4.11 NOISE

This section of the EIR analyzes the potential environmental effects on noise from implementation of the proposed project. Data for this section was taken from the Glendale General Plan Noise Element, and the Noise Technical Report (AECOM 2017; Appendix E of this EIR). Traffic information contained in the proposed project Transportation Analysis Report (Fehr & Peers 2017; Appendix F of this EIR) was used to prepare the noise modeling for vehicular sources. Full reference-list entries for all cited materials are provided in Section 4.11.5 (References).

4.11.1 Environmental Setting

Vehicular traffic noise from highways and local roadways are the dominant sources of noise within the proposed SGCP area. Lesser noise contributions are sourced from passenger rail operation, aircraft overflights, HVAC unit operation, and sounds associated with commercial and industrial operations. Additionally, intermittent sound sources typical of urban/suburban communities contribute to noise levels, including but not limited to human speech, vehicle idling, car horns, landscaping activity, and amplified music and speech from audio systems in vehicles and homes.

Fundamentals of Sound and Environmental Noise

Sound can be described in terms of amplitude (loudness) and frequency (pitch). The standard unit of sound amplitude measurement is the decibel (dB). The decibel scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound. The pitch of the sound is related to the frequency of the pressure vibration. Since the human ear is not equally sensitive to a given sound level at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) provides this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. The "A-weighted" noise scale is used for measurements and standards involving the human perception of noise. For the proposed SGCP, all noise levels are A-weighted and "dBA" is understood to identify the A-weighted decibel. Table 4.11-1 provides typical noise levels associated with common activities.

Noise is typically defined as unwanted sound. A typical noise environment consists of a base of steady "background" noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background noise is the sound from individual local sources. These can vary from an occasional aircraft or train passing by to virtually continuous noise from, for example, traffic on a major highway.

Human perception of noise correlates with acoustical energy in a complex manner. In terms of dBA or in terms of acoustical energy, the perception of noise is not linear. For example, two noise sources do not sound twice as loud as one source. Generally, the average healthy ear can barely perceive changes of 3 dBA (increase or decrease); however, a change of 5 dBA is readily perceptible; and an increase (or decrease) of 10 dBA sounds about twice (or half) as loud (Caltrans 2011).

Averaging Noise Levels

The duration and averaging of noise over time is important for the assessment of potential noise disturbance, in additional to ambient noise levels. The equivalent energy noise level (L_{eq}), is the average acoustic energy content of noise for a stated period of time.

Table 4.11 1 Typical Noise Levels

Common Outdoor Activities	*Noise Level (dBA)*	*Common Indoor Activities*
-	110	Rock Band
Jet Fly-over at 300 meters (1,000 feet)	100	-
Gas Lawn Mower at 1 meter (3 feet)	90	-
Diesel Truck at 15 meters (50 feet), at 80 kilometers per hour (50 mph)	80	Food Blender at 1 meter (3 feet) Garbage Disposal at 1 meter (3 feet)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 meters (100 feet)	70	Vacuum Cleaner at 3 meters (10 feet)
Commercial Area Heavy Traffic at 90 meters (300 feet)	60	Normal Speech at 1 meter (3 feet)
Quiet Urban Daytime	50	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	30	Library
Quiet Rural Nighttime	20	Bedroom at Night, Concert Hall (Background)
-	10	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

mph = miles per hour
Source: AECOM 2017 (Appendix E to this EIR)

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the Community Noise Equivalent Level (CNEL) is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime noise levels are isolated, natural settings that can provide noise levels as low as 20 dBA, and quiet, suburban, residential streets that can provide noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher noise levels associated with urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (75 to 80 dBA).

Noise Attenuation

Noise levels from a particular source decline as distance to the receptor increases. Other factors, such as the weather and other reflecting or shielding factors, also help intensify or reduce the noise level at any given location. A commonly used rule of thumb for roadway noise is that for every doubling of distance from the source, the noise level is reduced by about 3 dBA at acoustically "hard" locations (i.e., the area between the noise source and the receptor is nearly complete asphalt, concrete, hard-packed soil or other solid materials) and 4.5 dBA at acoustically "soft" locations (i.e., the area between the source and receptor is unpacked earth or has vegetation, including grass). Noise from stationary or point sources is reduced by about 6 to 7.5 dBA for every doubling of distance at acoustically hard and soft locations, respectively. Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA. The manner in which older homes in California were constructed (approximately 30 years old or older) generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.

Noise Sensitive Receptors

Due to the types of activities involved, such as sleeping, reading, talking, or convalescing, some land uses are more sensitive to noise than others. Noise-sensitive receptors, including residential dwellings, hotels/motels, hospitals, nursing homes, educational facilities, libraries and recreational facilities, are generally considered places where humans are engaged in activities or occupying land uses that may be subject to the stress or significant interference from noise. Many noise sensitive receptors are located within the proposed SGCP area. Additionally, protected animal species and their habitats may be considered noise sensitive receptors during their breeding season, if they are present in the proposed SGCP area.

Fundamentals of Groundborne Vibration

Vibration is sound radiated through the ground. The rumbling sound caused by the vibration of room surfaces is called groundborne noise. The ground motion caused by vibration is measured as particle velocity in inches per second and, in the U.S., is referenced as vibration decibels (VdB).

The background vibration velocity level in residential and educational areas is usually around 50 VdB. The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people or the slamming of doors. Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic is rarely perceptible. The range of interest in groundborne vibration is from approximately 50 VdB, which is the typical background vibration velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings.

Construction vibration has the potential to cause building damage, which is assessed in terms of peak particle velocity (PPV) and typically in units of inches per second (in/sec). Additionally, groundborne vibration may also induce human annoyance. Thresholds for human annoyance are typically much lower than building damage thresholds.

Existing Environmental Noise Levels

To characterize the existing sound environments and assist in determining constraints and opportunities, ambient noise levels were measured within the proposed SGCP area.

Baseline Ambient Noise Survey

According to the Noise Technical Report (Appendix E of this EIR), a total of eight short-term sound pressure level measurements were conducted on July 18, 2017. Figure 4.11-1 depicts the location of these eight baseline measurements.

Measurement ST-1 was conducted in the southeastern parking lot of the Larry Zarian Transportation Center. The primary noise source at this location was vehicular traffic on Glendale Avenue. Additional noise sources included train horn soundings, train pass-bys, speech from Larry Zarian Transportation Center visitors, fixed wing aircraft flyovers, and HVAC operation to the southeast.

ATKINS

FIGURE 4.11-1

SGCP Noise Measurement Locations

Source: City of Glendale 2017, AECOM 2017

100042606 South Glendale Community Plan PEIR

Measurement ST-2 was conducted in a retail development parking lot on the northeast corner of the South Central Avenue and West Windsor Road intersection. The primary noise source at this location was vehicular traffic on South Central Avenue. Additional noise sources included distant train horn soundings, HVAC, and speech from parking lot activities.

Measurement ST-3 was conducted in front of a large warehouse facility located at 4484 San Fernando Road, approximately 140 feet from the nearest railroad ROW. The primary source of noise at this location was vehicular traffic from San Fernando Road. Additional sources included occasional mechanical noise emanating from within the open-door warehouse facility.

Measurement ST-4 was conducted in the large parking area located on the northeast corner of the Pioneer Drive and North Pacific Avenue intersection, immediately south of the SR-134 mainline and westbound (WB) SR-134 on-ramp from North Pacific Avenue. An existing noise barrier along the SR-134 WB ramp begins approximately 245 feet from the North Pacific Avenue edge of pavement; thus, this measurement location is representative of unmitigated traffic noise levels currently experienced by this currently non-noise sensitive land use. The primary source of noise at this location was highway traffic on SR-134. Additional noise sources included traffic noise contributions from North Pacific Avenue and intermittent fixed-wing aircraft flyovers.

Measurement ST-5 was conducted in a parking area on the southeast corner of the South Louise Street and East Broadway intersection. The primary noise source at this location was vehicular traffic from East Broadway and South Louise Street. Additional noise sources included dogs barking, radio-communications from construction workers north of the measurement location, and speech from parking lot activities.

Measurement ST-6 was conducted in a parking area associated with 320 North Verdugo Avenue, near the intersection of North Verdugo Avenue and North Chevy Chase Drive. The primary noise source at this location was vehicular traffic from North Verdugo Road. Additional noise sources included traffic from SR-2 and North Chevy Chase Drive, rustling leaves, and birdcalls.

Measurement ST-7 was conducted within a parking lot associated with 1416 E Colorado Street on the southeast corner of the intersection of Colorado Street and South Verdugo Road. The primary noise source at this location was traffic on Colorado Street and South Verdugo Road. Additional noise sources included typical parking lot sounds associated with the adjacent grocery store, including speech, grocery cart rolling, and vehicle doors and trunks being shut.

Measurement ST-8 was conducted at the Windsor Mini Park at the southeast corner of Porter Street and East Windsor Road. The primary noise sources at this location were operating HVAC systems at the apartments on Winsor Road. Additional noise sources included intermittent traffic on East Windsor Road and Porter Street, rustling leaves, birdcalls, children playing, and dogs barking.

Results from the short-term measurement survey are provided below in Table 4.11-2. Measurement durations were 15-minutes; thus, the 15-minute average L_{eq} level is presented as the primary noise level metric. The presented data is not intended for compliance assessment with City zone specific 24-hour CNEL compatibility thresholds, but rather to provide insight into existing neighborhood specific daytime noise levels and the character of the existing noise sources listed in the detailed descriptions.

Existing Traffic Noise

The proposed SGCP area is defined by SR-134 to the north and SR-2 to the east. The existing ambient noise environment is dominated by vehicles traveling on these roads and further supplemented by arterial roadways including San Fernando Road and Colorado Street. Existing noise levels in the proposed SGCP area range from 55 to 70 dBA (Table 4.11-2). Vehicular traffic noise is the primary source of existing noise levels. Hence, these levels are considered representative of existing traffic noise contributions at the eight discrete measurement locations. Existing traffic noise barriers constructed in varying heights and points along the SR-2 and SR-134 ROWs provide a reduction of the existing sound levels for noise sensitive receivers located adjacent to traffic corridors.

Table 4.11 2 Existing Community Noise Measurement Results

Meas. ID	*Date*	*Start Time (hh:mm)*	*Duration (Minutes)*	L_{eq}	L_{min}	L_{max}	L_{10}	L_{50}	L_{90}
ST-1, southeast of LZTC	7/18/17	09:23	15	60.7	45.3	78.3	57.8	53.1	51.2
ST-2, northeast of S. Central Avenue/ W. Windsor Road	7/18/17	10:09	15	57.5	50.0	72.8	59.5	55.8	52.7
ST-3, 4484 San Fernando Road	7/18/17	10:41	15	70.2	53.0	82.3	73.5	68.8	60.2
ST-4, Pioneer Drive/N. Pacific Avenue	7/18/17	11:11	15	64.7	60.2	77.1	66.4	63.3	61.9
ST-5, southeast of S. Louise Street/ E. Broadway	7/18/17	12:04	15	59.4	50.5	73.7	61.3	58.2	54.8
ST-6, 320 N. Verdugo Avenue	7/18/17	15:17	15	66.3	54.1	88.2	66.3	60.3	56.9
ST-7, 1416 E. Colorado Street	7/18/17	14:44	15	60.0	55.0	74.0	61.2	58.7	57.3
ST-8, Windsor Mini-Park	7/18/17	14:16	15	54.7	46.9	69.3	56.2	50.9	49.1

L_{eq} = Noise levels averaged over a period of time.
L_{10} = Noise level exceeded 10 percent of the time.
L_{50} = Noise level exceeded 50 percent of the time.
L_{90} = Noise level exceeded 90 percent of the time.
L_{min} = the minimum noise level.
L_{max} = the maximum noise level.
Source: AECOM 2017 (Appendix E to this EIR)

Existing Rail Traffic Noise

Railway noise is generated from the rail traffic, consisting of freight operations and regional passenger rail operations (Amtrak and Metrolink) on the rail corridor that outlines the western boundary of the proposed SGCP area. Noise associated with rail operations include locomotive engines, wheel-to-rail and switch noise, horn sounding, station approach and disembark bell sounding, emergency signaling devices, and stationary bells located at the at-grade crossings at Chevy Chase Drive, West Broadway, and Doran Street. The historic Glendale Southern Pacific Railroad Depot, also referred to as the Larry Zarian Transportation Center, today serves as a stop for Metrolink commuter and Amtrak passenger trains on the corridor, with exception of certain express rail services. Passenger rail movements occur every day, multiple times per hour between 5:00 A.M. and 11:00 P.M. through the proposed SGCP area. Freight trains also operate along the corridor on a daily basis. Rail traffic noise levels greater than or equal to 60 dBA L_{dn}, the metric used by the FRA, extend into the proposed SGCP area from the railroad alignment at a distance of approximately 180 feet. Within a 700-foot distance of the three at-grade crossings, noise levels generated by infrequent horn soundings will extend the 60 dBA L_{dn} distance to approximately 1,060 feet.

Existing Aircraft Noise

Aircraft overflights from small propeller aircraft, jet aircrafts, and intermittently from helicopters are audible within the proposed SGCP area. The nearest public or private airport, Hollywood Burbank Airport, is located approximately 5.1 miles northwest of the SGCP area. The proposed SGCP area is not included within any of the Planning Boundary/Airport Influence Area identified in The Los Angeles County Airport Land Use Plan (Los Angeles 1991). While aircraft are occasionally audible, it is unlikely this noise source quantifiably contributes to the CNEL level in the proposed SGCP area.

Existing Stationary Noise

Surface transportation sources primarily impact the ambient noise levels throughout the proposed SGCP area. Stationary noise sources, which also contribute to ambient noise levels within the proposed SGCP area, are generally characterized by the specific land uses. Existing residential areas are exposed to stationary noise sources typical of an urban environment, including HVAC operation from nearby residential and non-residential land uses, landscaping, dogs barking, vehicle idling, children playing, and operating entertainment systems with loudspeakers.

Existing Groundborne Vibration Levels

The greatest regular source of groundborne vibration within the proposed SGCP area is roadway truck and bus traffic. Generally, trucks and buses generate noticeable groundborne vibration velocity levels at the edge of pavement as they pass by; vibration associated with rail activity is considered minor.

4.11.2 Regulatory Framework

Federal

There are no existing federal regulations pertaining to noise that are applicable to the proposed project.

State

California Code of Regulations

Applicable to all new construction within California, CCR Title 24, Part 2, Chapter 12, Section 1207 includes sound transmission regulations. As outlined in Section 1207.4, interior noise levels generated by exterior noise sources shall not exceed 45 dB CNEL or L_{dn} within a habitable room. Additionally, Section 1207.5 guides the reader to the sound transmission requirements outlined in the California Green Building Standards Code, Chapter 5, Division 5.5.

California Green Environmental Comfort

Commonly known as Cal Green, Title 24, Part 11, Section 5.507 identifies environmental comfort in regard to noise exposure for non-residential buildings, providing means of acoustical controls through which building assembly and component requirements are used to assess exterior noise issues. Section 5.507.4 outlines acceptable compliance approaches. When occupied structures are planned with a 65 CNEL contour of an airport, railroad, highway traffic or industrial noise source, the wall and roof-ceiling assemblies are required to achieve a composite sound transmission class rating of at least 50, or a composite outdoor-indoor transmission class rating of not less than 40. Additionally, exterior windows are required to be rated with a minimum sound transmission class of 40 or outdoor-indoor transmission

class of 30. Another compliance approach requires that the interior noise environment attributable to outdoor noise sources not exceed an hourly L_{eq} of 50 dBA. This could be attained through building envelope construction and/or exterior features, such as noise walls or berms. The architect or engineer of record is required to prepare an acoustical analysis documenting compliance with the interior sound level limits.

California Department of Transportation - Vibration

The Caltrans Transportation and Construction Vibration Guidance Manual (Caltrans 2013) provides guidance for the analysis of vibratory impacts generated by transportation and construction projects. Vibration perceptions in the Caltrans manual are considered to be "distinctly perceptible" when the following occurs:

- 0.25 PPV in/sec for transient sources (sources that induce a single vibratory event, such as blasting); and
- 0.04 PPV in/sec for continuous or frequent sources (such as pile driving equipment and other construction activities that generate multiple vibration-intensive events across a given period).

The City relies on human perception as a means of determining violations.

Regional

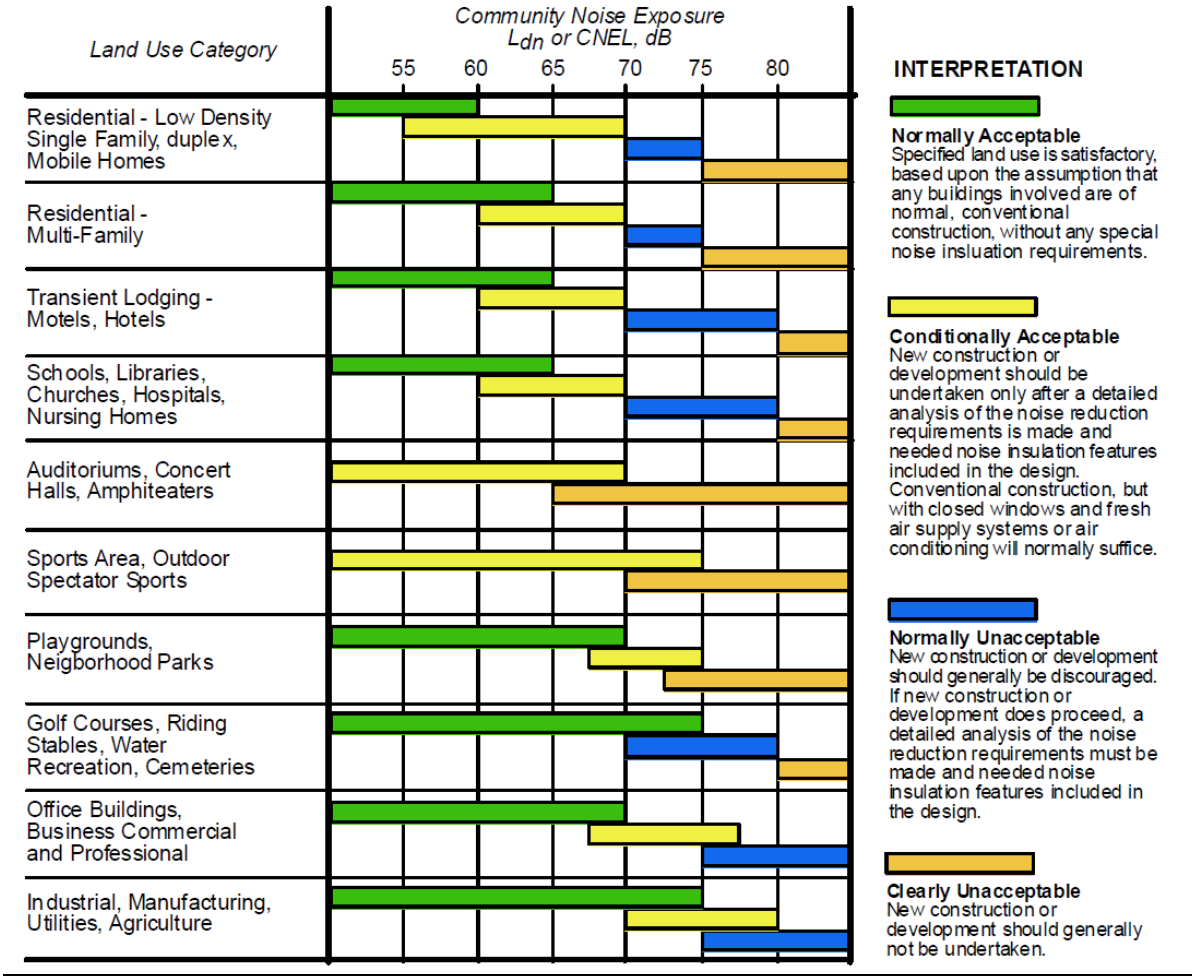
There are no existing regional regulations pertaining to noise that are applicable to the proposed project.

Local

Glendale General Plan Noise Element

The Noise Element of the General Plan identifies sources of noise in the City and provides objectives and policies that ensure that noise from various sources would not create an unacceptable noise environment. Goals and policies are outlined in the document to achieve and maintain land uses that are compatible with environmental noise levels. Based on these standards, exterior noise levels of 60 dBA CNEL and lower are "normally acceptable" for single-family residential uses, while exterior noise levels of 65 dBA CNEL and lower are "normally acceptable" for multi-family residential uses. "Normally acceptable" is defined as the highest noise level that should be considered for the construction of new buildings that incorporate conventional construction techniques, but without any special noise insulation requirements. The City uses the Noise/Land Use Compatibility Table shown below in Table 4.11-3 for evaluating land use noise compatibility for proposed developments.

Table 4.11 3 Land Use Noise Compatibility Guidelines



Source: Glendale 2007

Glendale Municipal Code

The Glendale Municipal Code includes an adopted Noise Ordinance, Chapter 8.36 Noise Control, Articles I and II, which identifies noise standards for amplified noise sources, specific noise restrictions, noise insulation standards, and construction noise limits. Noise limits are regulated through the assessment of the offending noise sources, which influence the existing ambient noise environment.

In order to assess potential noise impacts, Section 8.36.040 outlines a list of presumed ambient noise levels applicable to a designated zone and times of day which are used to address compliance. These presumed noise standards are shown below in Table 4.11-4.

As defined in Section 8.36.020, a nighttime period occurs between the hours of 10:00 P.M. to 7:00 A.M. A specific definition of daytime periods is not provided in the Glendale Municipal Code.

Table 4.11 4 Glendale Municipal Code Presumed Noise Standards

Zone	*Location*	*Time Period*	*5-Minute Average Sound Level (dBA)*
Residential (Single Family and Duplex) and Cemetery	Exterior	Daytime Nighttime	55 45
Residential (Multi-family, Hotels, Motels, and Transient Lodging)	Exterior	Anytime	60
Central Business District and Commercial	Exterior	Anytime	65
Industrial	Exterior	Anytime	70
Residential (All Residential Zones)	Interior	Daytime Nighttime	55 45

Source: AECOM 2017 (Appendix E to this EIR)

As discussed in Section 8.63.030 Decibel Measurement Criteria and Section 8.36.050 Minimum and Maximum Ambient Noise Levels, exterior or interior noise levels measured while the offending noise source is active, is compared with the presumed noise standards, applicable to the land use type. Section 8.36.050 continues to elaborate on the various conditions that affect impact assessment by providing the following assessment scenarios:

- If ambient noise levels measured at the receiver while the offending noise source is inactive are below the applicable presumed noise standard, the resulting 5-minute (or more) L_{eq} of this measurement constitutes the actual ambient noise standard at the receiver, and violations would occur if acoustic contribution from the offending noise source elevated the measured ambient noise level by more than 5 dBA.
- If ambient noise levels measured at the receiver while the offending noise source is inactive are at or above the applicable presumed noise standard, the resulting 5-minute (or more) L_{eq} of this measurement constitutes the actual ambient noise standard at the receiver, and violations would occur if acoustic contribution from the offending noise source elevated the measured ambient noise level by more than 5 dBA. However, the measured ambient noise levels may not exceed the presumed noise standard by 5 dBA. By way of example, if the presumed standard is 45 dBA and the measured ambient is 48 dBA, the resulting violation threshold would be 53 dBA (48 dBA + 5 dBA). However, if the measured ambient was 57 dBA, the resulting violation threshold would be capped at 55 dBA (45 dBA [presumed standard] + 5 dBA [allowable increase due to elevated measured ambient] + 5 dBA [increase leading to violation]).
- In cases where the assessment location occurs at the boundary line between two zones, the arithmetic average of the presumed noise standard is used.

Section 8.36.080 Construction on Buildings prohibits construction activity from occurring during the "prohibited hours" that have been established in the Glendale Municipal Code. "Prohibited hours" refers to any time after the hour of 7:00 P.M. of any day; any time before the hour of 7:00 A.M. of any day; any time on Sunday; and any time on holidays. Section 8.36.140 allows the City Director of Community Development or the building official to require an acoustic analysis as a condition of approval as a part of the building permit process or other approval procedures when either has reason to believe that a new development project, addition, modification or any other changes thereto would not conform with the permitted noise level standards.

Section 8.36.210 prohibits operation of any device that creates a vibration which is above the vibration perception threshold of an individual 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 ROW.

Section 8.36.290 contains a list of activities that are exempted from the provisions of Glendale Municipal Code Chapter 8.36. List item "K" exempts any activity, operation or noise which cannot feasibly be brought into compliance when it is technically infeasible to do so. The party responsible for the exceedance is also responsible to prove that compliance cannot be achieved despite use of mufflers, shields, sound barriers, and/or any other noise reduction device or techniques during the operation of the offending equipment.

4.11.3 Project Impacts and Mitigation

Analytic Method

Roadway Traffic

Using the FHWA Traffic Noise Model (TNM) Version 2.5, the most recent version approved by the FHWA at the time of this analysis, existing and future traffic noise levels were predicted. The following TNM input parameters were considered in the screening-level noise: traffic mix, vehicle speed, traffic volume, and roadway-specific paved width. While the model has the capability to account for roadway gradients, and shielding effects from terrain and buildings/barriers, the analysis assumed flat topography throughout the proposed SGCP area and omitted existing structures that may offer additional shielding to noise sensitive land uses. Highway noise barriers do exist on many of the sections of SR-134 that are adjacent to residential neighborhoods in the proposed SGCP area, so predicted noise contours in these areas would be particularly conservative (residential receptors located immediately behind freeway noise barriers typically receive a 5 to 10 dBA noise reduction).

Existing (2017) and future (2040) traffic volumes for the local roadways are included in the SGCP Transportation Analysis Report (Appendix F of this EIR). Heavy truck and medium truck mixes for local roadways were determined by traffic observations made during the existing ambient noise measurement survey. On these local roadways, modeled truck percentages ranged from 2 to 3 percent. The truck mixes for freeways were calculated from traffic quantities on aerial imagery, resulting in a 3 percent medium and heavy truck mix for SR-134 and 4 percent medium truck and 1 percent heavy truck ratio on SR-2.

Traffic counts included existing and future traffic volumes at an hourly resolution, allowing for precise calculation of specific traffic volumes across the daytime, evening, and nighttime time periods. As shown in Appendix E, modeled receiver locations at varying distances from the edge-of-pavement of each modeled roadway in the FHWA TNM, L_{eq} values were calculated at pertinent distances and subsequently converted into CNEL values for report tables and for use in the generation of figures displaying isopleths or contour buffers of applicable CNEL values.

Rail Noise

Noise generated by railroad operations was modeled utilizing recommendations in the FTA-recommended Noise Impact Assessment Spreadsheet. Input parameters included train type, frequency of pass-bys during daytime (7:00 A.M. to 10:00 P.M.) and nighttime (10:00 P.M. to 7:00 A.M.) hours, speed of travel, and total number of rail cars. The Noise Impact Assessment Spreadsheet has a calculation output of a day-night noise levels (L_{dn}), which is calculated differently from CNEL values. L_{dn} values are typically

within 1 dBA of CNEL values; thus, this analysis considers the L_{dn} output of the Impact Assessment Spreadsheet to be analogous to the CNEL values required for land use planning and noise assessment.

Passenger and freight rail speeds through the proposed SGCP area were modeled to be traveling at speeds of 30 miles per hour (mph), with exception for rail segments near the Larry Zarian Transportation Center, where modeled passenger rail speeds were reduced to 15 mph. Passenger trains were modeled with a single locomotive engine, while freight trains were assumed to have an average of three. Input parameters for daytime/nighttime pass-by frequencies were obtained from published Amtrak and Metrolink timetables.

Freight train schedules are not standardized or publicly available; therefore, assumptions made in the Noise Element of the General Plan were used, which estimated an average of 10 freight train pass-bys each day. The analysis interprets "each day" to mean during daytime hours, and assumes that at least one freight train will operate along this track between the nighttime hours of 10:00 P.M. and 7:00 A.M., to provide for a worst-case analysis (Glendale 2007).

Due to the presence of roadway grade crossings, train horn sounding was modeled at grade crossings as required by CFR 49 Part 222 Use of Locomotive Horns at Public Highway-Rail Grade Crossings. When trains are traveling below 60 miles-per-hour, locomotive horns are required to be sounded no sooner than 15 seconds and no later than 20 seconds before the locomotive enters the crossing. Therefore, at a modeled speed of 30 miles-per-hour at the crossings, or 44 feet-per-second, train horn soundings were modeled to occur at the 17-second approach mark, or, approximately 750 feet from either side of the grade crossing.

Aside from noise levels, groundborne vibration would also be generated during the construction phase of the proposed projects within the proposed SGCP area by various types of construction equipment. Thus, the groundborne vibration levels generated by construction equipment have also been quantitatively estimated and compared to applicable thresholds of significance.

Thresholds of Significance

The following thresholds of significance are based on the 2017 CEQA Guidelines Appendix G. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on noise if it would do any of the following:

- Result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- If located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in the exposure of people residing or working in the project area to excessive noise levels; or

- If within the vicinity of a private airstrip, result in the exposure of people residing or working in the project area to excessive noise levels.

Effects Found Not Significant

Threshold	Would the project, if located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in the exposure of people residing or working in the project area to excessive noise levels?

The nearest airport, Hollywood Burbank Airport, is located approximately 5.1 miles northwest of the proposed SGCP area. The proposed SGCP area is not located within any airport's Planning Boundary/Airport Influence Area identified in The Los Angeles County Airport Land Use Plan (Los Angeles 1991). While aircraft overflights may sometimes be audible in the proposed SGCP area, these would not be considered a dominant noise source and would have no impact on existing or future CNEL noise levels. Since no airports are located within 2 miles of the SGCP area, and the project is not located within an airport land use plan, the proposed project would not result in the exposure of people residing or working in the SGCP area to excessive noise levels; therefore, no impact would result from implementation of the proposed project and no mitigation is required.

Threshold	Would the project, if located within the vicinity of a private airstrip, result in the exposure of people residing or working in the project area to excessive noise levels?

As discussed above, the nearest airport is located approximately 5.1 miles from the proposed SGCP area. The proposed project is not located in the vicinity of any private airstrip, and therefore, would not result in the exposure of people in the SGCP area to excessive noise levels. No impact would result from implementation of the proposed project and no mitigation is required.

Less Than Significant Impacts

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

Impact 4.11-1 Implementation of the proposed project would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. This would be a *less than significant* impact.

The primary source of noise in the proposed SGCP area is vehicular traffic, which has greater potential to affect existing noise-sensitive receivers if annual average daily traffic volumes increase substantially. Freeways SR-2 and SR-134 generate the greatest noise levels affecting the proposed SGCP area, and streets generating the greatest noise levels within the SGCP area are Chevy Chase Drive, Colorado Avenue, and Glendale Avenue. Vehicular traffic volumes on roadways within the proposed SGCP area would generally increase as a result of future development associated with the proposed SGCP. While vehicular traffic volumes on roadways within the proposed SGCP area would generally increase, some roadway volumes would decrease. Existing and future traffic noise levels along various roadway segments in the proposed SGCP area are shown in Table 4.11-5. Roadway noise is reported in this table as the dBA CNEL at 50 feet from the roadway edge of pavement.

Table 4.11 5 Increases in Ambient Noise for the Proposed SGCP Area

Roadway	*Roadway Segment*	*Predicted Ambient Noise Level (dBA, CNEL @ 50 Feet from EOP)*		
		Existing (2017)	*Future w/Project (2040)*	*Change in dB*
Brand Boulevard	North of Lexington Drive	65	65	0
	North of Broadway	64	65	1
	North of Colorado Street	65	65	0
	North of Chevy Chase Drive	63	64	1
	North of Los Feliz Road	64	65	1
	North of San Fernando Road	64	65	1
Broadway	East of San Fernando Road	61	63	1
	East of Pacific Avenue	64	65	1
	East of Brand Boulevard	65	65	0
	East of Glendale Avenue	65	66	1
	East of Verdugo Road	67	67	0
Chevy Chase Drive	East of San Fernando Road	65	65	0
	East of Brand Boulevard	66	67	2
	East of Glendale Avenue	66	67	0
	North of Acacia Avenue	64	62	-2
	North of Colorado Street	66	64	-1
	North of Broadway	64	64	0
Colorado Street	East of San Fernando Road	63	64	1
	East of Pacific Avenue	68	68	1
	East of Brand Boulevard	67	68	1
	East of Glendale Avenue	67	68	1
	East of Verdugo Road	67	68	1
Glendale Avenue	North of Lexington Drive	67	67	-1
	North of Broadway	65	66	0
	North of Colorado Street	65	66	1
	North of Chevy Chase Drive	64	65	1
	North of Los Feliz Road	65	66	1
	North of San Fernando Road	64	65	2
Pacific Avenue	North of Lexington Drive	66	66	0
	North of Broadway	65	66	0
	North of Colorado St	65	66	0
	North of San Fernando Road	62	62	0
	North of Broadway	66	67	1
San Fernando Road	North of Colorado St	66	67	1
	North of Chevy Chase Drive	69	70	1
	North of Los Feliz Road	67	68	1
	East of Brand Boulevard	68	69	1
	East of Verdugo Road	62	62	0
York Boulevard / South Adams Street	North of Lexington Drive	65	65	0

Table 4.11 5 Increases in Ambient Noise for the Proposed SGCP Area

Roadway	*Roadway Segment*	*Predicted Ambient Noise Level (dBA, CNEL @ 50 Feet from EOP)*		
		Existing (2017)	*Future w/Project (2040)*	*Change in dB*
Freeways				
SR-134	At Pacific Avenue	83	83	0
	At Central Avenue / Brand Boulevard	83	83	0
	At Glendale Avenue	83	83	0
SR-2	At York Boulevard/Delevan Street	81	81	0

CNEL = Community Noise Equivalent Level; dBA = A-weighted decibel; EOP = edge of pavement
Source: AECOM 2017 (Appendix E to this EIR)

As shown in Table 4.11-5, no roadway segments within the proposed SGCP area, where existing noise levels are greater than 65 dBA CNEL, are forecasted to generate an increase in noise levels greater than 2 dBA in the future with project condition. Additionally, no roadway segments which currently generate noise levels lower than 65 dBA CNEL are predicted to increase by more than 5 dBA over existing ambient noise levels. Predicted ambient noise level increases within existing noise sensitive land uses are not anticipated to be perceptible (change of 3 dBA). Therefore, impacts resulting in a substantial permanent increase in ambient noise levels as a result of the proposed project would be less than significant and no mitigation is required.

Potentially Significant Impacts

Threshold	Would the project result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Impact 4.11-2 **Implementation of the proposed project would result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. This is considered a potentially significant impact. However, implementation of mitigation would reduce this impact to a *less than significant* level.**

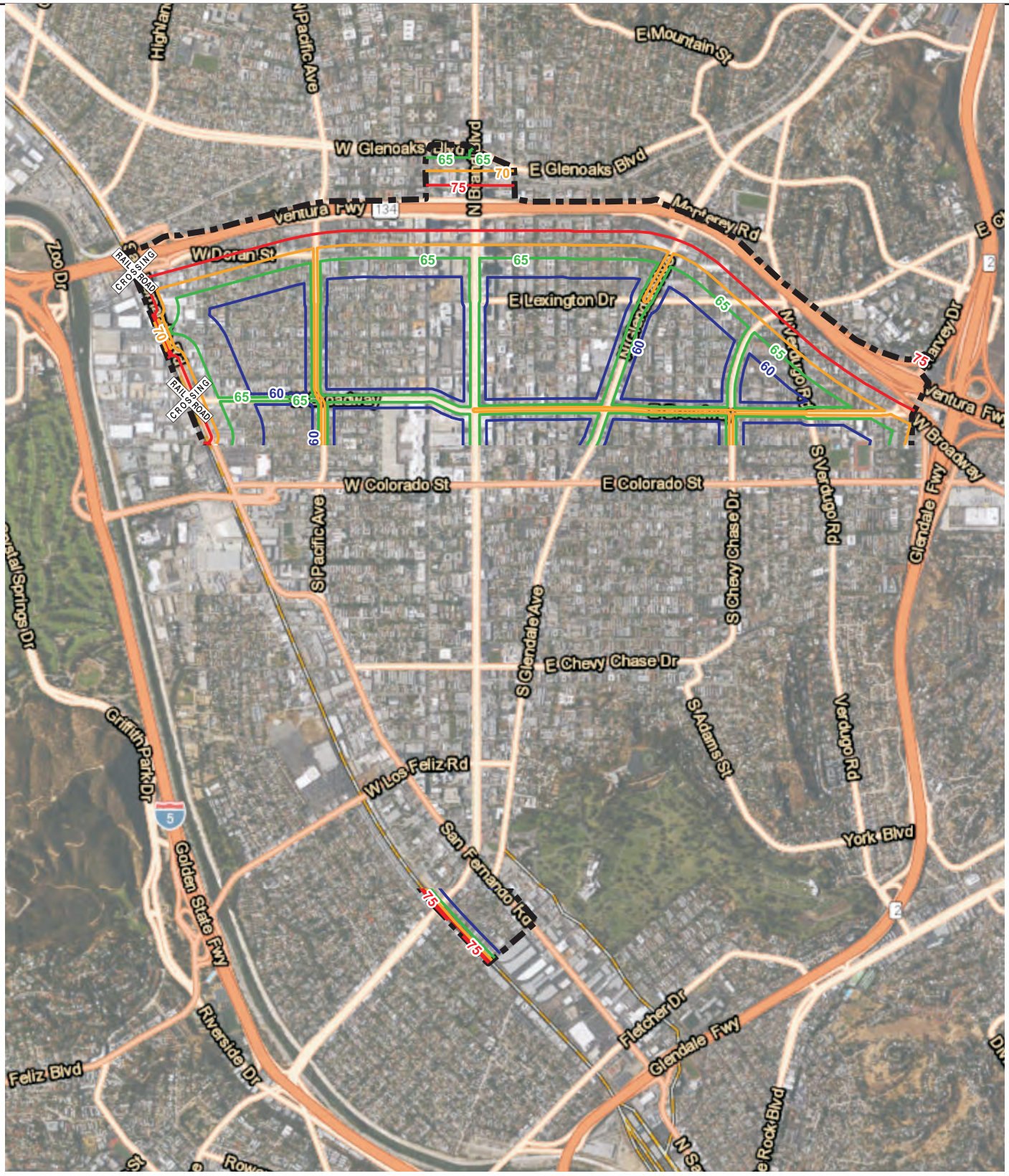
Vehicular Noise

The dominant noise source affecting land use compatibility within the proposed SGCP area consists of vehicular traffic on adjacent roadways. Table 4.11-6 provides the distances to the 60 dBA, 65 dBA, 70 dBA, and 75 dBA CNEL roadway noise contours attributed to future project generated traffic volumes. These existing and future (2040) year noise contours for the proposed SGCP area are shown graphically, together with contributions from predicted existing and future rail noise, in Figures 4.11-2 and 4.11-3, respectively.

Table 4.11 6 Future Vehicle Traffic Noise CNEL Contour Distances for the SGCP Area

Roadway	*Modeled Roadway Segment*	*Distance to Predicted dBA CNEL (Approximate Feet from Roadway Edge of Pavement)*			
		75	*70*	*65*	*60*
Brand Boulevard	North of Lexington Drive	<1	<1	53	190
	North of Broadway	<1	<1	42	168
	North of Colorado Street	<1	<1	46	176
	North of Chevy Chase Drive	<1	<1	36	155
	North of Los Feliz Road	<1	<1	42	169
	North of San Fernando Road	<1	<1	43	174
Broadway	East of San Fernando Road	<1	<1	20	97
	East of Pacific Avenue	<1	4	51	160
	East of Brand Boulevard	<1	4	53	163
	East of Glendale Avenue	<1	9	66	182
	East of Verdugo Road	<1	17	88	206
Chevy Chase Drive	East of San Fernando Road	<1	3	50	159
	East of Brand Boulevard	<1	14	81	198
	East of Glendale Avenue	<1	14	81	199
	North of Acacia Avenue	<1	<1	16	91
	North of Colorado Street	<1	<1	40	150
	North of Broadway	<1	<1	30	126
Colorado Street	East of San Fernando Road	<1	<1	31	127
	East of Pacific Avenue	<1	25	121	279
	East of Brand Boulevard	<1	23	110	246
	East of Glendale Avenue	<1	19	100	237
	East of Verdugo Road	<1	17	93	231
Glendale Avenue	North of Lexington Drive	<1	10	83	236
	North of Broadway	<1	2	60	196
	North of Colorado Street	<1	4	64	206
	North of Chevy Chase Drive	<1	2	53	178
	North of Los Feliz Road	<1	5	62	194
	North of San Fernando Road	<1	4	52	163
Pacific Avenue	North of Lexington Drive	<1	12	75	192
	North of Broadway	<1	7	59	173
	North of Colorado Street	<1	9	65	181
	North of San Fernando Road	<1	<1	18	91
San Fernando Road	North of Broadway	<1	14	88	225
	North of Colorado Street	<1	12	83	220
	North of Chevy Chase Drive	6	44	119	197
	North of Los Feliz Road	<1	24	115	265
	East of Brand Boulevard	<1	38	148	296
York Boulevard / South Adams Street	East of Verdugo Road	<1	<1	19	86
Freeways					
SR-134	At Pacific Avenue	358	613	865	1211
	At Central Avenue/Brand Blvd	361	614	864	1214
	At Glendale Avenue	380	627	883	1239
SR- 2	At York Boulevard/Delevan	264	594	870	1212

Source: AECOM 2017 (Appendix E to this EIR)



Proposed SGCP Area

Grade Crossing

60-65 dBA CNEL Contour

65-70 dBA CNEL Contour

70-75 dBA CNEL Contour

>75 dBA CNEL Contour

0 1,250 2,500 Feet

1 in = 2,500 feet

Scale: 1:30,000

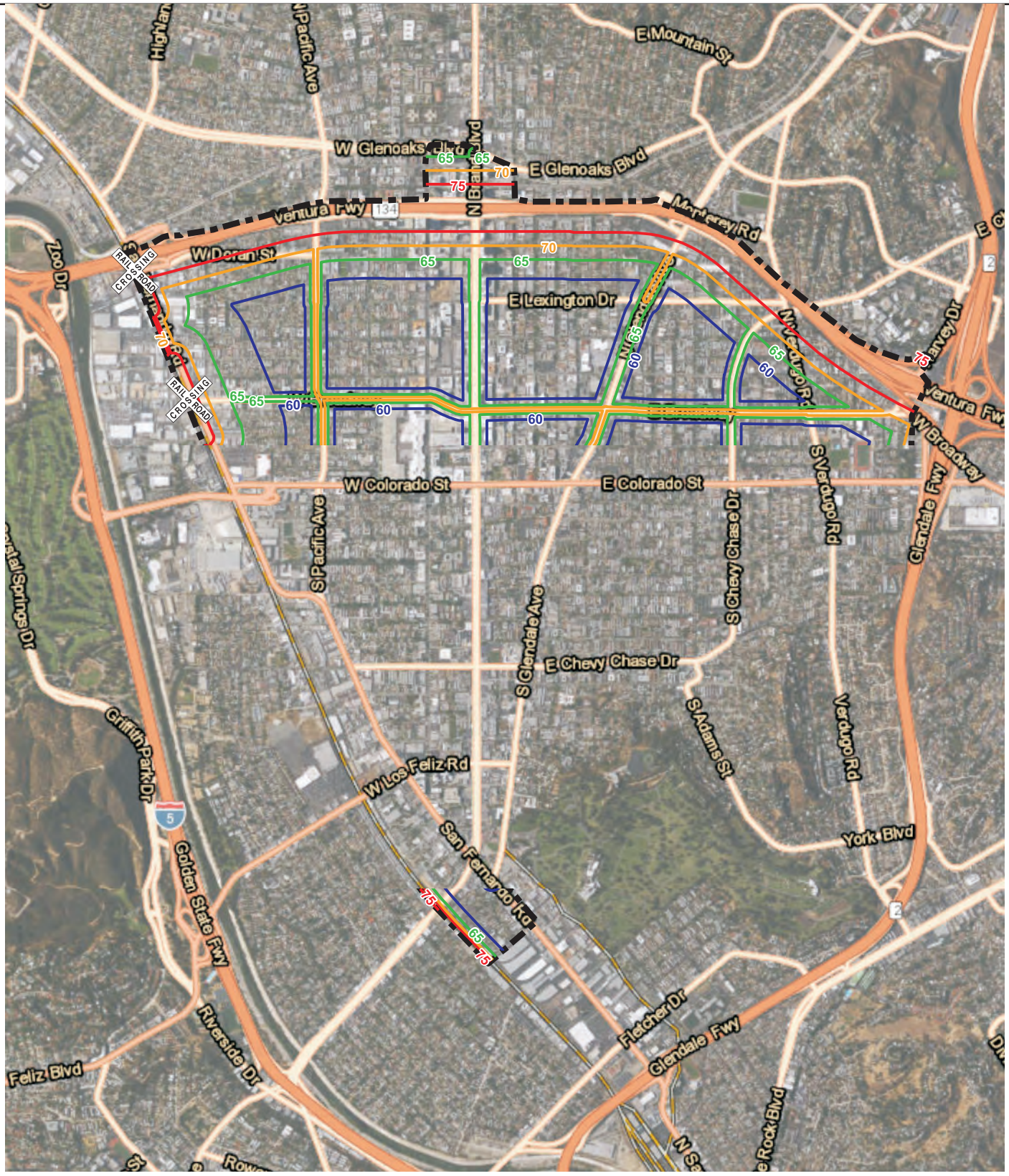
ATKINS

FIGURE 4.11-2

Existing Traffic and Rail Noise Contours

Source: City of Glendale 2017, AECOM 2017

100042606 South Glendale Community Plan PEIR



Proposed SGCP Area

Grade Crossing

60-65 dBA CNEL Contour

65-70 dBA CNEL Contour

70-75 dBA CNEL Contour

>75 dBA CNEL Contour

0 1,250 2,500 Feet

1 in = 2,500 feet

Scale: 1:30,000

ATKINS

FIGURE 4.11-3

Future (2040) Traffic and Rail Noise Contours

Source: City of Glendale 2017, AECOM 2017

100042606 South Glendale Community Plan PEIR

The noise model based these contours on an assumed hard, flat site, with no intervening barriers or obstructions. The actual existing noise levels would depend on both the current source noise levels and the path of sound from the source to the receptor. Structures, ground topography, and other obstacles could significantly reduce noise exposure at discrete receptor locations by obstructing the direct line of sight from the receptor to traffic noise sources.

As a result of the proposed project, existing and proposed residential use areas would, in cases of residences close to the freeways and major roadways, exceed the General Plan Noise Element "conditionally acceptable" thresholds for residential land uses (70 dBA CNEL) under both existing and future conditions. Certain conditions for land uses, such as business commercial, industrial, and other non-noise-sensitive land uses, may allow noise levels exceeding 75 dBA CNEL, which are considered "clearly unacceptable" for residential land uses (Glendale 2007). In areas where existing noise barriers are not currently constructed, land uses located adjacent to SR-134 and SR-2 have the potential to be exposed to noise levels greater than 75 dBA CNEL. Future projects may include mitigation, such as additional noise barriers adjacent to freeways and roadways, which can reduce exterior noise to levels compliant with General Plan Noise Element guidelines.

Future noise levels within the proposed SGCP area, for residential land uses would be clearly unacceptable (i.e., greater than 75 dBA CNEL) at areas located within approximately 358 to 380 feet from the SR-134 edge of pavement and 264 feet from the SR-2 edge of pavement, and normally unacceptable (i.e., greater than 70 dBA CNEL) at areas located within approximately 613 to 637 feet from the SR-134 edge of pavement and 594 feet from the SR-2 edge of pavement. Although these areas are already developed, changes to the land use in these areas would result from implementation of the proposed SGCP, including the introduction of new sensitive land uses. Development of new noise-sensitive land uses as a result of future projects within the proposed SGCP area may subject receptors in vicinities not shielded by existing highway noise barriers to noise levels that exceed General Plan guidelines. Tropico, Pacific Edison Center, Pacific Avenue Gateway, Downtown, Verdugo Road, and East Colorado Gateway areas are located in the immediate vicinity of freeways, are proposed to be transformed, and all have potential to experience CNEL levels greater than 75 dBA. Any future residential use in areas experiencing noise levels above 65 dBA CNEL would be required to meet exterior and interior noise standards applicable to the proposed land use category through both exterior and interior noise attenuation measures.

Policies in the proposed SGCP, General Plan, and CBC would reduce traffic noise exposure due to standards for siting noise sensitive land uses. Noise Element Policy 3.1 requires the preparation of a noise study by a qualified acoustic consultant for new land uses, as described in the Land Use column of Table 2 of the Noise Element, in areas where the existing or future noise levels exceed or would exceed the "acceptable" noise level thresholds. Future discretionary proposals would be required to demonstrate that those projects would not place sensitive receptors in areas that would exceed the existing or future exterior noise levels of the noise compatibility guidelines of the General Plan. Noise Element Policy 3.2 requires continued enforcement of CBC, Title 24, Compliance Reports to demonstrate that the building envelope acoustic performance results in interior noise levels of 45 dBA CNEL or less. Due to this compliance, exterior traffic noise impacts associated with new development requiring discretionary approvals and interior traffic noise impacts for both ministerial and discretionary projects would be less than significant.

Rail Noise

Railway noise, consisting of freight trains and passenger rail (Amtrak and Metrolink), is generated from rail traffic along the proposed SGCP area western boundary within the Southern California Regional Rail Authority corridor. Modeled passenger train speeds were reduced to 15 mph in the vicinity of the Larry Zarian Transportation Center to reflect the slowing and stopping of passenger trains at the station, as shown in Table 4.11-7.

Table 4.11 7 Passenger Rail Operations Assumptions

Train Service	*Typical Locomotives/ Cars Per Train*	*Quantity per Time Frame*		*Modeled Speed (mph)*
		Daytime (7:00 A.M. to 10:00 P.M.)	*Nighttime (10:00 P.M. TO 7:00 A.M.)*	
Metrolink	1/5	56	7	30 / 15
Amtrak	1/6	12	0	30
Freight	3/80	9	1	30

Source: AECOM 2017 (Appendix E to this EIR)

Prediction model results provide 60 dBA L_{dn} noise contour distances that are calculated assuming flat-site conditions and no intervening existing buildings or barriers that would provide noise attenuation, which would represent a conservative, worst-case analysis, as shown in Table 4.11-8.

Table 4.11 8 Distance of Predicted Existing 60 dBA (L_{dn}) Noise Levels from Rail Center Alignment

Source	*Rail Section Scenario*		
	Typical, No Slowing, No Horn Sounding	*Transit Center Vicinity, With Slowing, No Horn Sounding*	*Grade Crossing, No Slowing, With Horn Sounding*
Metrolink Passenger Rail	120 feet	190 feet	880 feet
Amtrak Passenger Rail	30 feet	47 feet	218 feet
Freight Rail	87 feet	87 feet	280 feet
Aggregate of Rail Sources	180 feet	245 feet	1,060 feet

Source: AECOM 2017 (Appendix E to this EIR)

The California High-Speed Rail Authority is currently studying use of the current railroad ROW on the western border of the proposed SGCP area as a portion of the planned Burbank to Los Angeles Project Section of their planned California High Speed Rail service, although final designs and in-service date are still under development. The section that borders the proposed SGCP (along the existing rail corridor), if it is built, would be constructed either at-grade or on an elevated viaduct to avoid existing grade-crossings. The combined acoustical effect of higher train speeds and number of trains (which would increase exposure to rail noise, and ultimate changes in the vertical and horizontal alignment of the future rail lines in this area) are not known at this time.

As described in the Noise Element of the Glendale General Plan, train operations by the year 2030 will increase to 96 trains per day, a growth in trip quantity of approximate 34 percent and it is assumed freight rail usage would increase by 33 percent from 10 trains per day to 15 trains per day. As shown in Table 4.11-9, the aggregate operation of future rail uses extend the 60 dBA L_{dn} a notable distance into the proposed SGCP area.

Table 4.11 9 Distance of Predicted Future 60 dBA (L_{dn}) Noise Levels from Rail Center Alignment

Source	*Rail Section Scenario*		
	Typical, No Slowing, No Horn Sounding	*Transit Center Vicinity, With Slowing, No Horn Sounding*	*Grade Crossing, No Slowing, With Horn Sounding*
Metrolink Passenger Rail	160 feet	254 feet	1,170 feet
Amtrak Passenger Rail	30 feet	47 feet	218 feet
Freight Rail	128 feet	113 feet	370 feet
Aggregate of Rail Sources	235 feet	320 feet	1,460 feet

Source: AECOM 2017 (Appendix E to this EIR)

The railroad corridor is lined with varying land use types, primarily comprised of commercial retail, storage warehouses and yards, and parking lots. One segment of railway abuts the residential neighborhood of single family and multi-family homes. Similar to vehicular noise levels generated by vehicular traffic noise, future rail operation noise levels within the proposed SGCP area in existing and proposed residential use areas would, in cases of proposed single-family and multi-family residences close to the rail alignment, exceed the General Plan Noise Element thresholds and standards.

Municipal Code Compliance

Mixed-use areas would contain residential, commercial, and industrially permitted developments under the proposed SGCP. Noise sensitive receptors are likely to be exposed to additional noise, aside from traffic noise contributions found throughout the proposed SGCP area, where residential uses are located in proximity to commercial or industrial sites. These noise sensitive receptors could be exposed to noise as a result of operations traffic, truck idling, loading and unloading operations, mechanical equipment such as HVAC units and air handlers, trash-hauling activities, and customer/employee use of commercial facilities.

While noise sensitive residential land uses would be exposed to noise associated with the operation of commercial uses, policies are in place to control noise and reduce noise impacts between various land uses. Noise policies, as contained in the General Plan Noise Element, the proposed SGCP, and regulations in the Glendale Municipal Code are in place to control and reduce noise levels from various land uses to levels below impact thresholds for certain new developments. Plans and policies include the requirement for noise studies for new developments, limits on hours of operation for various noise-generating activities, and standards for the compatibility of land use types. Additionally, enforcement of the federal, State, and local noise regulations would control impacts. With the implementation of these policies and enforcement of the Noise Control chapter of the Glendale Municipal Code, impacts associated with compliance of the Glendale Municipal Code would be less than significant.

Implementation of the proposed SGCP would expose receptors or result in the generation of noise levels in excess of standards established in the General Plan Noise Element; therefore, this is considered a potentially significant impact. However, implementation of mitigation measures *MM 4.11-1, MM 4.11-2,* and *MM 4.11-3* would reduce this impact to a less than significant level.

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

Impact 4.11-3 Implementation of the proposed project would result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. This is considered a potentially significant impact. However, implementation of mitigation would reduce this impact to a *less than significant* level.

Commercial Uses

Utilization of equipment for commercial and industrial operations may generate vibration impacting land uses in close proximity to the source. However, compliance with Glendale Municipal Code, Chapter 8.36, Section 8.36.210 Vibration would reduce impacts to below a level of significance. Proposed land uses within the proposed SGCP include retail facilities, restaurants, and office spaces that would not require heavy mechanical equipment or heavy truck deliveries, both of which would potentially generate atypical levels of vibration. Proposed land uses, such as residential developments and civic uses do not typically generate any notable vibration. Therefore, operational vibration impacts associated implementation of the proposed project resulting in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels would be less than significant.

Construction Activities

Depending on the construction activity and equipment being used, construction activities can generate groundborne vibration. Groundborne vibration and noise associated with construction activities would only occur temporarily during groundbreaking activities such as demolition, excavation for underground levels, and pile driving activities to stabilize the walls of excavated areas. Non-pile driving or foundation work construction phases have the greatest potential of producing vibration, which would be intermittent and only occur for short periods of time. The Caltrans Transportation and Construction Vibration Guidance Manual (Caltrans 2013) identifies potential vibration damage thresholds for various structure types and human receptors. Utilization of administrative controls, such as scheduling vibration-intensive construction activities to hours with the least potential to affect nearby sensitive receptors, perceptible vibration can be kept to a minimum and, as such, would result in a less than significant impact. Additionally, any future construction projects within the proposed SGCP and in proximity to noise sensitive areas would be required to conduct specific environmental review to ensure that the project is in compliance with the Glendale Municipal Code, particularly Section 8.36.080 for construction noise, and any required noise mitigation elements.

Pile driving would potentially generate the highest groundborne vibration levels and is the primary concern in regard to human perception. Pile driving or other intermittent or continuous vibratory construction can result in distinct human perception at a vibratory level of 0.04 PPV in/sec and human receptors experience "strongly perceptible" vibration at 0.1 PPV in/sec. The construction of future land uses as a result of the implementation of the proposed project would have the potential to result in a significant impact related to vibration associated with construction. This is considered a potentially significant impact. However, implementation of mitigation measure *MM 4.11-4* would reduce this impact to a less than significant level.

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

Impact 4.11-4 Implementation of the proposed project would result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. This is considered a potentially significant impact. However, implementation of mitigation would reduce this impact to a *less than significant* level.

Although no specific construction or development is proposed under the proposed SGCP, construction noise would occur as a result of future development. Construction activities would likely take place adjacent to noise sensitive land uses due to the highly-developed nature of the proposed SGCP area, temporarily impacting ambient noise levels.

Any future construction projects within the proposed SGCP area and in proximity to a noise sensitive area would be required to conduct specific environmental review to ensure that the project is in compliance with the Glendale Municipal Code, particularly Section 8.36.080 for construction noise, and any required noise mitigation elements. This is considered a potentially significant impact. However, implementation of mitigation measure *MM 4.11-5* would reduce this impact to a less than significant level.

Mitigation Measures

MM 4.11-1 *Future projects implemented under the SGCP that result in the generation of noise levels in excess of standards established in the Glendale General Plan, Noise Ordinance, or other applicable standards shall be required to implement measures, such as but not limited to, increase setbacks of dwelling units from area roadways or rail lines, use of developer-installed noise walls to protect exterior use area, and/or use of upgraded acoustical doors and windows in dwelling units to reduce interior noise.*

MM 4.11-2 *Future projects implemented under the SGCP that result in the generation of noise levels in excess of standards established in the Glendale General Plan Noise Ordinance, or other applicable standards, shall implement measures, such as but not limited to, the use of parking areas or garage structures to act as acoustical buffers or barriers against highway or rail noise shall be implemented.*

MM4.11-3 *Future projects implemented under the SGCP that result in a substantial increase in operational noise levels shall implement measures, such as but not limited to, specification of quieter equipment, implementation of acoustical panels or enclosures around exposed noise producing equipment, relocate noise producing equipment into an acoustically-isolated space, relocate noise producing equipment further from noise-sensitive property boundary, and/or apply appropriate silencers (i.e. mufflers, baffles, or other noise reducing modifications) to noisy equipment.*

MM 4.11-4 *Future projects implemented under the SGCP that exceed groundborne thresholds outlined in Code Section 8.36.210 shall be required to use alternative methods to pile driving, such as vibratory or pre-augured pile. When located near sensitive receptors, vibration sensitive land uses, or older fragile buildings, vibration monitoring shall be implemented.*

MM 4.11-5 *Future projects implemented under the SGCP that result in a substantial temporary or periodic increase in ambient noise levels shall be required to implement measures, such as but not limited to, the installation of temporary noise wall or curtains, use of quieter equipment, and/or construction procedures, and restrictions on nighttime construction.*

Level of Significance After Mitigation

Implementation of mitigation measures *MM 4.11-1*, *MM 4.11.2*, and *MM 4.11.3* would reduce potential impacts to sensitive receptors to less than significant.

Implementation of mitigation measure *MM 4.11-4* would reduce potential impacts associated with excessive groundborne vibration or groundborne noise levels to less than significant.

Implementation of mitigation measure *MM 4.11-5* would reduce temporary or periodic potential impacts to ambient noise levels within the proposed SGCP area to less than significant.

4.11.4 Cumulative Impacts

Threshold	Would the project result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Increases in noise levels near sensitive receptors would occur as a result of construction of the proposed SGCP along with other construction in the vicinity SGCP area. As discussed in Impact 4.11-2, construction of the proposed project would potentially expose nearby sensitive receptors to noise levels above noise standards established by the Noise Ordinance (Glendale Municipal Code Chapter 8.36). This construction noise would be temporary, and mitigation measures *MM 4.11-1, MM 4.11-2,* and *MM 4.11-3* would be implemented to reduce the impact of construction noise to nearby sensitive receptors. However, noise levels would still be in excess of standards in the Noise Ordinance.

Other construction that may occur in the vicinity of the proposed project site would contribute noise levels similar to those generated for the proposed project, including multiple projects being constructed within the south Glendale concurrently. Where future development adjoins the cumulative project construction, the combined construction noise levels would have a cumulative effect on nearby sensitive uses. Noise is not strictly additive, and a doubling of noise sources would not cause a doubling of noise levels, but rather result in a 3 dBA increase over a single source. However, cumulative construction noise levels would be in excess of standards in the Noise Ordinance.

Section 8.36.080 (Construction on buildings, structures and projects) of the Glendale Municipal Code limits construction activities to between the hours of 7:00 A.M. to 7:00 P.M. Monday through Saturday and also prohibits construction activities on Sundays and federal holidays unless a permit is obtained. Further, the City exempts noise generated from construction from the established City noise standards. Compliance with Section 8.36.080 is required by the Glendale Municipal Code for the proposed SGCP and other cumulative development. Implementation of the Glendale Municipal Code and mitigation measures *MM 4.11-1, MM 4.11-2,* and *MM 4.11-3* would mitigate the exposure of persons to or the generation of noise levels in excess of standards established by the City. Therefore, the cumulative impact of the proposed project would also be less than significant.

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

The proposed SGCP construction would produce temporary vibration impacts and the construction vibration impact would be potentially significant. Cumulative development within Glendale is not considered likely to result in the exposure of on-site or off-site receptors to excessive groundborne

vibration, due to the localized nature of vibration impacts, the fact that all construction would not occur at the same time and at the same location, and the largely built-out nature of the City, which would usually preclude the use of heavy equipment such as bulldozers. Other projects listed in Table 3-3 (Chapter 3, Cumulative Project List) would impact sensitive receptors nearby, but only those sensitive receptors located in close proximity to each construction site would be potentially affected. Construction activities associated with these projects, which are adjacent or within the proposed SGCP area, may overlap with construction activities under the proposed project for some amount of time. Thus, sensitive uses in the immediate vicinity of the proposed SGCP area may be exposed to two sources of groundborne vibration. However, for the combined vibration impact from the two projects to reach cumulatively significant levels, intense construction from both projects would have to occur simultaneously within 50 feet of any receptor. As individual development projects under the proposed SGCP may be constructed concurrently with each other or other related projects, it is possible that intense construction from two or more projects would simultaneously occur at distances of 50 feet or less from existing nearby receptors. Therefore, vibration from future development could potentially combine with construction vibration of the proposed project to result in a potentially significant cumulative impact. Mitigation measure *MM 4.11-4* would reduce this impact to a less than significant level. Therefore, the cumulative impact of the proposed project would be less than significant.

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

Permanent increases in noise would occur primarily as a result of increased traffic on local roadways due to the proposed SGCP, related projects, and future ambient growth. Cumulative traffic-generated noise impacts have been assessed based on the contribution of the proposed project to the future cumulative base traffic volumes in the project vicinity. Cumulative traffic would potentially result in a permanent increase in ambient noise levels near the SR-134 and SR-2 over existing conditions. Predicted ambient noise level increases within existing noise sensitive land uses are not anticipated to be perceptible. Therefore, impacts resulting in a substantial permanent increase in ambient noise levels as a result of the proposed project would be less than significant. Development and construction occurring as a result of future development and cumulative projects would be subject to regulations that require compliance with noise standards. Therefore, the cumulative impact of the proposed project would be less than significant.

Threshold	Would the project result in cumulatively considerable temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Periodic and temporary noise levels would be generated by construction of the proposed SGCP along with other construction in the vicinity. The proposed project by itself would expose some receptors to noise levels in excess of acceptable City standards. Construction noise impacts are localized in nature and decrease substantially with distance. Consequently, in order to achieve a substantial cumulative increase in construction noise levels, more than one source emitting high levels of construction noise would need to be in close proximity to a noise receptor. Construction activity associated with projects listed in Table 3-3 may overlap with construction activity associated with the proposed project. Thus, the possibility exists that a substantial cumulative increase in construction noise levels could result from construction associated with multiple projects under the proposed SGCP and related projects. The cumulative impact of the proposed project would be potentially significant. However, implementation of mitigation measure *MM 4.11-5* would reduce this impact to a less than significant level. Any future construction projects within the proposed SGCP and in proximity to noise sensitive area would be required to conduct specific

environmental review to ensure that the project is within compliance with the Glendale Municipal Code, particularly Section 8.36.080 for construction noise, and any required noise mitigation elements. Therefore, the cumulative impact of the proposed project would be less than significant.

Operation of the proposed SGCP would not include special events or temporary activities which would cause an increase in ambient noise levels. Therefore, there would be no temporary or periodic noise impacts to on- or off-site receptors due to operation of the proposed SGCP, and the cumulative impact of the proposed project would be less than significant.

Threshold	Would the project, if located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in the exposure of people residing or working in the project area to excessive noise levels?

A cumulative noise impact would occur if construction and operation associated with the proposed SGCP and cumulative projects, would result in the exposure of people residing or working within an airport land use plan, where such a plan has not been adopted, or within 2 miles of a public airport or public use airport to excessive noise levels. The proposed SGCP is not located within an airport land use plan, where such a plan has not been adopted, or within 2 miles of a public airport or public use airport. Therefore, a significant cumulative impact would not occur.

Threshold	Would the project, if located within the vicinity of a private airstrip, result in the exposure of people residing or working in the project area to excessive noise levels?

A cumulative noise impact would occur if construction and operation associated with the proposed SGCP and cumulative projects, would result in the exposure of people residing or working in the vicinity of a private airstrip to excessive noise levels. The proposed SGCP is not located within the vicinity of a private airstrip or noise impact area; therefore, a significant cumulative impact would not occur from exposure to a private airstrip.

4.11.5 References

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