5.10 NOISE

This section discusses the fundamentals of sound; examines federal, state, and local noise guidelines, policies, and standards; reviews noise levels at existing receptor locations; and evaluates potential noise and ground vibration impacts associated with the Proposed Project; and provides mitigation to reduce noise impacts at sensitive residential locations. This evaluation uses procedures and methodologies as specified by Caltrans and the Federal Highway Administration (FHWA). The noise modeling for the Proposed Project in this section is based on the following:

- *Noise Appendix*, prepared by PlaceWorks July 2016 and updated in August 2017.

This data is included in Appendix L of this EIR.

This section evaluates the potential for implementation of the Proposed Project to result in noise and vibration impacts. Transportation-sector impacts are based on pertinent traffic data provided by Fehr & Peers (see Appendix M of the EIR). In addition to the existing regulations and pertinent technical standards described in this section, Appendix L of this EIR provides an overview of noise and vibration fundamentals, definitions of noise-related technical terms, project-specific background information, and construction effects calculation worksheets. Reproductions of County/City Noise Elements and Noise Codes are also included.

While the Proposed Project is in the City of Los Angeles and while off-site receptors that may potentially be impacted by noise and/or vibration effects from the Proposed Project are within the City, the County—as the lead agency and current and/or future owner of the Project Site, SSPS Site, and the Vignes Lot—can establish the appropriate impact thresholds and criteria. Therefore, the pertinent County noise and vibration thresholds and standards were used for the Proposed Project in this section of the EIR. City standards are also documented herein for informational purposes only.

5.10.1 Environmental Setting

5.10.1.1 REGULATORY SETTING

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.

Federal

Environmental Protection Agency

The EPA has identified the relationship between noise levels and human response. The EPA has determined that over a 24-hour period, a L_{eq} of 70 dBA would result in some hearing loss. Interference with activity and annoyance would not occur if exterior levels are maintained at an L_{eq} of 55 dBA and interior levels at or below 45 dBA. While these levels are relevant for general planning and design, they are not land use planning

criteria or environmental impact criteria because they do not consider economic cost, technical feasibility, or the needs of the community. As such, they are primarily useful for contextual and informational purposes.

Occupational Health and Safety Administration

The federal government regulates occupational noise exposure common in the workplace through the Occupational Health and Safety Administration (OSHA) under the EPA. Such limitations would apply to the operation of construction equipment and could also apply to any proposed industrial land uses. Noise exposure of this type is dependent on work conditions and is addressed through a facility's Health and Safety Plan, as required under OSHA, and is therefore not addressed further in this analysis.

State

The DHS Office of Noise Control has studied the correlation of noise levels and their effects on various land uses. The State of California Interior and Exterior Noise Standards are shown in Table 5.10-1.

Table 5.10-1 State of California Interior and Exterior Noise Standards

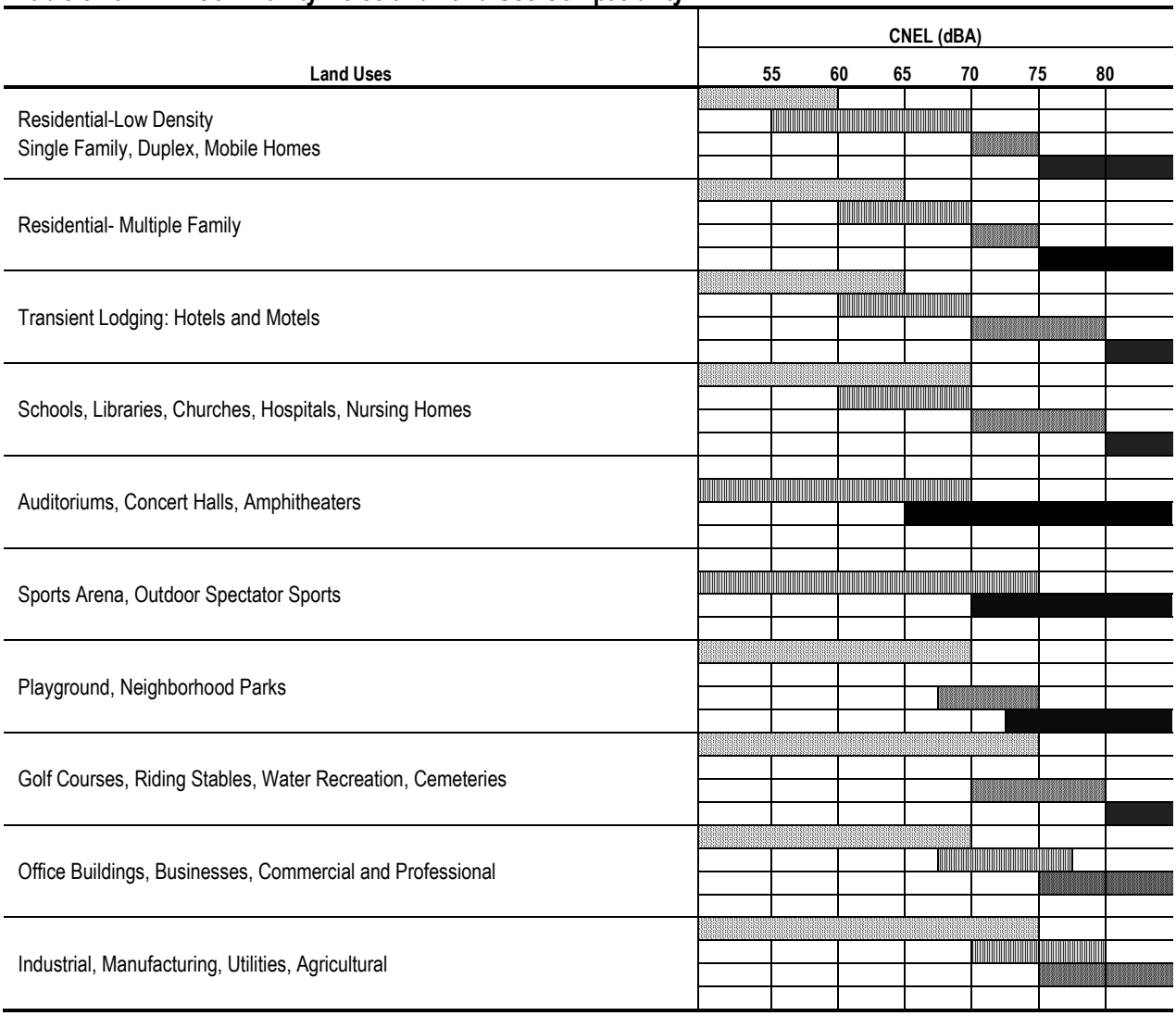
Land Use		CNEL (dBA)	
Categories	Uses	Interior[1]	Exterior[2]
Residential	Single and multi-family, duplex	45[3]	65
	Mobile homes	–	65[4]
Commercial	Hotel, motel, transient housing	45	–
	Commercial retail, bank, restaurant	55	–
	Office building, research and development, professional offices	50	–
	Amphitheater, concert hall, auditorium, movie theater	45	–
	Gymnasium (Multi-purpose)	50	–
	Sports Club	55	–
	Manufacturing, warehouse, wholesale, utilities	65	–
	Movie Theaters	45	–
Institutional / Public	Hospital, school classrooms/playground	45	65
	Church, library	45	–
Open Space	Parks	–	65

[1] Indoor environment excluding: bathrooms, kitchens, toilets, closets, and corridors
[2] Outdoor environment limited to:
• Private yard of single-family dwellings • Multi-family private patios or balconies accessed from within the dwelling (Balconies 6 feet deep or less are exempt) • Mobile home parks • Park picnic areas • School playgrounds • Hospital patios
[3] Noise level requirement with closed windows, mechanical ventilation, or other means of natural ventilation shall be provided as per Chapter 12, Section 1205 of the Uniform Building Code.
[4] Exterior noise levels should be such that interior noise levels would not exceed 45 dBA CNEL.

As with the EPA guidelines, the California DHS standards serve as informational background. In addition to the DHS standards, state law requires that each county and city adopt a general plan that includes a noise element, which is to be prepared according to guidelines adopted by the Governor's Office of Planning and Research. The purpose of the noise element is to "limit the exposure of the community to excessive noise levels" (OPR 2003).

The State Noise Compatibility Guidelines are shown in Table 5.10-2 as a land use compatibility chart for community noise prepared by the California Office of Noise Control. This table provides urban planners with a tool to gauge the compatibility of land uses relative to existing and future noise levels, categorizing "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable" noise levels for various land uses. A conditionally acceptable designation implies new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use is made and needed noise insulation features are incorporated in the design. By comparison, a normally acceptable designation indicates that standard construction can occur with no special noise reduction requirements.

Table 5.10-2 Community Noise and Land Use Compatibility



Explanatory Notes

Normally Acceptable:
With no special noise reduction requirements assuming standard construction.

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

Normally Unacceptable:
New construction is discouraged. If new construction does not proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable:
New construction or development should generally not be undertaken.

Source: California Office of Noise Control. *Guidelines for the Preparation and Content of Noise Elements of the General Plan.* February 1976. Adapted from the US EPA Office of Noise Abatement Control, Washington D.C. Community Noise. Prepared by Wyle Laboratories. December 1971.

County

The pertinent noise and vibration thresholds for the EIR analysis would be based on County standards. The County includes noise standards and guidelines in its General Plan Noise Element and the County Code.

County General Plan Noise Element

The County 2035 General Plan Noise Element is the guiding document for the County's noise policy. The purpose of the noise element is to reduce and limit the exposure of the general public to excessive noise levels. The noise element provides noise mitigation regulations and delineates federal, state and city jurisdiction relative to rail, automotive, aircraft and nuisance noise. It also sets forth noise management goals, objectives, policies, and programs of the County.

Policies in the noise element promote land use compatibility (N 1.2); aim to maintain compliance with County Code noise standards (N 1.5); ensure noise impacts do not exceed healthy levels (N 1.6); minimize transportation noise (N 1.7, N 1.8); and require barriers, buffers, and proper design and orientation for noise-sensitive uses when necessary (N 1.9, N 1.10, N 1.11).

County Code

Exterior Noise Standards

Title 12 of County Code, Chapter 12.08, includes exterior standards, summarized in Table 5.10-3. 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. The noise standards in Table 5.10-3 and described below apply to all property within a designated noise zone, unless otherwise indicated.

Table 5.10-3 County Exterior Noise Standards

Noise Zone	Time Period	Maximum Permissible Noise Level (dBA)[1,2]				
		Standard 1 (L_{50})	Standard 2 (L_{25})	Standard 3 (L_{8})	Standard 4 (L_{2})	Standard 5 (L_{max})
I. Noise-Sensitive Area	Anytime	45	50	55	60	65
II. Residential Properties	10 PM to 7 AM (nighttime)	45	50	55	60	65
	7 AM to 10 PM (daytime)	50	55	60	65	70
III. Commercial Properties	10 PM to 7 AM (nighttime)	55	60	65	70	75
	7 AM to 10 PM (daytime)	60	65	70	75	80
IV. Industrial Properties	Anytime	70	75	80	85	90

Source: County Code, Section 12.08.390.

[1] According to Section 12.08.390, if the ambient noise levels exceed the exterior noise standards above, then the ambient noise level becomes the noise standard. If the source of noise emits a pure tone or impulsive noise, the exterior noise levels limits shall be reduced by five decibels.

[2] If the measurement location is on a boundary property between two different zones, the noise limit shall be the arithmetic mean of the maximum permissible noise level limits of the subject zones; except when an intruding noise source originates on an industrial property and is impacting another noise zone, the applicable exterior noise level shall be the daytime exterior noise level for the subject receptor property.

- **Standard No. 1** shall be the exterior noise level which may not be exceeded for a cumulative period of more than 30 minutes in any hour. Standard No. 1 shall be the applicable L_{50} noise level shown above; or, if the ambient L_{50} exceeds the foregoing level, then the ambient L_{50} becomes the exterior noise level for Standard No. 1.

- **Standard No. 2** shall be the exterior noise level which may not be exceeded for a cumulative period of more than 15 minutes in any hour. Standard No. 2 shall be the applicable L_{50} noise level shown above plus 5dB; or, if the ambient L_{25} exceeds the foregoing level, then the ambient L_{25} becomes the exterior noise level for Standard No. 2.

- **Standard No. 3** shall be the exterior noise level which may not be exceeded for a cumulative period of more than five minutes in any hour. Standard No. 3 shall be the applicable L_{50} noise level shown above plus 10dB; or, if the ambient L_8 exceeds the foregoing level, then the ambient L_8 becomes exterior noise level for Standard No. 3.

- **Standard No. 4** shall be the exterior noise level which may not be exceeded for a cumulative period of more than one minute in any hour. Standard No. 4 shall be the applicable L_{50} noise level shown above plus 15dB; or, if the ambient L_2 exceeds the foregoing level, then the ambient L_2 becomes the exterior noise level for Standard No. 4.

- **Standard No. 5** shall be the exterior noise level which may not be exceeded for any period of time. Standard No. 5 shall be the applicable L_{50} noise level shown above plus 20dB; or, if the ambient L_0 exceeds the foregoing level then the ambient L_{max} becomes the exterior noise level for Standard No. 5.

Construction Noise Standards

The County prohibits the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between weekday hours of 7 PM and 7 AM, or at any time on Sundays or holidays, such that the sound therefrom creates a noise disturbance across a residential or commercial real-property line, except for emergency work of public service utilities or by variance. The County also sets maximum noise levels not to exceed the following maximum noise levels from mobile equipment (nonscheduled, intermittent, short-term operations for less than 30 days) as summarized in Table 5.10-4, *County Mobile Construction Equipment Noise Limits*.

Table 5.10-4 County Mobile Construction Equipment Noise Limits

	Single-Family Residential	Multi-Family Residential	Semi-Residential/ Commercial
Daily, except Sundays and legal holidays, 7 AM to 8 PM	75 dBA	80 dBA	85 dBA
Daily, 8 PM to 7 AM and all day Sunday and legal holidays	60 dBA	64 dBA	70 dBA

Source: County Code, Section 12.08.440. For non-scheduled, intermittent, short-term operations for less than 30 days.

Maximum noise levels from stationary equipment (repetitively scheduled and relatively long-term operations of 10 days or more) are summarized in Table 5.10-5, *County Stationary Construction Equipment Noise Limits*.

Table 5.10-5 County Stationary Construction Equipment Noise Limits

	Single-Family Residential	Multi-Family Residential	Semi-residential/ Commercial
Daily, except Sundays and legal holidays, 7 AM to 8 PM	60 dBA	65 dBA	70 dBA
Daily, 8 PM to 7 AM and all day Sunday and legal holidays	50 dBA	55 dBA	60 dBA

Source: County Code, Section 12.08.440. For repetitively scheduled and relatively long-term operations of 10 days or more.

Vibration-Related Annoyance

The County Code, Section 12.08.560, prohibits the operation of any device that creates vibration that is above 0.01 inch per second (in/sec) at or beyond the property boundary of the source, if on private property, or at 150 feet from the source, if on a public space or public right-of-way. This criterion is pertinent to the evaluation of vibration-annoyance impacts from industrial uses to nearby sensitive receptors. For information and to compare to the Federal Transit Administration (FTA) criteria for annoyance, Table 5.10-6, *Comparison of Groundborne Vibration Criteria: Human Annoyance*, provides vibration annoyance thresholds that are based on the work of many researchers which suggests that humans are sensitive to vibration velocities in the range of 8 to 80 Hertz.

Table 5.10-6 Comparison of Groundborne Vibration Criteria: Human Annoyance

Land Use Category	Max L_v (VdB)[1]	Approximate Equivalent PPV (in/sec)[2]	Description
Workshop	90	0.126	Distinctly felt vibration. Appropriate to workshops and non-sensitive areas
Office	84	0.063	Felt vibration. Appropriate to offices and non-sensitive areas.
Residential – Daytime	78	0.032	Barely felt vibration. Adequate for computer equipment.
Residential – Nighttime	72	0.016	Vibration not felt, but groundborne noise may be audible inside quiet rooms.
"Sensitive Receptors"	*68*	*0.01*	*County Standard*

Source: FTA 2006 (normal font), County Code, Section 12.08.560 (*italicized font*)
[1] Lv is the velocity level in decibels, as measured in 1/3-octave bands of frequency over the frequency ranges of 8 to 80 Hertz.
[2] The conversion from VdB to PPV assumes a crest factor of 4 (per FTA guidelines).

Vibration-Related Architectural Damage

However, it is also pertinent to assess potential architectural damage due to vibrational energy. Structures amplify groundborne vibration, and wood-frame buildings, such as typical residential structures, are more affected by ground vibration than heavier buildings. The level at which groundborne vibration is strong enough to cause architectural damage has not been determined conclusively. Given the underlying degree of uncertainty, the FTA has chosen to recommend architectural damage criteria that are toward the conservative end of the range of published results. These recommend damage criteria, by building category type, are shown in Table 5.10-7.

Table 5.10-7 Groundborne Vibration Criteria: Architectural Damage

Building Category		PPV (in/sec)	L_v (VdB)[1]
I.	Reinforced concrete, steel, or timber (no plaster)	0.5	102
II.	Engineered concrete and masonry (no plaster)	0.3	98
III.	Non-engineered timber and masonry buildings	0.2	94
IV.	Buildings extremely susceptible to vibration damage	0.12	90

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

Since the County Code does not regulate vibration damage, the FTA guidelines will be used for damage criteria in this impact assessment. Project-related construction activities that would generate vibration that are strong enough to cause vibration-induced architectural damage to the nearest buildings (which are commercial and light industrial) should be limited to 0.5 peak particle velocity (PPV) in inches per second for reinforced concrete and steel buildings without plaster. For residential structures (which fall in the category of nonengineered timber and masonry buildings), the FTA criterion is 0.2 PPV in/sec.

City

The following noise standards and guidelines from the City of Los Angeles' General Plan Noise Element and Municipal Code are provided for information and general reference.

General Plan Noise Element

The City's General Plan Noise Element (February 1999) is the guiding document for the City's noise policy. The noise element establishes noise mitigation regulations and delineates federal, state, and city jurisdictions for rail, automotive, aircraft, and nuisance noise. It also sets forth the City's noise management goals, objectives, policies, and programs.

Municipal Code

The City's Municipal Code Chapter XI (noise ordinance) is designed to protect people from objectionable non-transportation noise sources such as music, machinery, pumps, and air conditioners. 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 municipal code section 112.02, stationary noise sources such as air conditioning, refrigeration, heating, pumping, and filtering equipment are prohibited from causing the ambient noise level to increase by more than 5 dB. Section 11.03 provides minimum ambient noise levels for different noise zones in the City. Where actual ambient levels are lower than shown in Table 5.10-8, the presumed ambient noise levels in the table are used as the baseline.

Table 5.10-8 City of Los Angeles Ambient Noise Criteria

Zoning Categories	Time Period	Exterior Noise Limits (dBA Leq)
Residential: A1, A2, RA, RE, RS, RD, RW1, RW2, R1, R2, R3, R4, and R5	10:00 PM to 7:00 AM	40
	7:00 AM to 10:00 PM	50
Commercial: P, PB, CR, C1, C1.5, C2, C4, C5, and CM	10:00 PM to 7:00 AM	55
	7:00 AM to 10:00 PM	60
Industrial: M1, MR1, and MR2	10:00 PM to 7:00 AM	55
	7:00 AM to 10:00 PM	60
Industrial: M2 and M3	10:00 PM to 7:00 AM	65
	7:00 AM to 10:00 PM	65

Notes: Residential: A1 and A2: Agriculture; RA and RS: Suburban; RE Residential Estate; RD: Restricted Density Multiple Dwelling; RW1 and RW2: Residential Waterways; R1: One-family; R2: Two-family; R3, R4, and R5: Multiple Dwelling.
Commercial P: Automobile Parking; PB Parking Building; CR, C1, and C1.5: Limited Commercial; C2, C4, and C5: Commercial Zone; CM: Commercial Manufacturing.
Light Industrial: M1: Limited Industrial; MR1: Restricted Industrial; MR2: Restricted Light Industrial, M2: Light Industrial; M3: Heavy Industrial.

Construction Noise Standards

Section 41.40 and Section 112.05 of the City's municipal code govern noise limits and the hours of construction activities in the City.

Section 41.40 of the municipal code specifies hours allowed for construction activities for the purposes of noise control. Construction activities are constrained to the daytime hours from 7:00 AM to 9:00 PM Monday through Friday, 8:00 AM to 6:00 PM on Saturdays and national holidays, and prohibited on Sundays.

Section 112.05 of the municipal code provides maximum noise level of powered equipment or powered hand tools. In accordance with this section and section 41.40, construction equipment—including augers, loaders, power shovels, cranes, derricks, motor graders, paving machines, off-highway trucks, ditchers, trenchers, compactors, scrapers, wagons, pavement breakers, compressors, and pneumatic or other powered equipment items—shall not produce a maximum noise level exceeding 75 dBA at a distance of 50 feet between the hours of 7:00 AM and 9:00 PM. The City allows construction noise exceeding these noise limits if compliance is technically infeasible. However, the burden of proving that compliance is technically infeasible includes showing that noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques during the operation of the equipment.

Vibration Standards

The City does not have specific limits or thresholds for vibration.

5.10.1.2 EXISTING CONDITIONS

The Project Site is in a primarily commercial area and is subject to noise from a myriad of transportation and stationary sources. The Project Site is currently occupied by the MCJ facilities and parking lots. The SSPS Site is approximately 0.3 mile to the west of the Project Site, and the Vignes Lot is approximately 200 northwest of the Project Site. Therefore, these three sites share a similar noise environment, which includes nearby noise sources such as industrial, commercial, residential uses, roadway traffic, and rail traffic.

Stationary Source Noise

Stationary sources of noises may occur from all types of land uses. Residential uses would generate noise from landscaping, maintenance activities, and air conditioning systems. Commercial uses would generate noise from heating, ventilation, air conditioning (HVAC) systems; loading docks; and other sources. Industrial uses may generate noise from machinery or processes, HVAC systems, and loading docks. Noise generated by residential or commercial uses is generally short and intermittent. Industrial uses may generate noise on a more continual basis.

Sensitive Receptors

A mixture of different land use types surround the Project area, but certain land uses are particularly sensitive to noise and vibration. These uses include residences, schools, hospital facilities, houses of worship, and open space/recreation areas where quiet environments are necessary for the enjoyment, public health, and safety of the community. Commercial and industrial uses—which are the vast majority of uses adjacent to or near the Project Site—are not considered noise- and/or vibration-sensitive uses.

- **Project Site:** The nearest noise-sensitive uses to the Project Site are the William Mead Homes (approximately 750 feet to the north from the approximate geometric central of the Project Site) and Ann Street Elementary School (1,300 feet to the north). These properties are currently exposed to noise from commercial and industrial uses, vehicle traffic on nearby streets, and rail traffic.

- **Spring Street Parking Structure Site:** The nearest noise-sensitive uses to the SSPS Site are the Metro Senior Lofts (approximately 525 feet to the northeast from the approximate geometric central of the SSPS Site), the Metro Plaza Hotel (825 feet to the south), apartments to the southwest (750 feet), and Best Western Plus/Dragon Gate Inn (800 feet to the north). The properties near the SSPS Site are currently exposed to noise from commercial uses, vehicle traffic on surrounding streets, and rail traffic.

- **Vignes Lot:** The Vignes Lot is surrounded by a combination of commercial and light industrial uses as well as the rail lines to the east. The nearest noise-sensitive uses are the Metro Senior Lofts (approximately 900 feet to the west-northwest from the approximate geometric central of the Vignes Lot), the William Mead Homes (approximately 1,350 feet to the north) and Ann Street Elementary School (1,500 feet to the north). These are currently exposed to noise from commercial and industrial uses, vehicle traffic on nearby streets, and rail traffic.

5.10.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the 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 in the project area to excessive noise levels.

A significant traffic noise impact would occur if a project results in an increase of traffic noise levels of 5 dBA and the resultant noise level does not exceed the objectives of the County General Plan Community Noise Criteria (e.g., 65 dBA CNEL at a residential, noise-sensitive location), or results in an increase of 3 dBA and the resultant noise level meets or exceeds the objectives of the County General Plan Community Noise Criteria.

A significant stationary-source impact would occur if project-related activities or equipment produce noise levels at nearby sensitive receptors in excess of local standards.

5.10.3 Plans, Programs, and Policies

5.10.3.1 PROJECT DESIGN FEATURES

PDF-NOI-1 The Project's specifications will require that the Proposed Project use construction vehicles and equipment, either fixed or mobile, that are equipped with properly operating and maintained mufflers (equivalent or better than original factory equipment), which will be periodically inspected to ensure compliance.

5.10.3.2 REGULATORY REQUIREMENTS

RR-NOI-1 The Proposed Project will be designed and constructed in accordance with the Title 12 of the County Code, Sections 12.08, Noise Control and 12.12, Building Construction Noise. The County Code provides restrictions on the amount and duration of noise generated at a property, as measured at the property line of the noise receptor. It generally prohibits construction activities that generate noise that could create a disturbance across a residential or commercial property line from occurring between 7:00 PM and 7:00 AM on weekdays, or at any time on Sunday or a federal holiday.

5.10.4 Environmental Impacts

The following impact analysis addresses the thresholds of significance identified above. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.10-1 Project implementation would not result a substantial permanent increase in ambient noise levels in the Project vicinity and the long-term operational impacts that would not exceed applicable local standards. [Thresholds N-1 and N-3]

Impact Analysis:

Traffic Noise

The Proposed Project would generate noise associated with additional vehicles traveling to and from the Project Site on local roadways. However, community noise environments would not appreciably change as a result of Project implementation. According to the Traffic Study for the Proposed Project (included as Appendix M to the EIR), the Proposed Project is estimated to generate total employee trips of 7,522, which is 1.3 percent increase from the current 7,422 (Fehr & Peers 2017).[1,2] In comparison to existing traffic flows in the vicinity of the Project Site, the Proposed Project's contribution represents a worst-case increment in traffic-generated noise of less than 0.1 dB. This increase would be well below the threshold of audibility and well below the 3 dB threshold of significance. The projected ambient noise level increase from the Project-related traffic would not exceed the significance threshold, and ambient noise levels would not be significantly impacted.

Stationary-Source Noise

On-site HVAC units and associated equipment at the Project Site would be acoustically engineered with appropriate procurement specifications, sound enclosures, and parapet walls to minimize noise—all in accordance with County noise emissions requirements pursuant to RR NOI-1—to ensure that such equipment does not exceed allowable noise limits. Additionally, noise from HVAC systems and any other stationary sources at the Proposed Project would not be any different than the noise produced by existing uses. Furthermore, high ambient noise levels at the Project Site due to existing surrounding commercial and industrial uses, roadway traffic, and rail traffic would overshadow any noise produced by HVAC or other stationary sources at the Project Site. Noise from stationary sources would be audible but not readily recognizable due to existing high noise levels of the surrounding uses. Through compliance with pertinent local noise regulations and due to high ambient noise levels at the Project Site, ambient noise levels in the vicinity of the Project Site would not exceed the County exterior noise standards as shown in Table 5.10-3. Therefore, impacts would be less than significant.

[1] These figures include a trip credit for existing uses on the site.
[2] Bus trips are projected to remain the same at 390 into the facility and 390 out of the facility (as are existing conditions). Likewise, deliveries are projected to remain the same at 12 into the facility and 12 out of the facility (as are existing conditions).

The Proposed Project would be designed and operated in compliance with the County's exterior noise standards and would not exceed long-term operational standards. Therefore, impact would be less than significant.

Spring Street Parking Structure Site (Option 1)

Traffic Noise

The Proposed Project would generate noise associated with additional vehicles traveling to and from the SSPS Site on local roadways. However, community noise environments would not appreciably change as a result of Project implementation. Based on the peak hour intersection volumes in Appendix E of the Traffic Study (Appendix M to the EIR), the increase in traffic volumes around the SSPS Site would be negligible. In comparison to existing traffic flows on Alpine Street and Spring Street in the vicinity of the Project Site, the Proposed Project's contribution represents a worst-case increment of less than 10 percent. This small increment in flows translates into less than 0.5 dB of traffic-generated noise. This increase would be well below the threshold of audibility and well below the 3 dB threshold of significance. Therefore, no roadways in the vicinity of the SSPS Site would experience Project-generated increases in traffic noise levels that would be significant. Traffic noise increases would be less than significant.

Stationary Source Noise

The SSPS would not include any stationary sources such as HVAC units and associated equipment that could generate noise. If such equipment is installed, it would be acoustically engineered with appropriate procurement specifications, sound enclosures, and parapet walls to minimize noise—in accordance with County noise emissions requirements—to ensure that such equipment does not exceed allowable noise limits. Furthermore, high ambient noise levels at the SSPS Site due to surrounding commercial and industrial uses, roadway traffic, and rail traffic would overshadow any noise produced by HVAC or other stationary sources at the SSPS Site. Noises from stationary sources would be audible but not readily recognizable due to existing high noise levels of the surrounding uses. Thus, through compliance with pertinent local noise regulations and due to high ambient noise levels at the SSPS Site, noise levels due to stationary sources would be less than significant.

Because the SPSS would not result in significant increases in traffic or stationary noise, long-term operational noise would not exceed local standards, and the impact would be less than significant.

Vignes Lot (Option 2)

Traffic Noise

The Proposed Project would generate noise associated with additional vehicles traveling to and from the (optional) Vignes Lot on local roadways. However, community noise environments would not appreciably change as a result of Project implementation. Based on the peak hour intersection volumes presented in Appendix E of the Traffic Impact Analysis (Appendix M to the EIR), the increase in traffic volumes around the Vignes Lot would be negligible. In comparison to existing traffic flows on Alpine Street and Spring Street in the vicinity of the Project Site, the Proposed Project's contribution represents a worst-case increment of

less than 10 percent. This small increment in flows translates into less than 0.5 dB of traffic-generated noise. This increase would be well below the threshold of audibility and well below the 3 dB threshold of significance. Therefore, no roadways in the vicinity of the Vignes Lot would experience Project-generated increases in traffic noise levels that would be significant. Traffic noise increases would be less than significant, and no mitigation measures are necessary.

Stationary Source Noise

The Vignes Lot would not include any stationary source such as HVAC units and associated equipment that could generate noise. If such equipment is installed (such as ventilation fans), it would be acoustically engineered with appropriate procurement specifications, sound enclosures, and parapet walls to minimize noise—in accordance with County noise emissions requirements—to ensure that such equipment does not exceed allowable noise limits. Furthermore, high ambient noise levels at the site due to existing adjacent commercial and industrial uses, roadway traffic, and rail traffic would overshadow any noise produced by HVAC or other stationary sources at the Vignes Lot. Noises from stationary sources would be audible but not readily recognizable due to existing high noise levels of the surrounding uses. Thus, through compliance with pertinent local noise regulations and due to high ambient noise levels at the Vignes Lot, noise increases due to stationary sources would be less than significant.

Since the Vignes Lot would not result in significant increases in traffic or stationary noise, long-term operational noise would not exceed local standards, and the impact would be less than significant.

Level of Significance before Mitigation: With implementation of RR NOI-1, Impact 5.10-1 would be less than significant.

Impact 5.10-2: The Proposed Project could expose persons to or generate groundborne vibration. [Threshold N-2]

Impact Analysis: Potential vibration impacts associated with development projects are usually related to (a) the use of heavy construction equipment during demolition and grading phases of construction and/or (b) the operation of large trucks over uneven surfaces during project operations. The Proposed Project would not involve operation of large truck over uneven surfaces during operations. Therefore, only short-term construction vibration impacts are discussed.

Short-Term Impacts

Construction operations can generate varying degrees of ground vibration, depending on the construction procedures and equipment. Operation of construction equipment generates vibrations that spread through the ground and diminish with distance from the source. The effect on buildings in the vicinity of 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 vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. Vibration from construction activities rarely reaches levels that can damage structures, but can achieve audible and

perceptible levels in buildings close to the construction site. Table 5.10-9 lists vibration levels for typical construction equipment.

Table 5.10-9 Vibration Levels for Typical Construction Equipment

Equipment	Approximate Velocity Level at 25 Feet (VdB)	Approximate RMS[1] Velocity at 25 Feet (in/sec)
Pile Driver (impact) Upper Range	112	1.518
Pile Driver (impact) Lower Range	104	0.644
Pile Driver (sonic) Upper Range	105	0.734
Pile Driver (sonic) Lower Range	93	0.170
Large Bulldozer	87	0.089
Caisson Drilling	87	0.089
Jackhammer	79	0.035
Small Bulldozer	58	0.003
Loaded Trucks	86	0.076
FTA Criteria – Human Annoyance (Residential Daytime/ Residential Nighttime)	78/72	—
FTA Criteria – Human Annoyance (Office)	84	—
FTA Criteria – Structural Damage	—	0.200

Source: FTA 2006.
[1] RMS velocity calculated from vibration level (VdB) using the reference of 1 microinch/second.

As shown in this table, vibration generated by certain equipment has the potential to be substantial, because these items have the potential to exceed the FTA criteria for structural damage of 0.200 in/sec and the County criteria of 0.01 in/sec for vibration annoyance. However, groundborne vibration is almost never annoying to people who are outdoors, so it is usually evaluated in terms of indoor receivers (FTA 2006).

Construction equipment would include concrete saws, dozers, backhoes, graders, forklifts, cranes, excavators, rollers, pavers, and welders. The use of high-vibration equipment, such as pile drivers, is not anticipated.

Vibration-Induced Architectural Damage

The threshold at which there is a risk of architectural damage to typical wood-framed buildings is 0.2 in/sec (FTA 2006). Building damage is not normally a factor unless a project requires blasting and/or pile driving (FTA 2006). No blasting, pile driving, or hard-rock ripping/crushing are anticipated for the Proposed Project. Small construction equipment generates vibration levels less than 0.1 PPV in/sec at 25 feet away.

Table 5.10-10 shows the peak particle velocities of some common construction equipment and haul trucks (loaded trucks) at the nearest buildings to the Project Site during Phase 1.

Table 5.10-10 Maximum Construction Vibration Levels at Nearest Buildings to Project Site Phase 1

Equipment	Peak Particle Velocity in inches per second	
	TTCF (75 ft.)[1]	Buildings across Vignes St. (150 ft.)[1]
Vibratory Roller	0.040	0.014
Large Bulldozer	0.017	0.006
Loaded Trucks	0.015	0.005
Jackhammer	0.007	0.002
Small Bulldozer	0.001	0.000

Source: Federal Transit Administration: Transit Noise and Vibration Impact Assessment, 2006.
Bold numbers indicate values that exceed FTA architectural damage criteria.
[1] Distances are measured from the boundary of the CCTF Phase 1 construction site to the nearest receptor building facade.

The nearest buildings to the Project Site are the TTCF buildings to the southeast (approximately 75 feet from the edge of the Phase 1 construction site) and the buildings across North Vignes Street (150 feet away). The criteria for architectural damage would not be exceeded at these buildings by the use of any standard construction equipment. Therefore, vibration impacts relative to architectural damage from Phase 1 construction activities at the Project Site would be less than significant.

Table 5.10-11 shows the peak particle velocities of some common construction equipment and (loaded) haul trucks at the nearest buildings to the construction site during Phase 2.

Table 5.10-11 Maximum Construction Vibration Levels at Nearest Buildings to Project Site Phase 2

Equipment	Peak Particle Velocity in inches per second		
	Phase 1 buildings (30 ft.)[1]	Parking to north (50 ft.)[1]	TTCF (75 ft.)[1]
Vibratory Roller	0.160	0.074	0.040
Large Bulldozer	0.068	0.031	0.017
Loaded Trucks	0.058	0.027	0.015
Jackhammer	0.027	0.012	0.007
Small Bulldozer	0.002	0.001	0.001

Source: Federal Transit Administration: Transit Noise and Vibration Impact Assessment, 2006.
Bold numbers indicate values that exceed FTA architectural damage criteria.
[1] Distances are measured from the boundary of the Project Site Phase 2 construction site to the nearest receptor building facade.

The nearest buildings to the Project Site are the buildings that would be completed during Phase 1 (approximately 30 feet from the boundary of the construction site), the parking structure to the north (50 feet away), and the TTCF buildings (75 feet away). The criteria for architectural damage would not be exceeded at these buildings by the use of any standard construction equipment. Therefore, vibration levels from standard construction equipment would not exceed the 0.200 in/sec PPV level for architectural damage at the Project Site during Phase 1 or Phase 2 construction, and impacts would be less than significant for potential architectural damage impacts.

Vibration Annoyance

Vibration is typically noticed nearby when objects in a building generate noise from rattling windows or picture frames. It is typically not perceptible outdoors, and therefore impacts are based on the distance to the nearest building (FTA 2006).

Vibration dissipates quickly with distance, and the nearest sensitive receptors—i.e., William Mead Homes—are 1,000 feet from the center of the main construction zone during Phase 1 and 800 feet from Phase 2 construction. Therefore, vibration levels would be expected to be in the range of 26 to 64 VdB (for small bulldozers on the low end to vibratory rollers on the upper end) during both Phase 1 and Phase 2. Additionally, construction would take place during the times of the day when the majority of residential receptors (or hospitality patrons) would be expected to be away from their homes. Therefore, vibration annoyance impacts during both phases of construction at the Project Site would be less than significant.

Spring Street Parking Structure Site (Option 1)

The SSPS would be constructed in Phase 0 of the Proposed Project under Option 1.

Vibration-Induced Architectural Damage

Construction activities at the SSPS Site would take approximately 12 months. Table 5.10-12 shows the peak particle velocities of some common construction equipment and (loaded) haul trucks at the nearest buildings to the SSPS Site.

Table 5.10-12 Maximum Construction Vibration Levels at Nearest Buildings to SSPS

	Maximum Vibration Level, Peak Particle Velocity in inches per second			
Equipment	Building to north (< 15 ft.)[1]	Building to south (40 ft.)[1]	Buildings across New High St. (55 ft.)[1]	Buildings across Spring St. (70 ft.)[1]
Vibratory Roller	**>0.452**[2]	0.104	0.064	0.045
Large Bulldozer	>0.191	0.044	0.027	0.019
Loaded Trucks	>0.164	0.038	0.023	0.016
Jackhammer	>0.075	0.017	0.011	0.007
Small Bulldozer	>0.006	0.001	0.001	0.001

Source: Federal Transit Administration: Transit Noise and Vibration Impact Assessment, 2006.
Bold numbers indicate values that exceed FTA architectural damage criteria.
[1] Distances are measured from the boundary of the SSPS construction site to the nearest receptor building facade.
[2] The FTA equations used to calculate vibration levels become less accurate as the input values for distances decrease toward zero feet. The reliability of the calculations for distances of less than 15 feet becomes increasingly uncertain. Therefore, for receptors located at distances of less than 15 feet, the only reasonable statement that can be made is that vibration levels are assumed to be greater than values calculated using a distance of 15 feet.

The nearest building to the SSPS Site is the building to the north, which is immediately adjacent to the edge of the construction site. Construction-related vibration levels from the SSPS Site at this north building have the potential to exceed the criteria for architectural damage (i.e., 0.200 in/sec PPV) if a vibratory roller is operated within 30 feet of the building or if a large bulldozer or loaded truck is operated within 15 feet. However, other buildings are 40 feet to the south of the SSPS Site boundary, 55 feet away across New High

Street, and 70 feet away across Spring Street; therefore, impacts at these buildings would be less than significant.

Although no vibratory rollers are expected to be used at the SSPS Site, there is still some potential for architectural damage at the closest off-site buildings depending on the types of common construction equipment used and their distances to the receptor buildings. Therefore, there are potentially significant vibration impacts related to architectural damage to the building that border the SSPS Site to the north.

Vibration Annoyance

Table 5.10-13 shows the average construction vibration levels of some common construction equipment and (loaded) haul trucks at the nearest vibration-sensitive buildings to the SSPS construction site.

Table 5.10-13 Average Construction Vibration Levels at Nearest Sensitive Receptors to SSPS

Construction Activity	Average Vibration Level, VdB			
	The Metro Senior Lofts (450 feet)[1]	Metro Plaza Hotel (700 feet)[1]	Apartments to the Southwest (750 feet)[1]	Best Western Plus (800 feet)[1]
Vibratory Roller	69	65	64	64
Large Bulldozer	62	58	57	57
Loaded Trucks	61	57	56	56
Jackhammer	54	50	49	49
Small Bulldozer	33	29	28	28

Notes: Calculations performed with the FHWA's RCNM software.
[1] Distances are measured from the center of the SSPS construction site to represent spatially averaged sources.

As shown in the table above, average construction-generated vibration levels would not exceed the 78 VdB threshold for vibration annoyance at any of the nearest sensitive receptors. Therefore, vibration impacts relative to annoyance from construction activities at the SSPS Site would be less than significant.

Vignes Lot (Option 2)

The Vignes Lot parking structure would be constructed in Phase 0 of the Proposed Project under Option 2.

Vibration-Induced Architectural Damage

Construction activities at the Vignes Lot are expected to last approximately 12 months. Table 5.10-14 shows the peak particle velocities of some common construction equipment and (loaded) haul trucks at the nearest buildings to the Vignes Lot.

Table 5.10-14 Maximum Construction Vibration Levels at Nearest Buildings to Vignes Lot

Equipment	Maximum Vibration Level, Peak Particle Velocity in inches per second			
	Building to north (80 ft.)[1]	Building to northeast (80 ft.)[1]	Buildings across R/R tracks (175 ft.)[1]	Buildings across Vignes St. (210 ft.)[1]
Vibratory Roller	0.037	0.037	0.011	0.009
Large Bulldozer	0.016	0.016	0.005	0.004
Loaded Trucks	0.013	0.013	0.004	0.003
Jackhammer	0.006	0.006	0.002	0.001
Small Bulldozer	0.001	0.001	0.000	0.000

Source: Federal Transit Administration: Transit Noise and Vibration Impact Assessment, 2006.
Bold numbers indicate values that exceed FTA architectural damage criteria.
[1] Distances are measured from the boundary of the Vignes Lot to the nearest receptor building facade.

The nearest buildings to the Vignes Lot are commercial entities to the north (across Alhambra Avenue) and to the northeast (across College Street). Other nearby buildings are also separated from the Vignes Lot by streets or rail lines (to the east). At these distances, construction-related vibration levels from the Vignes Lot would have attenuated well below the criterion for architectural damage (i.e., 0.200 in/sec PPV), regardless of the type of equipment used.[3] As shown in Table 5.10-14, vibration levels from standard construction equipment would not exceed the 0.200 in/sec PPV level for architectural damage at these relatively large distances from the Vignes Lot. Therefore, vibration impacts relative to architectural damage from construction activities at the Vignes Lot would be less than significant.

Vibration Annoyance

Table 5.10-15 shows the average construction vibration levels of some common construction equipment and (loaded) haul trucks at the nearest vibration-sensitive buildings to the construction zones at the Vignes Lot.

Table 5.10-15 Average Construction Vibration Levels at Nearest Sensitive Receptors to Vignes Lot

Construction Activity	Average Vibration Level, VdB		
	The Metro Senior Lofts (900 feet)1	William Mead Housing (1,350 feet)1	Ann St. Elementary School (1,500 feet)1
Vibratory Roller	47	42	41
Large Bulldozer	40	35	34
Loaded Trucks	39	34	33
Jackhammer	32	27	26
Small Bulldozer	11	6	5

Notes: Calculations performed with the FHWA's RCNM software.
[1] Distances are measured from the center of the Vignes Lot to represent spatially-averaged sources.

[3] Construction equipment would include concrete saws, dozers, backhoes, graders, forklifts, cranes, excavators, rollers, pavers, and welders. The use of high-vibration equipment, such as pile drivers, is not anticipated.

As shown in Table 5.10-15, average construction-generated vibration levels would be 30 VdB or more below the 78 VdB threshold for vibration annoyance at any of the nearest sensitive receptors. Therefore, vibration impacts relative to annoyance from construction activities at the Vignes Lot would be less than significant.

Long-Term Impacts

This analysis applies to the Project Site, the SSPS Site, and the Vignes Lot. Typically, the types of projects that could result in vibration concerns are industrial uses that use heavy machinery (such as power-generation turbines, material-crushing equipment, or stamping/forming presses) or rail projects where passing trains could generate perceptible levels of vibration.

The Proposed Project is a correctional facility and associated parking facilities. There would be no significant vibration-generating sources as part of a correctional facility. For the parking facilities, vehicles with rubber tires would not be expected to generate notable groundborne vibrational energy (Caltrans 2002). Therefore, the Proposed Project would not generate substantial levels of vibration during operations, and operation vibration impacts would be less than significant.

Level of Significance before Mitigation: Impact 5.10-2 would be less than significant under Option 2 but would be potentially significant under Option 1.

Impact 5.10-3: Project implementation would not result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity, and the short-term impacts would not exceed applicable local standards. [Thresholds N-1 and N-4]

Impact Analysis: The County recognizes that the control of construction noise is difficult at best and provides an exemption for this type of noise when the work is performed within the hours specified by the County Code (i.e., 7:00 AM to 7:00 PM Monday through Friday). The County Code also lists the maximum acceptable noise levels generated by construction equipment (operating for at least 10 days) during the identified permitted hours of construction activity. These maximum acceptable limits for construction noise are categorized by receiving-land-use type in Section 12.08.440 of the County Code and listed in Table 5.10-4 for mobile equipment and Table 5.10-5 for stationary equipment.

Section 5.10.1.2, Existing Noise Environment, Sensitive Receptors subsection, describes the nearest noise-sensitive uses to the Project Site, SSPS Site, and the Vignes Lot. Note that the Proposed Project would be developed in different phases; therefore, there would be different distances, geometrical relationships, and sets of intervening structures that would affect how future construction noise would reach these nearest, off-site receptors. Other than the school, all of the sensitive receptors would be considered multifamily residential land uses, so the appropriate limits for construction would be 80 dBA during the daytime and less than 64 dBA during the nighttime for the mobile equipment and 65 dBA during the daytime and less than 55 dBA during the nighttime for the stationary construction equipment.

Other receptors would be in the commercial category, because of their locations at distances greater than the closest residential receptor and their higher noise level limit, would be less constrained by the County Code restrictions than Metro Senior Lofts and/or William Mead Homes locations. If Project-related construction

noise at these multifamily residential areas is in compliance with construction noise regulations, then noise levels at the more-distant or less-restricted commercial areas would also be in compliance.

Construction Vehicles

The transport of workers and equipment to the construction site would incrementally increase noise levels along site access roadways. However, the number of construction-related vehicle trips would add much less than a 25 percent increase in total daily vehicle flows along likely trip routes (including Alpine Street, North Vignes Street, East Cesar E. Chavez Avenue, Alameda Street, Spring Street, and Broadway). As such, this would result in a noise level increase of approximately 1 dB (in the traffic-focused CNEL noise level metric).[4] This increment of traffic noise would be inaudible and below the thresholds for a significant increase in ambient noise levels. Although individual construction vehicle pass-bys may create momentary noise levels of up to approximately 85 dBA (L_{max}) at 50 feet from the vehicle, these occurrences would be no different in character or intensity than similar truck pass-bys that already occur along these streets. As such, temporary increases in ambient noise levels from construction vehicle usage would be less than significant.

Construction Equipment

Noise generated during construction is based on the type of equipment used, the location of the equipment relative to sensitive receptors, and the timing and duration of the noise-generating activities. Each stage of construction involves different kinds of construction equipment and has its own distinct noise characteristics. Noise levels from construction activities are dominated by the loudest piece of equipment. The dominant noise source is typically the engine, although work piece noise (such as dropping of materials) can also be noticeable. Noise levels from Project-related construction activities were calculated from the simultaneous use of all applicable construction equipment at spatially averaged distances (i.e., from the center of the general construction area) to the property line of the nearest sensitive receptors.

Sound level calculations were performed using information provided by the County and the timing and equipment mix factors used in the air quality assessment.

Phase 1

The associated, aggregate sound levels are grouped by construction activity and summarized in Table 5.10-16, *CCTF Phase 1 Construction Noise Levels*. The loudest activities—building and asphalt demolition and utility trenching—would last approximately six months all together. As shown in the table, combined noise levels for each construction activity would range between 44 and 61 dBA L_{eq} at the nearest sensitive receptors during Phase 1 construction at the Project Site.

[4] The noise levels increase for such a situation would nominally be $10*\log_{10}(^{1.25}/_{1}) = 0.97$ dB.

Table 5.10-16 CCTF Phase 1 Construction Noise Levels

Construction Activity	Sound Level at Various Distances from Construction Activities, dBA L_{eq}	
	William Mead Homes (1,000 feet)[1]	Ann Street Elementary School (1,500 feet)[1]
Building + Asphalt Demo	61	57
Utility Trenching	61	57
Site Prep	58	55
Foundation / Grading	59	55
Building Construction	59	55
Paving	56	52
Architectural Finishes	48	44

Notes: Calculations performed with the FHWA's RCNM software.
[1] Distances are measured from the center of the Phase 1 construction site.

Phase 2

The associated, aggregate sound levels are grouped by construction activity and summarized in Table 5.10-17, *CCTF Phase 2 Construction Noise Levels*. The loudest activities—building and asphalt demolition, site preparation, and foundation/grading—would last nine months, seven months, and two months, respectively. As shown in the table, combined noise levels for each construction activity would range between 45 and 64 dBA L_{eq} at the nearest sensitive receptors during Phase 2 construction at the Project Site.

Table 5.10-17 CCTF Phase 2 Construction Noise Levels

Construction Activity	Sound Level at Various Distances from Construction Activities, dBA L_{eq}	
	William Mead Public Housing (800 feet)[1]	Ann Street Elementary School (1,300 feet)[1]
Building + Asphalt Demo	63	59
Site Prep	64	60
Foundation / Grading	63	59
Building Construction	61	57
Parking Garage Demolition	62	58
Paving	58	53
Architectural Finishes	50	45

Notes: Calculations performed with the FHWA's RCNM software.
[1] Distances are measured from the center of the Phase 2 construction site.

As shown in Tables 5.10-16 and 5.10-17, noise levels at the nearest receptors during Phase 1 and Phase 2 construction at the Project Site would be below the 80 dBA standard for multi-family residential properties set by the County Code. Therefore, although temporary or periodic increases in ambient noise levels would occur during construction of the Proposed Project, the increases would be considered less than significant. The operation of heavy construction equipment at the Project Site would have the potential to be occasionally heard when the equipment is operating with heavy loads and/or at maximum power. However, these receptors are already exposed to high ambient noise levels due to nearby traffic, rail, commercial, and industrial sources. Thus, existing noise sources would dominate the noise environment at these locations, and

sporadic construction activity noise would not contribute measurably to the ambient noise environment. Therefore, the sensitive receptors near the Project Site would not be expected to experience significant temporary ambient noise levels from the associated construction activities. Impacts would be less than significant.

Implementation of PDF NOI-1 would require construction vehicles and equipment to be equipped with properly operating and maintained mufflers. With adherence to the required construction noise regulations in County Code Section 12.12, which sets allowable hours of construction (RR-NOI-1), and given the dominance of traffic, rail, commercial, and industrial noise sources throughout the area around the Project Site, the impact from Project-related construction noise increases to temporary ambient noise levels would be less than significant.

Moreover, because the construction-related noise emissions would be below the construction noise standards of the County Code, the Proposed Project is consistent with the applicable County noise ordinance, and impacts would be less than significant.

Spring Street Parking Structure Site (Option 1)

The SSPS would be constructed in Phase 0 of the Proposed Project under Option 1.

The nearest noise-sensitive uses to the SSPS Site are the Metro Senior Lofts (approximately 525 feet to the northeast[5]), the Metro Plaza Hotel (825 feet to the south), apartments to the southwest (750 feet), and Best Western Plus/Dragon Gate Inn (800 feet to the north). Using information provided by the County and timing and equipment mix factors from the air quality assessment, the expected construction equipment mix was estimated and categorized by construction activity. The SSPS construction is projected to last approximately 12 months.

The associated, aggregate sound levels for construction at the SSPS Site are grouped by construction activity and summarized in Table 5.10-18, *Spring Street Parking Structure Construction Noise Levels*. The loudest activities—asphalt demolition and site preparation—would last two weeks and six weeks, respectively.

Table 5.10-18 Spring Street Parking Structure Construction Noise Levels

Construction Activity	Sound Level at Various Distances from Construction Activities, dBA L_{eq}			
	The Metro Senior Lofts (525 feet)[1]	Metro Plaza Hotel (825 feet)[1]	Apartments to the Southwest (750 feet)[1]	Best Western Plus (800 feet)[1]
Asphalt Demo	66	62	62	62
Site Prep	63	59	60	59
Building Construction	61	57	58	57
Architectural Finishes	54	50	50	50

Notes: Calculations performed with the FHWA's RCNM software.
1 Distances are measured from the center of the SSPS construction site.

5 As measured from the geometrical center of the SSPS Site.

As shown in Table 5.10-18, combined noise levels for each construction activity would range between 50 and 66 dBA L_{eq} at the nearest sensitive receptors. Therefore, construction noise levels would be below the 80 dBA standard for multi-family residential properties set by the County Code.

Furthermore, although heavy construction equipment might occasionally be heard when operating with heavy loads and/or at maximum power, these sensitive receptors are already exposed to high ambient noise levels due to nearby traffic, rail, and commercial sources. Thus, existing noise sources would dominate the noise environment at these locations, and sporadic construction activity noise would not contribute measurably to the ambient noise environment; impacts would be considered less than significant. Any other sensitive receptors in the vicinity of the construction site farther than 800 feet away would experience lower construction-generated noise levels than the receptors analyzed above. As such, sensitive receptors near the SSPS Site would not be expected to experience significantly high ambient noise levels from Proposed Project construction activities, and impacts would be less than significant.

The SSPS construction would also be required to comply with PDF NOI-1 and RR NOI-1. Given the dominance of traffic, rail, commercial, and industrial noise sources throughout the area around the SSPS Site, and given the projected construction noise levels, temporary impacts from Project-related construction noise levels would be less than significant.

Moreover, because the construction-related noise emissions would be below construction noise standards of the County Code, the Proposed Project is consistent with the applicable County noise ordinance, and impacts would be less than significant.

Vignes Lot (Option 2)

The Vignes Lot parking structure would be constructed in Phase 0 of the Proposed Project under Option 2.

The nearest noise-sensitive uses to the Vignes Lot are the Metro Senior Lofts (approximately 900 feet to the west-northwest), the William Mead Public Housing (approximately 1,350 feet to the north), and Ann Street Elementary School (1,500 feet to the north). Using information provided by the County and timing and equipment mix factors used in the air quality assessment, the expected construction equipment mix was estimated and categorized by construction activity. The Vignes Lot construction is projected to last approximately 12 months.

The associated, aggregate sound levels for construction at the Vignes Lot are grouped by construction activity and summarized in Table 5.10-19, *Vignes Lot Construction Noise Levels*. The loudest activities—asphalt demolition and site preparation—would last two weeks and six weeks, respectively.

Table 5.10-19 Vignes Lot Construction Noise Levels

Construction Activity	Sound Level at Various Distances from Construction Activities, dBA L_{eq}		
	The Metro Senior Lofts (900 feet)[1]	William Mead Housing (1,350 feet)[1]	Ann St. Elementary School (1,500 feet)[1]
Asphalt Demo	61	58	56
Site Prep	58	55	54
Building Construction	56	53	52
Architectural Finishes	49	46	44

Notes: Calculations performed with the FHWA's RCNM software.
[1] Distances are measured from the center of the Vignes Lot.

As shown in Table 5.10-19, combined noise levels for each construction activity would range between 44 and 61 dBA L_{eq} at the nearest sensitive receptors. Therefore, construction noise levels would be below the 80 dBA standard for multi-family residential properties set by the County Code. The operation of heavy construction equipment at the Vignes Lot would have the potential to be heard occasionally when the equipment is operating with heavy loads and/or at maximum power. However, these receptors are exposed to high ambient noise levels due to nearby traffic, rail, and commercial sources. Thus, existing noise sources would dominate the noise environment, and sporadic construction activity noise would not contribute measurably to the soundscape. Any other sensitive receptors farther than 800 feet away would experience lower construction-generated noise levels than the receptors analyzed above and would also be subject to high ambient noise levels due to nearby transportation and stationary sources. Therefore, sensitive receptors near the Vignes Lot would not be expected to experience significant noise levels from the construction activities. Implementation of PDF NOI-1 would also require that construction vehicles and equipment be equipped with properly operating and maintained mufflers. Construction-related noise emissions from the Vignes Lot would be below County noise standards, and compliance with the allowable hours of construction pursuant to RR-NOI-1 would ensure that construction noise impacts are less than significant. Moreover, given the dominance of traffic, rail, commercial, and industrial noise sources throughout the areas around the Vignes Lot, the impact of construction noise would be less than significant.

Level of Significance before Mitigation: With implementation of PDF NOI-1 and RR NOI-1, Impact 5.10-3 would be less than significant.

Impact 5.10-4: There are no public airports, public use airports, or private airstrip within two miles of the Project Site, SSPS Site, or the Vignes Lot, and the Proposed Project would not expose people residing or working in the Project area to excessive airport-related noise levels. [Thresholds N-5 and N-6]

Impact Analysis: There are no public airports within 10 miles of the Project Site; the closest airport is the San Gabriel Valley Airport (11 miles to the east). There are no private airports within 15 miles of the Project Site. Aircrafts overflights are heard sporadically, but do not cause a substantial noise impact in the vicinity of the Proposed Project.

All buildings in the City of Los Angeles over 75 feet in height are required by the fire code to have emergency helicopter landing pads (Municipal Code Section 57.4705.4). Therefore, there are numerous helistops in the Project vicinity, and the two TTCF towers and the 10-story parking structure are each topped by a helistop. Depending on the final design of the Proposed Project, there could one or more helistop on top of buildings that exceed 75 feet in height. However, the existing and potential LASD helistop, as well as other nearby heliports and helistops, are only used in emergencies and would continue to be used as such. This infrequent and sporadic usage of helistops in the Project vicinity would not generate significant aircraft-related noise that would affect inmate-patients and workers, even with potential additional adjacent helistops. Thus, impacts due to noise from nearby airports and helistops would be less than significant.

Spring Street Parking Structure Site (Option 1)

There are no public airports within 2 miles of the SSPS Site; the closest airport is San Gabriel Valley Airport (11.5 miles to the east). There are no private airports within 2 miles of the SSPS Site. Aircrafts overflights are sporadically heard, but do not cause a substantial noise impact in the vicinity of the SSPS Site. Impacts due to noise from nearby airports and helistop would be less than significant.

Vignes Lot (Option 2)

There are no public airports within 2 miles of the Vignes Lot; the closest airport is the San Gabriel Valley Airport (11.2 miles to the east). There are no private airports within 2 miles of the Vignes Lot. Aircrafts overflights are sporadically heard, but do not cause a substantial noise impact in the vicinity of the Vignes Lot. Impacts due to noise from nearby airports and helistop would be less than significant.

Level of Significance before Mitigation: Impact 5.10-4 would be less than significant.

5.10.5 Cumulative Impacts

Short-Term Impacts

Construction projects may occur simultaneously and in close proximity to noise-sensitive receptors. Individual projects in the cumulative projects list would have different construction schedules and may coincide with the Proposed Project's construction schedule. However, as discussed in Impacts 5.10-1, 5.10-2, and 5.10-3, the Proposed Project would have less than significant construction noise impacts provided that the County Code regulations pertaining to construction noise limits and construction hours are implemented as required by RR NOI-1. Similarly, related projects in the City are required to follow the City's noise ordinance (Chapter XI of the City's Municipal Code), which regulates construction noise impacts from construction equipment and construction hours. Therefore, compliance with the applicable City and County codes would ensure that individual construction impacts are less than significant, and therefore are not cumulatively considerable. Additionally, the closest cumulative project site from the related project list in Chapter 4 to any of the construction sites (i.e., Project Site, SSPS Site, or Vignes Lot) is more than 700 feet away. Although potentially significant vibration impacts has been identified for the SSPS construction, vibration dissipates quickly, and with the nearest cumulative project location over 700 feet away, less than

cumulatively considerable impacts would occur. Therefore, construction noise and vibration impacts of the Proposed Project would be less than cumulatively considerable.

Long-Term Operational Impacts

Cumulative operational noise impacts describe how much noise levels are anticipated to increase over existing conditions due to traffic associated with the development of the Proposed Project and all other future traffic growth. To specifically estimate the Proposed Project's contribution to traffic noise, existing noise levels were compared to those projected with buildout of the Proposed Project under Option 1 with the SSPS Site development and Option 2 with the Vignes Lot development. As discussed in Impact 5.10-1, the Proposed Project would not contribute significantly to the area's roadway-noise environment. Therefore, the operational impact would not be cumulatively considerable.

5.10.6 Level of Significance Before Mitigation

The following impact would be less than significant:

- **Impact 5.10-4** The proximity of the Project Site to helistop would not result in exposure of people residing or working in the Project area to excessive helistop-related noise.

With implementation of RR NOI-1, the following impact would be less than significant:

- **Impact 5.10-1** Operation of the Proposed Project would not result in significant permanent increase in ambient noise levels in the Project vicinity, and the long-term operational impacts would not exceed applicable local standards.

With implementation of PDF NOI-1 and RR NOI-1, the following impact would be less than significant:

- **Impact 5.10-3** Construction activities would not result in significant temporary increases in ambient noise levels in the Project vicinity and would not generate construction noise levels in excess of local standards.

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

- **Impact 5.10-2** The Proposed Project under Option 1 could result in vibration-induced architectural damage to buildings bordering the SSPS Site, but would not result in groundborne vibration-related impacts under Option 2.

5.10.7 Mitigation Measures

Impact 5.10-2

Option 1

MM NOI-1 During construction of the Spring Street Parking Structure, vibratory rollers shall not be operated within 30 feet of off-site buildings, and large bulldozers and loaded trucks shall not be operated within 15 feet of off-site buildings.

5.10.8 Level of Significance After Mitigation

Impact 5.10-2

Option 1

Under Option 1, operation of large construction equipment such as vibratory rollers, large bulldozers, and loaded trucks within 15 feet of off-site buildings could result in vibration impact greater than 0.200 in/sec PPV, because the SSPS Site is bounded by buildings to the north and to the south. There are no off-site buildings within 15 feet of the Project Site and the Vignes Lot. While no vibratory rollers are expected to be used at the SSPS Site, there is still some potential for architectural damage at the very closest off-site buildings, depending on the use of other types of common construction equipment and their distances to the receptor buildings. MM NOI-1 would require that an additional preclusion of architectural damage is provided at the nearest buildings, and impacts would be reduced to a less than significant level. No significant and unavoidable impact would occur.

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