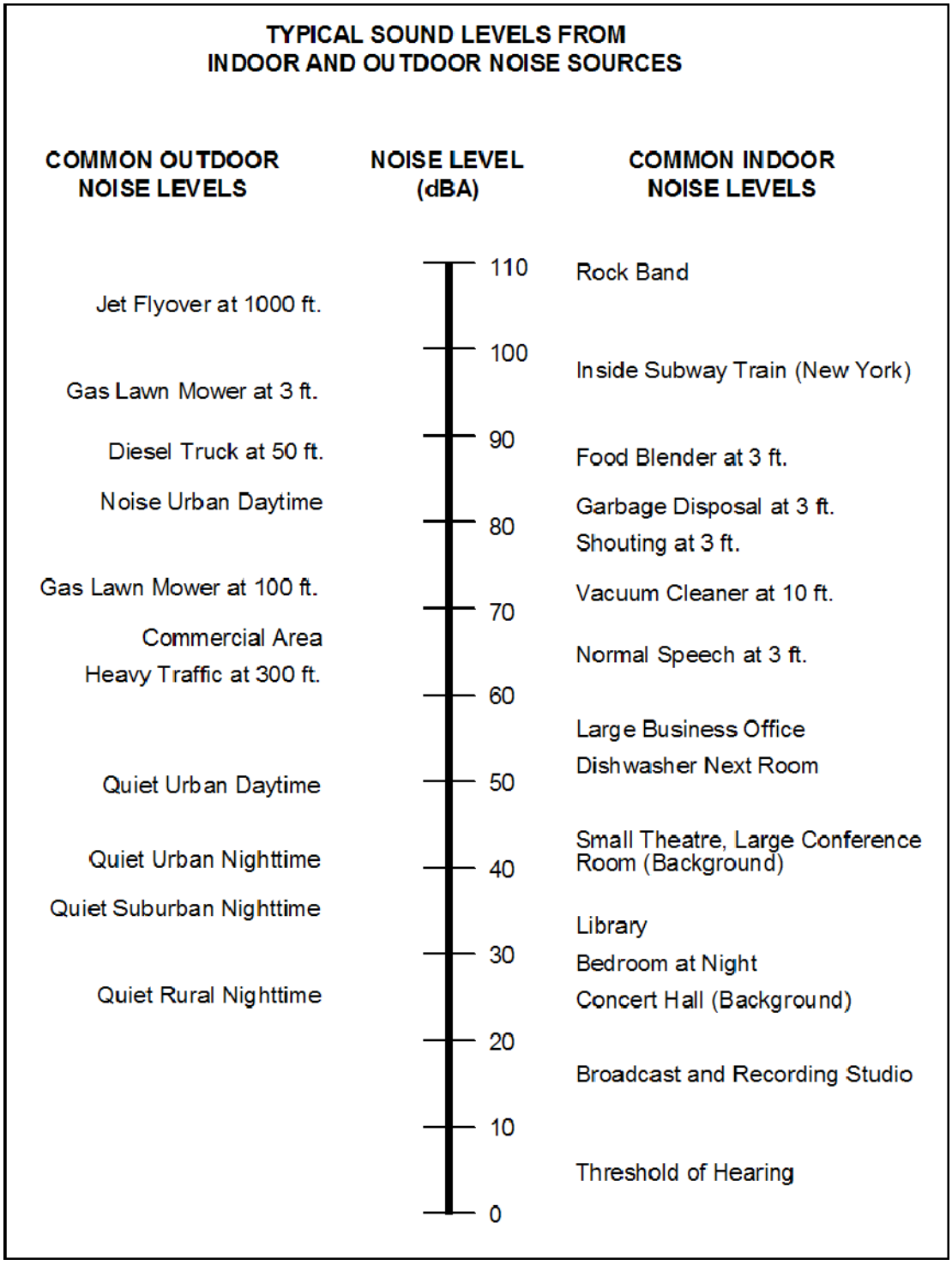

Figure 3.5-1
Common Indoor and Outdoor Noises

Source: FHWA 1980

A key concept in evaluating potential noise impacts is the perceived effect of incremental increases in existing noise levels. The effect of increasing noise levels is presented in Table 3.5-1. For example, the table shows that an increase of three dBA is barely perceptible, an increase of five dBA is noticeable, and that a 10 dBA increase would be perceived by someone to be a doubling of the noise level (loudness). A threshold of 5-10 dBA is typically used to determine the significance of noise impact from a project.

Table 3.5-1 Decibel Changes, Loudness, and Energy Loss

Sound Level Change (dBA)	Relative Loudness/Impact	Acoustical Energy Gain (%)
0	Reference	0
+3	Barely Perceptible Change	50
+5	Noticeable Change	67
+10	Twice as Loud	90
+20	Four Times as Loud	99

Source: FHWA 2011.

Some equipment can generate groundborne noise or vibration that may affect nearby structures or residents. Large bulldozers, vibratory rollers, pile driving, drilling equipment, and loaded trucks are examples of such equipment. Vibration levels are estimated using peak particle velocity (PPV) levels in inches per second (in/sec) published by the Federal Transit Administration (2006) adjusted for distance to the nearest sensitive receptor.

3.5.2 Existing Conditions

The project site is located immediately south of the Foothill Freeway/Interstate 210 (I-210) and within the Central District Specific Plan area of Pasadena. The subject site is bordered by Corson Street, Walnut Street, and Fair Oaks Avenue. Immediately to the west is a vacant parcel. Commercial/retail uses surround the site, with the closest multi-family residential building approximately 980 feet to the east. Single-family residential areas stretch to the north of the Foothill Freeway/I-210, approximately 870 feet to the north of the project site.

Traffic on the Foothill Freeway/I-210 and local streets is the main source of noise in this neighborhood of the City of Pasadena (City). Major local streets near the project site include Fair Oaks Avenue, Walnut Street, and Colorado Boulevard. Other sources include the Metro Gold Line light rail and aircraft/helicopter flyovers. The nearest airport, Burbank-Glendale-Pasadena (Bob Hope) Airport, is 12 miles to the west. Activities in the Central Arroyo area, including the Rose Bowl Stadium and Rose Bowl Aquatic Center, do not contribute directly (except traffic) to the ambient noise levels at the project site as the Rose Bowl Stadium is located approximately one mile northwest of the project site and is situated within a basin. Based on noise measurements and ambient noise estimates in the City of Pasadena General Plan Noise Element (2002), the average daily noise level, i.e., the CNEL, at the project site is estimated to be between 65 and 70 dBA.

The closest sensitive receptors are Saint Andrew's day care facility, located 400 feet east of the center of the project site (approximately 300 feet east from the property edge) and the Marriott Courtyard Hotel, located approximately 400 feet to the southeast. Other sensitive receptors (i.e., park and residential areas) are located farther away; Pasadena Memorial Park is located approximately 730 feet to the southeast, and the nearest residential receptor is approximately 870 feet north of the project site on the other side of the Foothill Freeway. The nearest residential receptors within the Central District are nearly 1,000 feet from the project site.

3.5.3 Regulatory Framework

3.5.3.1 Federal

The Noise Control Act of 1972 and the Quiet Communities Act of 1978 promote protection of human health and welfare from excessive noise. Title IV – Noise Pollution, of the Clean Air Act established the Office of Noise Abatement and Control (ONAC) to coordinate all federal noise control activities and investigations. However, in response to decisions made by the Administration in 1981, the US Environmental Protection Agency (USEPA) phased out ONAC's funding to shift noise control responsibilities to state and local governments. The Noise Control Act of 1972 and the Quiet Communities Act of 1978 remain in effect today but are not funded.

3.5.3.2 State

The California Office of Noise Control (CONC) was established under the California Noise Control Act of 1972. The CONC is a division of the California Department of Public Health Services and is responsible for developing model noise ordinances for urban, suburban, and rural environments, developing criteria, and guidelines for use in setting standards for human noise exposure and assisting local governments in developing and implementing noise abatement procedures (California Health & Safety Code Division 28).

The California Department of Transportation (Caltrans) has determined that vibration levels greater than 0.3 in/sec have potential to damage older residential structures and levels greater than 0.4 in/sec will be severely noticeable to a human (Caltrans 2004).

3.5.3.3 Local

Noise within the City is regulated by the City's Noise Ordinance, which is found in the City's municipal code (Chapter 9.36 - NOISE RESTRICTIONS). The noise ordinance prohibits generation of noise that exceeds the existing actual measured ambient noise level by five dBA (City of Pasadena Code of Ordinance Section 9.36.050). This noise ordinance also limits construction activity to between 7:00 a.m. and 7:00 p.m. during the weekday and between 8:00 a.m. and 5:00 p.m. on Saturdays. Construction is prohibited on Sundays and holidays (City of Pasadena Code of Ordinance Section 9.36.070). Maximum noise levels of any powered construction equipment are limited to 85 dBA at 100 feet from the noise source (City of Pasadena Code of Ordinance Section 9.36.080).

The General Plan Noise Element for the City (2002) provides noise management goals, objectives, policies, and programs for the City to achieve and incorporate in the land use compatibility matrix shown in Table 3.5-2. This matrix is used to help the City determine the appropriate land use and mitigation measures based on the existing or anticipated ambient noise levels. The 65-70 dBA average noise level (the CNEL) for the project site falls in the "normally acceptable" range for residential, commercial, and industrial land uses. New construction that falls in the "normally acceptable range" should be undertaken after an analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. An acceptable interior noise level in habitable rooms is 45 dBA L_{dn}. Standard mitigation measures are listed in the Noise Element:

1. If a 15-20 dBA reduction is needed, the following may suffice:
    a. Air conditioning or a mechanical ventilation system;

b. Windows and sliding glass doors should be double-paned glass and mounted in low air infiltration rate frames (0.5 cfm or less, per American National Standard Institute [ANSI] specifications); and

c. Solid core exterior doors with perimeter weather stripping and threshold seals.

2. If a 20-25 dBA reduction is needed, the following may suffice:

   a. Same as No. 1a-c;

   b. Exterior walls consist of stucco or brick veneer. Wood siding with a one-half inch minimum thickness fiberboard underlayer may also be used;

   c. Glass in both windows and doors should not exceed 20 percent of the floor area in a room; and

   d. Roof or attic vents facing the noise source should be baffled.

3. If a 25-30 dBA reduction is needed, the following may suffice:

   a. Same as No. 2a-d;

   b. The interior sheetrock of exterior wall assemblies should be attached to studs by resilient channels. Staggered studs or double walls are acceptable alternatives; and

   c. Window assemblies should have a laboratory-tested STC rating of 30 or greater (Windows that provide superior noise reduction capability and that are laboratory-tested are sometimes called "sound-rated" windows. In general, these windows have thicker glass and/or increased air space between panes. In contrast, standard energy conservation double-pane glazing with a one-eighth inch or one-quarter inch air space may be less effective in reducing noise from some noise sources than single pane glazing).

For new construction in the "normally acceptable" range, the Noise Element notes that conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Table 3.5-2 Land Use Compatibility for Community Noise Environments (L_{dn} or CNEL in dBA)

Land Use	Clearly Acceptable [a]	Normally Acceptable [b]	Conditionally Acceptable [c]	Normally Unacceptable[d]
Single-family, Duplex, Mobile Homes	Below 60	55 - 70	70-75	Above 75
Multi-Family Homes, Mixed Commercial/Residential	Below 65	60 - 70	70 - 75	Above 75
Transient Lodging – Motels, Hotels	Below 65	60 - 70	70 - 80	Above 80
Schools, Libraries, Churches, Hospitals, Nursing Homes	Below 65	60 - 70	70 - 80	Above 80
Auditoriums, Concert Halls, Amphitheaters	---	Below 70	Above 65	---
Sports Arena, Outdoor Spectator Sports	---	Below 75	Above 70	---
Playgrounds, Neighborhood Parks	Below 70	---	67 – 75	Above 72
Golf Courses, Riding Stables, Water	Below 75	---	70 - 80	Above 80

Land Use	Clearly Acceptable [a]	Normally Acceptable [b]	Conditionally Acceptable [c]	Normally Unacceptable[d]
Recreation, Cemeteries				
Office Buildings, Business and Professional Commercial	Below 70	67 - 77	Above 75	---
Industrial, Manufacturing, Utilities, Agriculture	Below 75	70 - 80	Above 80	---

Source: City of Pasadena 2002.
Note:
(a) Clearly 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.
(b) Normally Acceptable: New construction or development should be undertaken after an 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.
(c) Conditionally Acceptable: If construction or development proceeds, an analysis of the noise reduction requirements should be made and needed noise insulation features are included in the design.
(d) Normally Unacceptable: New construction or development should generally not be undertaken, unless it can be demonstrated that an interior level of 45 dBA can be achieved.

Policies to minimize excessive noise levels and to encourage mixed-use development in the Central District of the City were established for each major noise source and are listed in the City's General Plan Noise Element. Policies include promoting noise-compatible land uses, alternative transportation modes, noise attenuating design, and limitation on construction activities near sensitive noise receptors.

3.5.4 Methodology

Noise and vibration are produced during construction and operation of a project. Construction noise was predicted using the equations and guiding principles from the Federal Highway Administration's (FHWA's) Roadway Construction Noise Model (RCNM). The RCNM database provides maximum noise levels for various construction equipment at a reference distance of 50 feet. The types of construction equipment anticipated during the construction of the proposed project and each piece's maximum noise level are presented in Table 3.5-3. It was assumed that there would be one of each equipment, except for dump trucks, of which there would be three, and all anticipated construction equipment would be operating at default usage factors in the RCNM database. Equipment types for each phase of construction were obtained from the Air Quality and Greenhouse Gas analyses presented in Sections 3.2 and 3.4, respectively. The noise level at the nearest sensitive receptor, the St. Andrew's day care facility, which is approximately 400 feet from the center of the project site, was calculated by (1) making a distance adjustment to the total construction equipment sound level and (2) logarithmically adding the adjusted construction noise source level to the ambient noise level.

Table 3.5-3 Maximum Noise Levels and Usage Factors for Anticipated Construction Equipment

Equipment Description	RCNM Default L_{max} [a] @ 50 feet (dBA)	Usage Factor	Equipment L_{eq} @ 50 feet (dBA)
Compressor (air)	78	40%	74
Concrete Mixer Truck	79	20%	75
Concrete Pump Truck	81	20%	74
Concrete/Industrial Saw	90	20%	83
Crane	81	16%	73
Dump Truck	76	40%	72
Grader	85	40%	81

Equipment Description	RCNM Default L_{max}[(a)] @ 50 feet (dBA)	Usage Factor	Equipment L_{eq}@ 50 feet (dBA)
Rubber Tired Loader	79	40%	75
Scraper	84	40%	80
Tractor/Loader/Backhoe	84	40%	74
Signal Board	n/a	n/a	n/a
Water Truck	76	40%	72

Source: FHWA 2006.

(a) Lmax is the maximum value that the A-weighted sound pressure level reaches during a measurement period.

Doubling of a noise source's energy results in a noise increase of approximately three dBA. The traffic analysis for the proposed project (Appendix E of this EIR) shows that the traffic volume increase due to project construction or operation would not double the number of vehicles on the roads; therefore, traffic-related noise from construction or operation of the project would cause a less-than-perceptible (less than 3 dBA) increase in area noise levels.

Some construction equipment can generate groundborne noise or vibration that may affect nearby structures or residents. Large bulldozers, vibratory rollers, pile driving, drilling equipment, and loaded trucks are examples of such equipment. Vibration levels were estimated for loaded trucks using peak PPV levels in in/sec published by the Federal Transit Administration (2006) adjusted for distance to the nearest sensitive receptor.

There would be no permanent outside stationary sources of noise from the operation of the proposed extended stay hotel that would generate substantial noise.

3.5.5 Thresholds of Significance

The City of Pasadena utilizes Appendix G of the *State CEQA Guidelines* as its thresholds of significance for impacts associated with noise. Therefore, pursuant to Appendix G the proposed project would have a significant noise impact if it would result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;

  Caltrans estimates that frequent generation of vibration at levels exceeding 0.3 in/sec can damage older residential structures levels greater than 0.4 in/sec will be severely noticeable to a human (Caltrans 2004). Therefore, project construction and operation that produces vibration levels that exceed 0.3 in/sec would be significant.
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or

  The City of Pasadena prohibits generation of noise in excess of 5 dBA over the existing ambient noise level (City of Pasadena Code of Ordinance Section 9.36.050). For the purposes of this EIR, project operation that produces noise that exceeds existing ambient exterior CNEL noise levels by 5 dBA or more at a sensitive receptor site would be significant.

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

  The City of Pasadena prohibits generation of noise in excess of 5 dBA over the existing ambient noise level. For the purposes of this EIR, project construction that produces noise that exceeds existing ambient exterior CNEL noise levels by 5 dBA or more at a sensitive receptor site would be significant.

3.5.6 Project Impacts

Would the project expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

As discussed above, the City has policies and regulations pertaining to noise in their General Plan and Noise Ordinance. The 65-70 dBA average noise level (the CNEL) of the project site is normally acceptable for a hotel and special noise insulation would not be required for this development. The proposed project would not violate any of the City's policies to minimize excessive noise levels and to encourage development.

Construction activity would be limited to the times specified in the City's noise ordinance, between 7:00 a.m. and 7:00 p.m. during the weekday and between 8:00 a.m. and 5:00 p.m. on Saturdays. No construction activity would be scheduled on Sundays or holidays. The maximum noise level of anticipated construction equipment for the proposed project would be limited to 85 dBA at 100 feet from the noise source. Operation of the new extended stay hotel would generate an increase in off-site noise levels due to employee and hotel traffic less than three dBA. This increase has the potential to affect nearby noise sensitive land uses. As such, Mitigation Measures NOISE-1, NOISE-2 and NOISE-3 are recommended in order to reduce potentially significant impacts to less than significant levels.

Mitigation Measures

Mitigation Measure (MM) NOISE-1: Prior to the issuance of building permits the applicant shall prepare an acoustical study demonstrating what sound reducing measures will be incorporated into the construction of the project to ensure the interior noise levels for habitable rooms do not exceed 45dB. This study shall be reviewed and approved as part of the building permits issued for the project. The following are suggested measures that can be used to achieve a noise reduction. The final measures shall be presented in the acoustical analysis and incorporated into the plans submitted for building permits:

- If a 15-20 dBA reduction is needed, the following may suffice:

  a. Air Conditioning or a mechanical ventilation system;

  b. Windows and sliding glass doors should be double paned glass and mounted in a low air filtration rate frames (0.5 cfm or less, per American National Standard Institute (ANSI) specifications); and

  c. Solid core exterior doors with perimeter weather stripping and threshold seals.

- If a 20-25 dBA reduction is needed, the following may suffice:

  a. Same as No. 1 a-c;

b. Exterior walls consist of stucco or brick veneer. Wood siding with a one-half inch thickness fiberboard underlayer may also be used;

c. Glass in both windows and doors should not exceed 20 percent of the floor area in a room; and

d. Rood or attic vents facing the noise source should be baffled.

- If a 25-30 dBA reduction is needed, the following may suffice:

  a. Same as No 2 a-d;

  b. The interior sheetrock of exterior wall assemblies should be attached to studs by resilient channels. Staggered studs or double walls are acceptable alternatives; and

  c. Window assemblies should have a laboratory-tested STC rating of 30 or greater (windows that provide superior noise reduction capability and that are laboratory-tested are sometimes called "sound rated" windows).

MM-NOISE-2: Prior to the issuance of a Certificate of Occupancy for the project, a sound test shall be performed to the satisfaction of the Pasadena Health Department and the Building Division of the Planning and Community Development Department demonstrating that the interior noise level of habitable rooms do not exceed 45 dB.

MM-NOISE-3: The project shall adhere to all applicable requirements of the Noise Restrictions Ordinance during project construction and operation. A Construction Related Noise Plan is required as part of the Construction Staging Plan and must be reviewed by the Building Division and the Department of Transportation and approved prior to the issuance of a grading permit. This plan should show the location of any construction equipment and how the noise from this equipment will be mitigated by such methods as: temporary noise attenuation barriers; preferential location of equipment; and use of current technology and noise suppression equipment.

Residual Impacts

With implementation of mitigation measures identified above, noise impacts from construction and operation of the proposed project would be less than significant.

Would the project expose persons to or generate excessive groundborne vibration or groundborne noise levels?

Caltrans estimates that frequent generation of vibration at levels exceeding 0.3 in/sec can damage older residential structures and cause annoyance to humans (Caltrans 2004). Project construction and operation that produces vibration levels that exceed 0.3 in/sec would be considered significant. Of the anticipated construction equipment for this project, vibration may be caused by loaded trucks. Loaded trucks may generate a PPV of 0.076 in/sec at 25 feet which is significantly less than the level at which a historical structure or humans may be affected (0.3 in/sec). No excessive groundborne vibration or noise producing activities would occur under the proposed project. Therefore, the proposed project would not expose persons or historical structures to or generate excessive groundborne vibration or groundborne noise levels. Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

A less than significant groundborne vibration/noise impact is anticipated to occur with implementation of the proposed project.

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

There are no permanent stationary sources of noise from the operation of the hotel that would generate substantial noise. The increase in off-site noise levels due to employee and hotel traffic would be less than three dBA, or less than barely perceptible, because area traffic volumes due to project traffic would not double. Therefore, the threshold of significance would not be exceeded. Impacts from the operation of the project would be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

A less than significant permanent noise impact is anticipated to occur with implementation of the proposed project.

Would the project cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Construction activities for the project would include excavation, grading, building construction, paving, architectural coating, and landscaping. The estimated one-hour average construction noise level at the nearest sensitive receptor (Saint Andrew's day care) would be 69 dBA. Assuming construction occurs between 7:00 a.m. and 7:00 p.m. and the existing ambient CNEL is 65 dBA at the sensitive receptor, the estimated construction CNEL at the nearest sensitive receptor would be 68 dBA. Project construction that produces noise that exceeds the existing ambient exterior noise levels by 5 dBA or more at a sensitive receptor site would be significant. Even under the conservative assumption that all construction equipment would be operated simultaneously, the project would result in a CNEL noise level increase of three dBA (68 dBA minus 65 dBA), which is barely perceptible, and the noise threshold of significance would not be exceeded. In addition, a less than perceptible noise impact would occur from construction-related on-road traffic. This is because it takes a doubling of traffic to increase noise levels by three dBA. The volume of construction truck and worker commute traffic would amount to a less than doubling of traffic and would negligibly increase traffic-related noise levels in the area. Therefore, no activities associated with the project would result in a temporary or periodic increase in ambient noise levels. Impacts from construction would be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

A less than significant temporary or periodic noise impact is anticipated to occur with implementation of the proposed project.

3.5.7 Cumulative Impacts

The City has analyzed a scenario in which an NFL team could temporarily play at the Rose Bowl while a permanent stadium is being built outside the City limits (City of Pasadena 2012c). While the potential games from the NFL could overlap with operation of the proposed project, the maximum overlap is projected to be a maximum of 13 games in any one year and would last for a maximum of five years. As a result, this scenario would have a limited and temporary impact on cumulative Noise impacts. Because of the temporary duration of this scenario, cumulative impacts were analyzed with and without consideration of an NFL team so that the long term incremental effect of this project could be segregated and disclosed for purposes of determining whether it was cumulatively considerable.

Scenario One (Excluding Project # 32 from the Cumulative Projects List (Temporary Use of the Rose Bowl by the NFL))

Growth in the study area from future development projects in the vicinity has the potential to increase ambient noise levels. As discussed above, there would be a minimal long-term increase in noise level and no increase in vibration levels due to implementation of the proposed project. Other anticipated projects in the area consist of demolition, construction, or renovation of apartments/condominiums, medical offices, commercial office buildings, mixed-use buildings, and a church. Long term operations of new or renovated residential and commercial buildings are not anticipated to increase the ambient noise level. Review of the cumulative traffic increase shows less than a doubling of traffic on the roads near the projects (refer to Appendix E of this EIR). Therefore, the proposed project in combination with other development projects in the City does not have the potential to result in cumulative impacts or to contribute to significant cumulative impacts. Cumulative noise and vibration impacts would be less than significant.

Scenario Two (Including Project # 32 from the Cumulative Projects List (Temporary Use of the Rose Bowl by the NFL))

The temporary use of the Rose Bowl Stadium by the National Football League (NFL) is anticipated to occur generally between August and January annually for a period of up to five years. There would be up to 13 additional football games annually resulting in increased traffic levels on those 13 game days. The noise analysis conducted for the temporary use of the Rose Bowl Stadium by the NFL concludes that on game days the increase in noise levels from the stadium would be less than significant but the increase in traffic noise levels would be significant (City of Pasadena 2012). However, the temporary and periodic nature of this impact would not generally increase the ambient noise level of the area. Given that the proposed project would not result in significant short- or long-term impacts, and that cumulative development in the City is not expected to result in cumulatively significant noise and vibration impacts, the project would not contribute to or result in cumulatively significant noise and vibration impacts. Therefore, the cumulative impacts on noise and vibration from anticipated projects in the area including the temporary use of the Rose Bowl Stadium by the NFL would be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

Significant cumulative impacts are not anticipated to occur with implementation of the proposed project and related projects.