

11 NOISE

This section describes the existing noise setting of the project site, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed PCGC Master Plan Update, including the Multifamily Residential project at 1st Street and B Avenue, and the Health and Human Services building near the center of the site. The information and analysis in this chapter is taken from the Noise Assessment Technical Report for the PCGC Master Plan Update provided in Appendix F.

None of the comments received in response to the Notice of Preparation for the project address noise. The Notice of Preparation and comments received in response to it are provided in Appendix A.

11.1 EXISTING CONDITIONS

Fundamentals of Acoustics

Vibrations, traveling as waves through air from a source, exert a force perceived by the human ear as sound. Sound pressure level (referred to as sound level) is measured on a logarithmic scale in decibels (dB) that represent the fluctuation of air pressure above and below atmospheric pressure. Frequency, or pitch, is a physical characteristic of sound and is expressed in units of cycles per second or hertz (Hz). The normal frequency range of hearing for most people extends from about 20 to 20,000 Hz. The human ear is more sensitive to middle and high frequencies, especially when the noise levels are quieter. As noise levels get louder, the human ear starts to hear the frequency spectrum more evenly. To accommodate for this phenomenon, a weighting system to evaluate how loud a noise level is to a human was developed. The frequency weighting called “A” weighting is typically used for quieter noise levels which de-emphasizes the low frequency components of the sound in a manner similar to the response of a human ear. This A-weighted sound level is called the “noise level” and is referenced in units of dBA.

Since sound is measured on a logarithmic scale, a doubling of sound energy results in a 3 dBA increase in the noise level. Changes in a community noise level of less than 3 dBA are not typically noticed by the human ear (U.S. DOT 1980). Changes from 3 to 5 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. A 5 dBA increase is readily noticeable (EPA 1973). The human ear perceives a 10 dBA increase in sound level as a doubling of the sound level (i.e., 65 dBA sounds twice as loud as 55 dBA to a human ear).

An individual’s noise exposure occurs over a period of time; however, noise level is a measure of noise at a given instant in time. Community noise sources vary continuously, being the product of many noise sources at various distances, all of which constitute a relatively stable background or ambient noise environment. The background, or ambient, noise level gradually changes throughout

a typical day, corresponding to distant noise sources, such as traffic volume, as well as changes in atmospheric conditions.

Noise levels are generally higher during the daytime and early evening when traffic (including airplanes), commercial, and industrial activity is the greatest. However, noise sources experienced during nighttime hours when background levels are generally lower can be potentially more conspicuous and irritating to the receiver. In order to evaluate noise in a way that considers periodic fluctuations experienced throughout the day and night, a concept termed “community noise equivalent level” (CNEL) was developed, wherein noise measurements are weighted, added, and averaged over a 24-hour period to reflect magnitude, duration, frequency, and time of occurrence. A complete definition of CNEL is provided below.

Different types of measurements are used to characterize the time-varying nature of sound. These measurements include the equivalent sound level (L_{eq}), the minimum and maximum sound levels (L_{min} and L_{max}), percentile-exceeded sound levels (L_{xx}), the day–night sound level (L_{dn}), and the CNEL. Below are brief definitions of these measurements and other terminology used in this report.

- *Decibel* (dB) is a unitless measure of sound on a logarithmic scale which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals.
- *A-weighted decibel* (dBA) is an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- *Equivalent sound level* (L_{eq}) is the constant level that, over a given time period, transmits the same amount of acoustic energy as the actual time-varying sound. Equivalent sound levels are the basis for both the day–night average sound levels (L_{dn}) and community noise equivalent level (CNEL) scales.
- *Maximum sound level* (L_{max}) is the maximum sound level measured during the measurement period.
- *Minimum sound level* (L_{min}) is the minimum sound level measured during the measurement period.
- *Percentile-exceeded sound level* (L_{xx}) is the sound level exceeded x percent of a specific time period. L_{10} is the sound level exceeded 10% of the time.
- *Day–night average sound level* (L_{dn}) is a single value assessment of the community noise levels. The L_{dn} is a 24-hour average A-weighted sound level with a 10 dB penalty added to the nighttime hours from 10:00 p.m. to 7:00 a.m. The 10 dB penalty is applied to account for increased noise sensitivity during the nighttime hours. Noise limits are described in terms of L_{dn} *or* CNEL (see definition below); resulting values from application of L_{dn} versus CNEL

rarely differ by more than 1 dB, and therefore these two methods of describing average noise levels are often considered interchangeable.

- *Community noise equivalent level (CNEL)* describes community noise levels in a similar manner as L_{dn} . The CNEL is the average equivalent A-weighted sound level during a 24-hour period in the same way L_{dn} is. CNEL accounts for the increased noise sensitivity during the evening hours (7 p.m. to 10 p.m.) and nighttime hours (10 p.m. to 7 a.m.) by adding 5 dB to the sound levels in the evening and 10 dB to the sound levels at night. CNEL and L_{dn} are often considered equivalent descriptors.

Exterior Noise Distance Attenuation

Noise sources are classified in two forms: (1) point sources, such as stationary equipment or a group of construction vehicles and equipment working within a spatially limited area at a given time, and (2) line sources, such as a roadway with a large number of pass-by sources (motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6.0 dBA for each doubling of distance from the source to the receptor at acoustically “hard” sites and at a rate of 7.5 dBA for each doubling of distance from source to receptor at acoustically “soft” sites. Sound generated by a line source (i.e., a roadway) typically attenuates at a rate of 3 dBA and 4.5 dBA per doubling distance, for hard and soft sites, respectively. Sound levels can also be attenuated by man-made or natural barriers. For the purpose of sound attenuation discussion, a “hard” or reflective site does not provide any excess ground-effect attenuation and is characteristic of asphalt or concrete ground surfaces, as well as very hard-packed soils. An acoustically “soft” or absorptive site is characteristic of unpaved loose soil or vegetated ground.

Structural Noise Attenuation

Sound levels can also be attenuated by man-made or natural barriers. Solid walls or slopes associated with elevation differences typically reduce noise levels by 5 to 10 dBA (U.S. DOT 1980). Structures can also provide noise reduction by insulating interior spaces from outdoor noise. The outside-to-inside noise attenuation provided by typical structures in California ranges between 17 to 30 dBA with open and closed windows, respectively, as shown in Table 11-1.

**Table 11-1
Outside-to-Inside Noise Attenuation (dBA)**

Building Type	Open Windows	Closed Windows ^a
Residences	17	25
Schools	17	25
Churches	20	30
Hospitals/Offices/Hotels	17	25
Theaters	17	25

^a As shown, structures with closed windows can attenuate exterior noise by a minimum of 25 to 30 dBA.

Source: Appendix F

Fundamentals of Vibration

Vibration is an oscillatory motion that can be described in terms of displacement, velocity, or acceleration. The response of humans to vibration is very complex. However, it is generally accepted that human response is best approximated by the vibration velocity level associated with the vibration occurrence.

Heavy equipment operation, including stationary equipment that produces substantial oscillation or construction equipment that causes percussive action against the ground surface, may be perceived by building occupants as perceptible vibration. It is also common for ground-borne vibration to cause windows, pictures on walls, or items on shelves to rattle. Although the perceived vibration from such equipment operation can be intrusive to building occupants, the vibration is seldom of sufficient magnitude to cause even minor cosmetic damage to buildings.

When evaluating human response, ground-borne vibration is usually expressed in terms of root mean square (RMS) vibration velocity. RMS is defined as the average of the squared amplitude of the vibration signal. As for sound, it is common to express vibration amplitudes in terms of decibels defined as:

$$L_v = 20 \log \left(\frac{v_{rms}}{v_{ref}} \right)$$

where v_{rms} is the RMS vibration velocity amplitude in inches/second and v_{ref} is the decibel reference of 1×10^{-6} inches/second.

To avoid confusion with sound decibels, the abbreviation VdB is used for vibration decibels. The vibration threshold of perception for most people is around 65 VdB. Vibration levels in the 70 to 75 VdB range are often noticeable but generally deemed acceptable, and levels in excess of 80 VdB are often considered unacceptable (FTA 2006 as cited in Appendix F).

Noise Environment

Noise-sensitive receptors are land uses associated with indoor and outdoor activities that may be subject to stress or significant interference from noise. They include residential dwellings, mobile homes, hotels, motels, hospitals, nursing homes, educational facilities, and libraries. In addition, office land uses can be sensitive to noise when levels are high enough to interfere with working conditions.

Existing On-Site Uses

The PCGC primarily supports County offices, facilities, warehouse space, and functions, as well as a Home Depot home improvement store located on 10 acres of leased land at the eastern side of the campus, and approximately 40 acres of open space throughout the site. These facilities are a mixture of relatively new buildings that have been built within the last 10 years and older buildings with structures built as early as 1942, providing a total of more than 960,000 square feet of building space. There are a few locations leased to private enterprises and others that are currently vacant. In Chapter 3, Project Description, Table 3-1 and Figure 3-3, Existing Site Plan, identify buildings by their building number.

Onsite Receptors

Several onsite noise-sensitive receptors have been identified that may be impacted by construction and/or demolition included in the proposed project. Day-use facilities onsite include a church, and welcome center. . Day- and night-use onsite facilities include, three residential shelters (including the alcoholism treatment center), and the residential areas within the detention facilities (Juvenile Detention Center and Main Jail). These include:

- Components of the detention facilities: Main Jail (Building 520), and Juvenile Detention Center (Building 530),
- Foothill Center for Spiritual Living (Building 118),
- Health and Human Services department Welcome Center (Building 113A),
- Fire Station 180 crew quarters (Building S180),
- Auburn Emergency Shelter (Building 303),
- Yolo Community Care Continuum (Building 504) majority of this building used for homeless respite care, after discharge from a hospital,
- The Gathering Inn (Building 504) in southwest corner of building, used for alcohol treatment center,
- Women’s Shelter (Building 503)

Offsite Receptors

The following offsite noise-sensitive receptors have also been identified:

- Senior housing on the north side of Bell Road,
- Medical offices on the north side of Bell Road,
- Rock Creek School located approximately 0.25 mile northeast (with intervening buildings)
- Auburn Elementary School located approximately 0.2 mile south (with intervening buildings),
- Convalescent housing located approximately 300 feet northwest,
- Sunrise Church located approximately 650 feet west,
- Residential neighborhood on Cottage Drive,
- Residential neighborhoods on the north side of Bell Road,
- Residential neighborhoods on the south side of Atwood Road,
- Residential neighborhoods on Wilson Drive and Olympic Way.

Ambient Noise Measurements

Dudek visited the proposed project site on November 6, 2017 and November 8, 2017 to measure ambient sound levels in the vicinity. Figure 11-1 shows the measurement locations marked on a site map.

Short-term (ST#) measurements were conducted with a Rion NL-62 sound level meter placed on a tripod with the microphone positioned approximately 5 feet above the ground. The Rion NL-62 is classified as an ANSI Type 1 precision sound level meter. The sound level meter was calibrated before the measurement series in order to ensure accuracy of the measurements. The short-term measurements were 10 minutes long for all locations except ST3. At ST3 a 30 minute measurement was completed in the parking lot of the Home Depot. Table 11-2 presents the results of the short-term noise measurements with traffic count information.

**Table 11-2
Short-Term Sound Level Measurements**

Location	Distance to Roadway Edge	Observed Noise Sources	Leq ¹	Cars	MT/HT ²	B ¹	MC ¹
ST1	6 feet	Traffic	70	49	1	1	0
ST2	12 feet	Traffic, Parking Lot Activities, Distant Nail gun	63	30	1		
ST3	N/A	Traffic	57	N/A	N/A	N/A	N/A
ST4	12 feet	Traffic, People Walking By	62	36	0	1	0
ST5	10 feet	Traffic, Aircraft	67	108	0	0	0
ST6	5 feet	Traffic, Birds	60	46	0	1	0

Notes:

- 1 Equivalent Continuous Sound Level (Time-Average Sound Level)
- 2 Medium Trucks or Heavy Trucks depending on the road segment count
- 3 Buses
- 4 Motorcycles
- * Environmental Weather Conditions: Temperature: 46° Fahrenheit, overcast/cloudy, 4 miles-per-hour light/gusty southeast wind

Source: Appendix F

The long-term measurements were completed using four SoftDB Model Piccolo sound level meters. The Piccolo sound level meters meet the ANSI standard for a Type 2 general-purpose sound level meter. The meters collected hourly sound level data from November 6, 2017 to November 8, 2017. The Piccolo sound level meters were each calibrated before the multi-day measurements to ensure accuracy of the measurements. The recorded hourly equivalent levels (Leq) were averaged together to produce the results presented in Table 11-3. Averages for the daytime and nighttime are presented as a reference of existing noise levels in the vicinity.

**Table 11-3
Long-Term Sound Level Measurements**

Site/ Instrument #	Location Description	(dBA)			
		Daytime Average Noise Levels 7a.m.-10p.m. Leq	Nighttime Average Noise Levels 10 p.m.- 7a.m. Leq	CNEL	L_{dn}
LT1	Atwood	67	58	68	67
LT2	Corp Yard Area	56	58	63	63
LT3	Richardson	53	47	57	56
LT4	Northern Substation	57	51	59	59

Source: Appendix F

The measurement results show that the CNEL within the PCGC ranges from 57 dBA to 68 dBA. The higher levels are expected in close proximity to the major roads. LT2, located in the Corp Yard area, has high measured noise levels during nighttime hours that contribute to a higher CNEL of 63 dBA.

Modeled Existing Transportation Noise

Vehicular traffic along vicinity roadways is typically a primary contributor to the overall noise environment in any urban neighborhood. Using current average daily traffic data and CadnaA, noise modeling software, Dudek modeled the CNEL associated with the local roadway network. Figure 11-2 shows modeled receiver locations. Table 11-4 below shows the Average Daily Traffic data that was used for the traffic noise impact modeling. Results for the existing traffic noise are shown in this section, while future results for the multifamily residential project, the Health and Human Services project, and the build-out of the master plan are presented in later sections.

**Table 11-4
Average Daily Traffic Volumes for Vicinity Roadways**

Roadway	Segment	Lanes	Existing Conditions	Existing Plus MFR	Existing Plus HHS	Existing Plus MP Build-out	Cumulative No Project	Cumulative Plus MFR	Cumulative Plus HHS	Cumulative Plus MP Build-out
Atwood Road	West of SR 49	2	9,750	9,800	10,100	12,100	11,900	12,000	12,200	14,300
Bell Road	West of SR 49	4	15,300	15,700	15,900	21,300	19,400	19,800	20,000	23,600
SR 49	Luther Rd. to New Airport Rd.	6	42,000	42,300	42,500	47,800	47,700	48,000	48,200	52,700
	New Airport Rd. to Atwood Rd.	6	40,000	40,300	40,500	45,900	45,200	45,500	45,700	50,200
	Atwood Rd. to Willow Creek Dr.	6	40,500	40,800	40,700	44,100	45,100	45,400	45,300	47,400
	Willow Creek Dr. to Bell Rd.	6	37,700	37,800	37,700	39,500	44,900	45,000	44,900	46,600
	North of Bell Rd.	5	34,700	34,900	35,000	37,000	35,000	35,200	35,300	37,100

Source: Appendix F

Table 11-5 presents the results of the noise modeling for all existing traffic on selected area roadways. Figure 11-2 shows the modeling locations marked on a site map.

**Table 11-5
Existing CNEL for Vicinity Roadways**

Receiver Name	Existing CNEL (dBA)
M01 – The Gathering Inn, Yolo Community Care Continuum (Building 504)	41
M02 – Women’s Shelter (Building 503)	41
M03 - Juvenile Detention Center (Building 530)	43
M04 - Main Jail (Building 520)	45
M05 - Emergency Shelter (Building 303)	45
M06 - Health and Human Services Department	43
M07 - Vacant	44
M08 - Vacant	45
M09 - Foothill Center for Spiritual Living	45
M10 - Vacant	46
M11 - Auburn Grace Community Church	45
M12 - Residential neighborhoods on Bell	65
M13 - Residential neighborhood on Wilson	58
M14 - Oakwood Assisted Living	48
M15 - Solstice Senior Living on Blue Oak	49
M16 - Medical offices located north of Bell	60
M17 - Rock Creek School	54
M18 - Medical offices on Professional Drive	49
M19 - Sierra Council on Alcoholism Treatment Center	51
M20 - Residences on Cottage Drive	47
M21 - St. Joseph's Catholic School	51
M22 - Residential neighborhoods on Atwood	60
M23 - Auburn Elementary School	42
M24 - Bell's Preschool and Daycare	52
M25 - Residence	50
M26 - Atwood Rd North Residence	58

Source: Appendix F

Existing CNEL levels associated with the vicinity road network are generally compatible with the established uses. The noise levels for existing traffic are above 65 dBA CNEL at one location,

M12, Residence along Bell Road. Two locations have current traffic noise levels above 60 dBA CNEL: M16, Medical Offices and M22, Residences on Atwood Road. All other receivers have current traffic noise levels below the acceptable CNEL limits for residential land uses.

11.2 REGULATORY FRAMEWORK

Federal Regulations

The EPA has set forth guidelines regarding noise levels identified as necessary to protect public health and welfare related to noise in its document entitled “Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety”. This document provides 24-hour exposure limits to protect against hearing loss as 70 dB Leq (24), and also specifies that indoor residential activity should not be exposed to greater than L_{dn} of 45 dBA (EPA 1974 as cited in Appendix F).

Table 11-6 summarizes recommended threshold to define when an increases in noise levels is significant based on studies by the Federal Interagency Committee on Noise (FICON). The FICON studies assessed the annoyance effects of changes in ambient noise levels resulting from aircraft operations. The 2000 FICON findings provide some guidance as to the significance of changes in ambient noise levels due to transportation noise sources. The FICON recommendations are based on studies that relate aircraft and traffic noise levels to the percentage of persons highly annoyed by the noise. Annoyance is a summary measure of the general adverse reaction of people to noise that interferes with speech and conversation, sleep, or the desire for a tranquil environment.

The rationale for the FICON recommendations is that it is possible to consistently describe the annoyance of people exposed to transportation noise in terms of L_{dn}. The changes in noise exposure relative to existing noise levels, as shown in Table 11-6, are considered to be changes that are sufficient to cause annoyance and potentially to interfere with normal activities at sensitive land uses. Although the FICON recommendations were specifically developed to address aircraft noise impacts, they are used in this analysis for traffic noise described in terms of L_{dn}.

As shown in Table 11-6, an increase in noise from similar sources of 5 dBA or more would be noticeable where the ambient level is less than 60 dBA. Where the ambient level is between 60 and 65 dBA, an increase in noise of 3 dBA or more would be noticeable, and an increase of 1.5 dBA or more would be noticeable where the ambient noise level exceeds 65 dBA L_{dn}. The rationale for the criteria shown in Table 11-6 is that, as ambient noise levels increase, a smaller increase in noise resulting from a project would be noticeable.

**Table 11-6
Significance of Changes in Noise Exposure**

Ambient Noise Level without Project	Increase Required for Significant Impact
< 60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
> 65 dB	+1.5 dB or more

Source: FICON 2000

Federal Transit Administration and Federal Railroad Administration Standards

Although the Federal Transit Administration (FTA) standards are intended for federally funded mass transit projects, the impact assessment procedures and criteria included in the FTA Transit Noise and Vibration Impact Assessment Manual (May 2006) are routinely used for projects proposed by local jurisdictions. The FTA and Federal Railroad Administration have published guidelines for assessing the impacts of ground-borne vibration associated with rail projects, which have been applied by other jurisdictions to other types of projects. The FTA threshold for architectural damage involving conventional sensitive structures is 0.2 inch/second peak particle velocity (PPV) (Appendix F).

Federal Highway Administration

Guidance regarding the determination of a substantial permanent increase in ambient noise levels in the project vicinity above existing levels is provided by the Federal Highway Administration (FHWA) and California Department of Transportation (Caltrans). In Title 23 Part 772 of the Code of Federal Regulations, a substantial noise increase for federally funded transportation projects is defined as a range (to be determined by each state's transportation department) between 5 and 15 dBA above existing ambient levels (FHWA 2010 as cited in Appendix F). In the State of California, Caltrans defines a substantial noise increase as 12 dBA or more (Caltrans 2011 as cited in Appendix F).

State Regulations

California Noise Control Act of 1973

Sections 46000 through 46080 of the California Health and Safety Code, known as the California Noise Control Act of 1973, declares that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also identifies a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control,

prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

California Noise Insulation Standards (CCR Title 24)

In 1974, the California Commission on Housing and Community Development adopted noise insulation standards for hotels, motels, dormitories, and multifamily residential buildings (CCR Title 24, Part 2). Title 24 establishes standards for interior room noise (attributable to outside noise sources). The regulations also specify that acoustical studies must be prepared whenever a multifamily residential building or structure is proposed to be located in an area with CNEL (or L_{dn}) of 60 dBA or greater. Such acoustical analysis must demonstrate that the residence has been designed to limit intruding noise to an interior CNEL (or L_{dn}) of at least 45 dBA (California's Title 24 Noise Standards, Chap. 2-35).

Typically buildings have an exterior to interior noise reduction of about 25 dB with the windows closed and approximately 15 dB with the windows open. Therefore, rooms exposed to an exterior community noise level greater than 60 dB could result in an interior community noise level greater than 45 dB. The California Building Code requires an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than L_{dn} 60 dBA. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

California Noise Insulation Standards

The state has established noise insulation standards for new single family residences, multifamily residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards set forth an interior standard of L_{dn} 45 dBA in any habitable room. The California Building Code requires an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than L_{dn} 60 dBA. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

Land Use Compatibility Guidelines

The state of California has published Land Use Compatibility Guidelines to aid local jurisdictions in setting Community Noise Guidelines (OPR 2003). Table 11-7 shows the Land Use Compatibility Guidelines.

Table 11-7
Land Use Compatibility for Community Noise Environments

	Community Noise Exposure (CNEL)			
	<i>Normally Acceptable</i> ¹	<i>Conditionally Acceptable</i> ²	<i>Normally Unacceptable</i> ³	<i>Clearly Unacceptable</i> ⁴
Residential-low density, single-family, duplex, mobile homes	50–60	55–70	70–75	75–85
Residential – multiple-family	50–65	60–70	70–75	70–85
Transit lodging – motel, hotels	50–65	60–70	70–80	80–85
Schools, libraries, churches, hospitals, nursing homes	50–70	60–70	70–80	80–85
Auditoriums, concert halls, amphitheatres	NA	50–70	NA	65–85
Sports arenas, outdoor spectators sports	NA	50–75	NA	70–85
Playgrounds, neighborhood parks	50–70	NA	67.5–77.5	72.5–85
Golf courses, riding stables, water recreation, cemeteries	50–70	NA	70–80	80–85
Office buildings, business commercial and professional	50–70	67.5–77.5	75–85	NA
Industrial, manufacturing, utilities, agriculture	50–75	70–80	75–85	NA

Notes: CNEL = community noise equivalent level; NA = not applicable

- ¹ Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
- ² Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features have been included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.
- ³ Normally Unacceptable: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise-insulation features must be included in the design.
- ⁴ Clearly Unacceptable: New construction or development should generally not be undertaken

Source: OPR 2003

Local Regulations

Auburn/Bowman Community Plan

The Auburn/Bowman Community Plan contains policies governing noise related to development within the communities of Auburn and Bowman. The Auburn/Bowman Community Plan does not specifically address noise generated during construction activities.

- Goal III.F.2.a.** To protect community plan area residents from the harmful and annoying effects of exposure to excessive noise.
- Goal III.F.2.b.** To preserve the rural noise environment of the community plan area and surrounding areas.
- Goal III.F.2.c.** To protect the economic base of the community plan area by preventing incompatible land uses from encroaching upon existing or planned noise-producing uses.
- Goal III.F.2.d.** To encourage the application of state of the art land use planning methodologies in areas of potential noise conflicts.

Policy III.F.3.a New development of noise-sensitive uses shall not be allowed where the noise level due to non-transportation noise sources will exceed the noise level standards of Table 14 as measured immediately within the property line of new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in Table 16.

Auburn/Bowman Community Plan Table 14
Noise Level Performance Standards for New Projects Affected by or Including
Non-Transportation Sources

Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly Leq, dB	50	45
Maximum Level, dB	70	65

Note: Each of the noise levels specified above shall be lowered by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwelling).

Source: Auburn/Bowman Community Plan: Community Development Element

Policy III.F.3.b Noise created by new non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table 14 as measured immediately within the property line of lands designated for noise-sensitive uses.

Policy III.F.3.c Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table 14 at existing or planned noise-sensitive uses, an acoustical analysis

shall be required as part of the environmental review process so that noise mitigation may be included in the project design.

Policy III.F.3.d The feasibility of proposed projects with respect to existing and future transportation noise levels shall be evaluated by comparison to Table 14.

Policy III.F.3.e New development of noise-sensitive land uses will not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources which exceed the levels specified in Table 16, unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaces to the level specified in Table 16.

**Auburn/Bowman Community Plan Table 16
Maximum Allowable Noise Exposure for
Transportation Noise Sources**

Land Use	Outdoor Activity Areas ¹	Interior Spaces	Interior Spaces
	($L_{dn}/CNEL$, dB)	($L_{dn}/CNEL$, dB)	Leq / dB^2
Residential	60 ³	45	--
Transient Lodging	60 ³	45	--
Hospitals, Nursing Homes	60 ³	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	60 ³	--	40
Office Buildings	60 ³	--	45
Schools, Libraries, Museums	--	--	45
Playgrounds, Neighborhood Parks	70	--	--

1. Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use.
2. As determined for a typical worst-case hour during periods of use.
3. Where it is not possible to reduce noise in outdoor activity areas to 60 dB $L_{dn}/CNEL$ or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 $L_{dn}/CNEL$ may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table. For properties affected by transportation noise from I-80 or railroad tracks, this maximum level shall be 70 $L_{dn}/CNEL$, provided that interior levels are in compliance with this table.

Source: Auburn/Bowman Community Plan: Community Development Element

Policy III.F.3.f Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed the levels as specified in Table 16 at outdoor activity areas or interior spaces of existing noise-sensitive land uses in either the incorporated or unincorporated areas.

Policy III.F.3.h Where noise mitigation measures are required to achieve the standards of Tables 14 and 16, the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall be considered a means of achieving the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project.

**Auburn/Bowman Community Plan Table 15
Requirements for an acoustical analysis**

An acoustical analysis prepared pursuant to the Noise Element shall:
<ol style="list-style-type: none"> 1. Be the responsibility of the applicant 2. Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics. 3. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominate noise sources. 4. Estimate existing and projected cumulative (20 years) noise levels in terms of L_{dn} or CNEL and/or the standards of Table 14*, and compare those levels to the adopted policies of the Noise Element. Noise prediction methodology must be consistent with the appendix to the Noise Element. 5. Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element. Where the noise source in question consists of intermittent single events, the report must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance. 6. Estimate noise exposure after the prescribed mitigation measures have been implemented. 7. Describe a post-project assessment program which could be used to evaluate the effective of the prosed mitigation measures.

Placer County General Plan

The Placer County General Plan Noise section contains goals and policies governing noise related to development within Placer County (County of Placer 2013). The maximum allowable noise exposure limits for transportation noise sources are summarized in Table 9-1 of the Placer County General Plan, as shown below. General Plan policies applicable to the proposed project are listed below.

**Placer County General Plan Table 9-1
Allowable L_{dn} Noise Levels Within Specified Zone Districts¹ Applicable to
New Projects Affected by or Including Non-Transportation Noise Sources**

Zone District of Receptor	Property Line of Receiving Use	Interior Spaces ²
Residential adjacent to Industrial ³	60	45
Other Residential ⁴	50	45
Office/Professional	70	45
Transient Lodging	65	45
Neighborhood Commercial	70	45
General Commercial	70	45
Heavy Commercial	75	45
Limited Industrial	75	45
Highway Service	75	45
Shopping Center	70	45
Industrial	--	45
Industrial Park	75	45
Industrial Reserve	--	--
Airport	--	45
Unclassified	--	--
Farm	(see footnote 6)	--
Agriculture Exclusive	(see footnote 6)	--
Forestry	--	--
Timberland Preserve	--	--
Recreation & Forestry	70	--
Open Space	--	--
Mineral Reserve	--	--

Notes:

- Except where noted otherwise, noise exposures will be those which occur at the property line of the receiving use.
- Where existing transportation noise levels exceed the standards of this table, the allowable L_{dn} shall be raised to the same level as that of the ambient level.
- If the noise source generated by, or affecting, the uses shown above consists primarily of speech or music, or if the noise source is impulsive in nature, the noise standards shown above shall be decreased by 5 dB.
- Where a use permit has established noise level standards for an existing use, those standards shall supersede the levels specified in Table 9-1 and Table 9-3. Similarly, where an existing use which is not subject to a use permit causes noise in excess of the allowable levels in Tables 9-1 and 9-3, said excess noise shall be considered the allowable level. If a new development is proposed which will be affected by noise from such an existing use, it will ordinarily be assumed that the noise levels already existing or those levels allowed by the existing use permit, whichever are greater, are those levels actually produced by the existing use.
- Existing industry located in industrial zones will be given the benefit of the doubt in being allowed to emit increased noise consistent with the state of the art⁵ at the time of expansion. In no case will expansion of an existing industrial operation because to decrease allowable noise emission limits. Increased emissions above those normally allowable should be limited to a one-time 5 dB increase at the discretion of the decision making body.

- The noise level standards applicable to land uses containing incidental residential uses, such as caretaker dwellings at industrial facilities and homes on agriculturally zoned land, shall be the standards applicable to the zone district, not those applicable to residential uses.
 - Where no noise level standards have been provided for a specific zone district, it is assumed that the interior and/or exterior spaces of these uses are effectively insensitive to noise.
- 1 Overriding policy on interpretation of allowable noise levels: Industrial-zoned properties are confined to unique areas of the County, and are irreplaceable. Industries which provide primary wage-earner jobs in the County, if forced to relocate, will likely be forced to leave the County. For this reason, industries operating upon industrial zoned properties must be afforded reasonable opportunity to exercise the rights/privileges conferred upon them by their zoning. Whenever the allowable noise levels herein fall subject to interpretation relative to industrial activities, the benefit of the doubt shall be afforded to the industrial use. Where an industrial use is subject to infrequent and unplanned upset or breakdown of operations resulting in increased noise emissions, where such upsets and breakdowns are reasonable considering the type of industry, and where the industrial use exercises due diligence in preventing as well as correcting such upsets and breakdowns, noise generated during such upsets and breakdowns shall not be included in calculations to determine conformance with allowable noise levels.
 - 2 Interior spaces are defined as any locations where some degree of noise-sensitivity exists. Examples include all habitable rooms of residences, and areas where communication and speech intelligibility are essential, such as classrooms and offices.
 - 3 Noise from industrial operations may be difficult to mitigate in a cost-effective manner. In recognition of this fact, the exterior noise standards for residential zone districts immediately adjacent to industrial, limited industrial, industrial park, and industrial reserve zone districts have been increased by 10 dB as compared to residential districts adjacent to other land uses. For purposes of the Noise Element, residential zone districts are defined to include the following zoning classifications: AR, R-1, R-2, R-3, FR, RP, TR-1, TR-2, TR-3, and TR-4.
 - 4 Where a residential zone district is located within an -SP combining district, the exterior noise level standards are applied at the outer boundary of the -SP district. If an existing industrial operation within an -SP district is expanded or modified, the noise level standards at the outer boundary of the -SP district may be increased as described above in these standards. Where a new residential use is proposed in an -SP zone, an Administrative Review Permit is required, which may require mitigation measures at the residence for noise levels existing and/or allowed by use permit as described under "NOTES," above, in these standards.
 - 5 State of the art should include the use of modern equipment with lower noise emissions, site design, and plant orientation to mitigate offsite noise impacts, and similar methodology.
 - 6 Normally, agricultural uses are noise insensitive and will be treated in this way. However, conflicts with agricultural noise emissions can occur where single-family residences exist within agricultural zone districts. Therefore, where effects of agricultural noise upon residences located in these agricultural zones is a concern, an L_{dn} of 70 dBA will be considered acceptable outdoor exposure at a residence.

Source: Placer County General Plan Noise Element.

Goal 9.A To protect County residents from the harmful and annoying effects of exposure to excessive noise.

Policy 9.A.1 New development of noise-sensitive uses shall not be permitted where the noise level due to non-transportation noise sources will exceed the noise level standards of Table 9-1 as measured immediately within the property line of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in Table 9-1.

Policy 9.A.2 Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table 9-1 as measured immediately within the property line of lands

designated for noise-sensitive uses: provided, however, the noise created by occasional events occurring within a stadium on land zoned for university purposes may temporarily exceed these standards as provided in an approved Specific Plan.

- Policy 9.A.5** Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table 9-1 at existing or planned noise-sensitive uses, the County shall require submission of an acoustical analysis as part of the environmental review process so that noise mitigation may be included in the project design. The requirements for the content of an acoustical analysis are listed in Table 9-2.
- Policy 9.A.6** The feasibility of proposed projects with respect to existing and future transportation noise levels shall be evaluated by comparison to Figure 9-1.
- Policy 9.A.7** The County shall purchase only new equipment and vehicles which comply with noise level performance standards based upon the best available noise reduction technology.
- Policy 9.A.8** New development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources, including airports, which exceed the levels as specified in Table 9-1, unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table 9-1.
- Policy 9.A.9** Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table 9-1 at outdoor activity areas or interior spaces of existing noise-sensitive land uses.
- Policy 9.A.12** Where noise mitigation measures are required to achieve the standards of Tables 14 and 9-1, the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall be considered as a means of achieving the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project.

Placer County Airport Land Use Compatibility Plan

The project site is located within the jurisdiction of the Placer County Airport Land Use Compatibility Plan (ALUCP), which addresses land uses surrounding airports within Placer County (Placer County Airport Land Use Commission 2014). The Auburn Municipal Airport is located approximately 1.25 miles from the project site. The Auburn Compatibility Map designates the northeastern corner of the PCGC campus as Zone C2, and majority of the remainder of the project site as Zone D. The southwestern corner of the site is not included in any of the aircraft overflight zones.

The ALUCP defines Compatibility Zone C2 as an area routinely overflown by aircraft approaching and departing the Airport, but less frequently or at higher altitudes than the areas within Compatibility Zone C1. Zone C2 contains the north-side traffic pattern plus additional areas on the south-side of the Airport where aircraft fly wide traffic patterns and within the common arrival and departure corridor to the west. Compatibility Zone C2 also encompasses the outer portions of Handbook Safety Zone 6 and remaining portions of the CNEL 55 dB contour. Annoyance associated with aircraft overflights is the major concern within Compatibility Zone C2 as aircraft typically overfly these areas at an altitude of 1,000 to 1,500 feet above ground level on visual approaches or as low as 601 feet above the airport elevation under when utilizing the circle to land procedure. Noise from individual aircraft overflights may adversely affect certain land uses. Safety is a concern only with regard to uses involving high concentrations of people and particularly risk-sensitive uses such as schools and hospitals (Placer County Airport Land Use Commission 2014).

The ALUCP defines Compatibility Zone D as including areas sometimes overflown by aircraft arriving and departing the Airport. Hazards to flight are the only compatibility concern. The outer limits of the zone coincide with the outer edge of the conical surface defined by FAR Part 77 for the Airport. Except on high terrain, height limits are no less than 150 feet within this area (Placer County Airport Land Use Commission 2014).

Placer County Noise Ordinance

Section 9.36.060 of the Placer County Code (Noise Ordinance) establishes sound level standards for noise-sensitive receptors. The specific language of that section which would be applicable to this project is provided below:

9.36.030 Exemptions.

A. Sound or noise emanating from the following sources and activities are exempt from the provisions of this title:

1. Sound sources typically associated with residential uses (e.g., children at play, air conditioners in good working order, etc.);

2. Sound sources associated with property maintenance (e.g., lawn mowers, edgers, snow blowers, blowers, pool pumps, power tools, etc.) provided such activities take place between the hours of seven a.m. and nine p.m.;
3. Safety, warning and alarm devices, including house and car alarms, and other warning devices that are designed to protect the health, safety and welfare, provided such devices are not negligently maintained or operated;
4. The normal operation of public and private schools typically consisting of classes and other school-sponsored activities;
5. Maintenance (e.g., lawn mowers, edgers, aerators, blowers, etc.) of golf courses, provided such activities take place between the hours of five a.m. and nine p.m. May through September, and seven a.m. and six p.m. October through April;
6. Emergencies, involving the execution of the duties of duly authorized governmental personnel and others providing emergency response to the general public, including but not limited to sworn peace officers, emergency personnel, utility personnel, and the operation of emergency response vehicles and equipment;
7. Construction (e.g., construction, alteration or repair activities) between the hours of six a.m. and eight p.m. Monday through Friday, and between the hours of eight a.m. and eight p. m. Saturday and Sunday provided, however, that all construction equipment shall be fitted with factory installed muffling devices and that all construction equipment shall be maintained in good working order;
8. Infrequent repair, rebuilding, reconstruction or dismantling of any motor vehicle between the hours of eight a.m. and eight p.m.;
9. Sound sources associated with agricultural operations on agricultural land, as defined by Placer County Code Article 5.24.040, which are carried out in any manner consistent with the practice and within the standards of the agricultural industry. This includes without limitation all mechanical devices, apparatus or equipment utilized for the protection or salvage of agricultural crops during periods of adverse weather conditions or when the use of mobile sources is necessary for pest control;
10. Sound sources associated with existing legal non-conforming and/or existing permitted commercial, industrial or non-profit operations, which do not significantly change in existing on-site activities, or result in a change in the number of days or daily hours of operation;
11. Gunfire occurring while hunting consistent with all state laws on private property shall be allowed;
12. Animal noise (These noises are handled elsewhere in the code.);

13. Any vehicle, otherwise compliant with state law, being operated upon any public highway, street or right-of-way or driveway for the purpose of exiting or entering property. This exception does not include any amplified sound emanating from the vehicle, vehicle alarms or horn-honking. (Ord. 5294-B, 2004; Ord. 5280-B, 2004)

9.36.060 Sound limits for sensitive receptors

- A. It is unlawful for any person at any location to create any sound, or to allow the creation of any sound, on property owned, leased, occupied or otherwise controlled by such person that:
1. Causes the exterior sound levels when measured at the property line of any affected sensitive receptor to exceed the ambient sound level by five (5) dBA, or
 2. Exceeds the sound level standards as set forth in Table 1, whichever is the greater. B. Each of the sound level standards specified in Table 1 shall be reduced by five (5) dB for simple tone noises, consisting of speech and music. However, in no case shall the sound level standard be lower than the ambient sound level plus five (5) dB. C. If the intruding sound source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient sound level can be measured, the sound level measured while the source is in operation shall be compared directly to the sound level standards of Table 1.

**Placer County Noise Ordinance Table 1
Sound Level Standards (On-site)**

Sound Level Descriptor	Daytime (7 am to 10 pm)	Nighttime (10 pm to 7 am)
Hourly Leq, dB	55	45
Maximum level, (Lmax) dB	70	65

Per Section 9.36.030 of the Placer County Code (Exemptions), sound or noise emanating from construction activities between the hours of 6 AM and 8 PM Monday through Friday, and between the hours of 8 AM and 8 PM Saturday and Sunday provided that all construction equipment shall be fitted with factory installed muffling devices and that all construction equipment shall be maintained in good working order; shall be exempt from Section 9.36.060 of the Placer County Code Noise Ordinance.

Per Section 9.36.030 of the Placer County Code (Exemptions), sound or noise emanating from construction activities between the hours of 6 AM and 8 PM Monday through Friday, and between the hours of 8 AM and 8 PM Saturday and Sunday provided that all construction equipment shall be fitted with factory installed muffling devices and that all construction equipment shall be maintained in good working order; shall be exempt from Section 9.36.060 of the Placer County Code Noise Ordinance.

11.3 PROJECT IMPACTS

Significance Criteria

The significance criteria used to evaluate the project impacts related to noise are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to noise would occur if the project would:

1. 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.
2. Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
3. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
4. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
5. Be 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, and if so, the project would expose people residing or working in the project area to excessive noise levels.
6. Be within the vicinity of a private airstrip, and if so, the project would expose people residing or working in the project area to excessive noise levels.

Impact Analysis

Impact 11-1

	Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies or a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?		
	<i>PCGC Master Plan Update</i>	<i>Health and Human Services Building</i>	<i>Multifamily Residential Project</i>
Level of Significance:	Less than Significant	Less than Significant	Less than Significant
Mitigation Measures:	None required	None required	None required
Significance after Mitigation:	Less than Significant	Less than Significant	Less than Significant

PCGC Master Plan Update

Transportation Noise Exposure

The primary noise-related effect that most non-industrial projects produce is a potential for on-site and off-site increases in traffic, which is the main source of noise in most urban areas. As discussed in Section 4.2, acoustical calculations were performed to determine the existing traffic levels and their contribution to the ambient or community noise level.

Traffic Noise Generation

Preparation of the Noise Assessment Technical Report for the PCGC Master Plan Update (Appendix F) included modeling the noise levels expected to occur in the project area based on the volume of traffic that would be generated by the proposed PCGC Master Plan Update, as determined in the project's Transportation Impact Study (Appendix E). Table 11-8 shows the results of the traffic noise modeling for the Existing and Existing with Master Plan Build-out traffic.

**Table 11-8
Existing Traffic Noise Modeling Results at Representative Receivers**

Receiver Location/Description	Traffic Noise CNEL (dBA)		Increase	Significant Impact?
	<i>Existing</i>	<i>Existing Plus PCGC Master Plan Update</i>		
M01 – The Gathering Inn, Yolo Community Care Continuum (Building 503)	41	42	1	No
M02 – Women's Emergency Shelter (Building 504)	41	42	1.1	No

**Table 11-8
Existing Traffic Noise Modeling Results at Representative Receivers**

Receiver Location/Description	Traffic Noise CNEL (dBA)		Increase	Significant Impact?
	Existing	Existing Plus PCGC Master Plan Update		
M03 - Juvenile Detention Center (Building 530)	43	44	0.9	No
M04 - Main Jail (Building 520)	45	46	0.9	No
M05 - Emergency Shelter (Building 303)	45	46	0.9	No
M06 - Health and Human Services Department	43	44	0.9	No
M07 - Vacant	44	45	0.7	No
M08 - Vacant	45	46	0.7	No
M09 - Foothill Center for Spiritual Living	45	46	1	No
M10 - Vacant	46	47	1	No
M11 - Auburn Grace Community Church	45	46	1.3	No
M12 - Residential neighborhood on Bell	65	67	2	No
M13 - Residential neighborhood on Wilson	58	59	1.3	No
M14 - Oakwood Assisted Living	48	50	1.3	No
M15 - Solstice Senior Living on Blue Oak	49	50	1.3	No
M16 - Medical offices located north of Bell	60	62	1.4	No
M17 - Rock Creek School	54	56	1.2	No
M18 - Medical offices on Professional D	49	50	1.2	No
M19 - Sierra Council on Alcoholism Treatment Center	51	52	0.6	No
M20 - Residences on Cottage Drive	47	48	0.6	No
M21 - St. Joseph's Catholic School	51	52	0.9	No
M22 - Residential neighborhoods on Atwood	60	61	1	No
M23 - Auburn Elementary School	42	42	0.7	No
M24 - Bell's Preschool and Daycare	52	53	0.9	No
M25 - Residence	50	51	0.9	No
M26 - Atwood Rd North Residence	58	59	0.8	No

Source: Appendix F

As shown in Table 11-8, the increase in noise levels due to implementation of the PCGC Master Plan Update at each modelled receiver location is 2 dB or less and the proposed project would not cause noise levels at any modelled receiver locations that are currently below 60 dBA CNEL to increase to levels greater than 60 dBA CNEL. In the three locations where the existing noise level is at or above 60 dBA, a noise level of increase of 3 dB would be necessary to cause a significant impact; in all locations where the existing noise level is less than 60 dB, a significant impact would occur when noise levels are increased by 5 dB. Because all of the noise level increases due to the project would be 2 dB or less, the impacts of the proposed PCGC Master Plan Update related to increased traffic noise would be **less than significant**.

General Operational Noise

Implementation of the proposed PCGC Master Plan Update would also result in changes to existing noise levels on the project site by developing new stationary sources of noise. The Placer County Noise Ordinance exempts sound sources typically associated with residential uses. These sound sources include children at play and air conditioners in good working order. Furthermore, sound sources associated with property maintenance such as landscaping maintenance tools and pool pumps are also exempt between 7:00 a.m. and 9:00 p.m. The Placer County Noise Ordinance also exempts sound sources associated with operation of mechanical equipment (such as heating and air conditioning units) from the noise level limits. Thus, noise impacts from operation of the land uses anticipated to be developed under the PCGC Master Plan Update would be **less than significant**.

Health and Human Services Building

The proposed Health and Human Services building would be located on County Center Drive between B Avenue and C Avenue. Upon construction, approximately 430 existing Health and Human Services employees would be located here; many of these employees are currently located in the existing buildings within the PCGC campus. The building would accommodate up to 577 employees and would provide a wide range of services to the public. The new traffic trips associated with operation of the Health and Human Services building were included in the trip generation assumptions for the PCGC Master Plan Update. As the analysis in the previous PCGC Master Plan Update section demonstrates, build-out of the master plan, including construction of the Health and Human Services building, would result in a **less than significant** increase in noise levels in the project vicinity.

Multifamily Residential Project

The proposed Multifamily Residential project would develop up to 100 multifamily dwelling units at 1st Street and B Avenue. The new traffic trips associated with operation of the Multifamily Residential project were included in the trip generation assumptions for the PCGC Master Plan Update. As the analysis in the previous PCGC Master Plan Update section demonstrates, build-out of the master plan, including construction of the Multifamily Residential project, would result in a **less than significant** increase in noise levels in the project vicinity.

Impact 11-2	Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?		
	<i>PCGC Master Plan Update</i>	<i>Health and Human Services Building</i>	<i>Multifamily Residential Project</i>
Level of Significance:	Less than Significant	Less than Significant	Less than Significant
Mitigation Measures:	None required	None required	None required
Significance after Mitigation:	Less than Significant	Less than Significant	Less than Significant

PCGC Master Plan Update

It is not expected that any of the land uses that would be developed onsite under the PCGC Master Plan Update would include any heavy rotating equipment or impact equipment. Thus, significant groundborne vibration is not expected as a result of the proposed project and the primary sources of groundborne vibration for the PCGC Master Plan Update are demolition and construction activity.

The main concern associated with ground-borne vibration is annoyance; however, in extreme cases, vibration can cause damage to buildings, particularly those that are old or otherwise fragile. Some common sources of ground-borne vibration are trains, and construction activities such as blasting, pile-driving, and heavy earth-moving equipment.

According to Caltrans, the highest measured vibration level during highway construction was 2.88 inches/second PPV at 10 feet from a pavement breaker. Other typical construction activities and equipment, such as D-8 and D-9 Caterpillars, earthmovers, and trucks have not exceeded 0.10 inches/second PPV at 10 feet. Vibration sensitive instruments and operations may require special consideration during construction. Vibration criteria for sensitive equipment and operations are not defined and are often case-specific. As a guide, major construction activity within 200 feet and pile driving within 600 feet may be potentially disruptive to sensitive operations (Caltrans 2002 as cited in Appendix F). No pile driving is anticipated to be necessary for project development.

The heavier pieces of construction equipment used at this site would include dozers, graders, and pavers. Ground-borne vibration information related to construction activities has been collected by the California Department of Transportation (Caltrans). Based on published vibration data, the anticipated construction equipment would generate a peak particle velocity of approximately 0.09 inch/second or less at a distance of 25 feet (Appendix F).

Information from Caltrans indicates that continuous vibrations with a peak particle velocity of approximately 0.1 inch/second begin to annoy people. Ground-borne vibration is typically attenuated over short distances.

Table 11-9 shows a construction vibration impact summary for the project based on the FTA’s 2006 Noise and Vibration Manual data and methodology. The equipment is shown along with the reference data (PPVref) from the Manual. Calculations were conducted to assess the vibration PPV at 150ft. The 150 foot distance specifically addresses construction vibration that maybe produced during the multifamily residential project. Typical vibration impact are expected to be intermittent and usually less than the PPV shown in the table due to additional distance separating construction efforts and sensitive receptors (Appendix F).

Table 11-9
Construction Vibration PPV
(inches per second)

Equipment	PPV		
	At 25 feet	At 50 feet	At 150 feet
Vibratory Roller	0.21	0.10	0.01
Large Bulldozer	0.89	0.42	0.06
Loaded Trucks	0.76	0.35	0.05
Small Bulldozer	0.003	0.00	0.00

Source: Appendix F

The calculated PPV at 150 feet is below the 0.2 in/s threshold established by Caltrans. Based on the FTA vibration analysis, the construction vibration impact on the commercial buildings nearby to the multifamily residential project would be **less than significant**. At greater distances between construction activity and typical sensitive receptors, PPV would be further reduced.

The same analysis applies to the master plan, assuming major construction work does not happen within 150 feet of vibration sensitive receptors. Typically, vibration sensitive receptors would be greater than 150 feet from construction operations. At greater than 150 feet from construction activities, vibration impacts are expected to be less than significant.

Health and Human Services Building

The proposed Health and Human Services building would be located on County Center Drive between B Avenue and C Avenue. Upon construction, approximately 435 existing Health and Human Services employees would be located here; many of these employees are currently located in the existing buildings on this project site and other locations within the PCGC campus. The building would accommodate up to 577 employees and would provide a wide range of services to the public. The new traffic trips associated with operation of the Health and Human Services building was included in the trip generation assumptions for the PCGC Master Plan Update. As the analysis in the previous PCGC Master Plan Update section demonstrates, build-out of the master plan,

including construction of the Health and Human Services building, would result in a **less than significant** increase in noise levels in the project vicinity.

Multifamily Residential Project

The proposed Multifamily Residential project would develop up to 100 multifamily dwelling units at 1st Street and B Avenue. The new traffic trips associated with operation of the Multifamily Residential project was included in the trip generation assumptions for the PCGC Master Plan Update. As the analysis in the previous PCGC Master Plan Update section demonstrates, build-out of the master plan, including construction of the Multifamily Residential project, would result in a **less than significant** increase in noise levels in the project vicinity.

Impact 11-3	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?		
	<i>PCGC Master Plan Update</i>	<i>Health and Human Services Building</i>	<i>Multifamily Residential Project</i>
Level of Significance:	Potentially Significant	Less than Significant	Significant
Mitigation Measures:	Mitigation Measure 11a	None required	Mitigation Measure 11b
Significance after Mitigation:	Less than Significant	Less than Significant	Less than Significant

PCGC Master Plan Update

Construction Noise Analysis

Construction of the development allowed under the proposed PCGC Master Plan Update would generate noise that could expose nearby receptors to elevated noise levels that may disrupt communication and routine activities. The magnitude of the impact would depend on the type of construction activity, equipment, duration of the construction, distance between the noise source and receiver, and intervening structures. This analysis discusses the noise levels calculated to result from construction of the project, at nearby sensitive receptors (i.e., residences, professional offices, and medical facilities).

Construction noise is a temporary phenomenon. Construction noise levels will vary from hour to hour and day to day, depending on the equipment in use, the operations being performed, and the distance between the source and receptor.

Development that could result from the implementation of the Plan would result in construction of buildings, as well as the demolition or retrofitting of existing buildings and structures in the Placer Government Center. Such demolition and construction activities could be located near existing or future

residential or other noise-sensitive land uses. Increased ambient noise levels from construction would be short-term (based on a specific project’s schedule) and intermittent.

The Federal Highway Administration (FHWA) has developed the Roadway Construction Noise Model (RCNM) (FHWA 2008 as cited in Appendix F) software, which can be used to evaluate construction noise from any major construction proposal. RCNM contains a large database of construction equipment, including noise generation level and load factor (percentage of time each piece of equipment is active on a typical construction site).

Construction noise is difficult to quantify because of the many variables involved, including the specific equipment types, size of equipment used, percentage of time in use, condition of each piece of equipment, and number of pieces of equipment that will actually operate on site. The construction vehicle assemblage would include standard equipment such as dozers, tractors, loaders, backhoes, excavators, graders, scrapers, trenchers, lifts, paving equipment, rollers, compressors, and miscellaneous trucks. Specified and measured noise level ranges for various pieces of construction equipment at a distance of 50 feet are presented in Table 11-10. The noise values presented are used as reference noise data for respective equipment in RCNM. The construction equipment is expected to be spread out over the entire site, with some equipment operating along the perimeter of the site while the rest of the equipment may be located several hundred feet farther away from the noise sensitive receptors.

**Table 11-10
Typical Construction Equipment Noise Levels**

Equipment Description	Acoustical Use Factor (%)	Measured L_{max} @50ft (dBA, slow)
All Other Equipment > 5 HP (spec)	50	85
Auger Drill Rig	20	84
Backhoe	40	78
Compactor (ground)	20	83
Compressor (air)	40	78
Concrete Saw	20	90
Crane	16	81
Dozer	40	82
Dump Truck	40	76
Excavator	40	81
Flat Bed Truck	40	74
Front End Loader	40	79
Generator	50	81
Generator (<25KVA, VMS signs)	50	73
Gradall	40	83
Grader *(spec)	40	85

**Table 11-10
Typical Construction Equipment Noise Levels**

Equipment Description	Acoustical Use Factor (%)	Measured L _{max} @50ft (dBA, slow)
Man Lift	20	75
Paver	50	77
Pickup Truck	40	75
Pneumatic Tools	50	85
Pumps	50	81
Roller	20	80
Scraper	40	84
Tractor *(spec)	40	84
Warning Horn	5	83
Welder / Torch	40	74

* (spec) indicates that the L_{max} is based on common specifications for this equipment, not measured data.

Source: Appendix F.

As an example, the piece of equipment with the highest noise level shown in Table 11-10 is the concrete saw with a maximum level of 90 dBA at 50 feet. At 100 feet, the expected maximum noise level would drop to 84 dBA.

Construction is generally expected to occur only during the allowable hours and would therefore be exempt from the sound level standards as detailed in Section 9.36.030 of the Placer County Code. Despite this exemption, depending on the nature and location of individual construction projects there is a potential for noise-sensitive receptors in the project vicinity to be exposed to high levels of noise during the daytime construction hours. Therefore, short-term construction noise remains a potentially significant impact because it has the potential to cause produce noise levels greater than 5 dBA over ambient community noise levels at noise sensitive receptors. For example, construction activities in the Mixed Use Area in the southeast portion of the PCGC property could expose the residential neighborhood on Cottage Drive to substantial periodic noise increases. Mitigation Measure 11a requires that a project specific analysis be performed for each individual construction project located within 200 feet of residential, professional office, and/or medical service land uses to determine the likely noise levels at noise-sensitive uses and identify appropriate noise reduction measures to minimize noise exposure.

Construction Roadway Noise

During construction, workers and equipment will utilize the roadway network to access the project sites. However, the number of worker vehicles and delivery trucks associated with the construction are not anticipated to represent more than a small percentage of the total daily trips related to

normal operations in the area. The project construction would therefore result in less than significant traffic noise impacts.

Health and Human Services Building

Construction of the Health and Human Services Building is expected to include demolition, site preparation, grading, paving, building construction, and architectural coating. Construction equipment with substantially higher noise-generation characteristics (such as pile drivers, rock drills, blasting equipment) would not be necessary. Table 11-11 shows the expected equipment use by phase for the construction of the project.

**Table 11-11
Typical Construction Equipment Usage**

Construction Phase Name	Equipment	Number of Pieces of Equipment
Demolition	Concrete/Industrial Saws	1
Demolition	Excavators	3
Demolition	Rubber Tired Dozers	2
Site Preparation	Rubber Tired Dozers	3
Site Preparation	Tractors/Loaders/Backhoes	4
Grading	Excavators	2
Grading	Graders	1
Grading	Rubber Tired Dozers	1
Grading	Scrapers	2
Grading	Tractors/Loaders/Backhoes	2
Paving	Pavers	2
Paving	Paving Equipment	2
Paving	Rollers	2
Building Construction	Cranes	1
Building Construction	Forklifts	3
Building Construction	Generator Sets	1
Building Construction	Tractors/Loaders/Backhoes	3
Building Construction	Trenchers	1
Building Construction	Welders	1
Architectural Coating	Air Compressors	1

Source: Appendix G

The magnitude of the impact would depend on the type of construction activity, equipment, duration of the construction phase, distance between the noise source and receiver, and any intervening structures. The typical operating cycles for construction equipment involve one or two minutes of full power operation followed by three or four minutes at lower power settings. Noise from construction

equipment generally exhibits point source acoustical characteristics. A point source sound is attenuated (is reduced) at a rate of 6 decibels per doubling of distance from the source for “hard site” conditions and at 7.5 decibels per doubling of distance for “soft site” conditions. A hard site is characterized by ground surface covered by pavement, or hard compacted soils; a soft site is characterized by ground covered with vegetation, or loose soil with a rough surface.

Table 11-12 shows the calculated noise levels at nearby noise-sensitive receptors during construction phases for this project, employing the RCNM software and based on construction equipment listed in Table 11-11. The noise levels shown in Table 11-12 take into account operation of multiple pieces of construction equipment simultaneously for the Leq results. More details from the RCNM analysis can be found in Appendix F. Because of stringent air quality emissions standards, newer, cleaner, and quieter heavy equipment is used on most construction projects in California. Thus, construction phase noise levels indicated in Table 11-12 represent worst-case conditions.

Worst-case conditions occur when construction is happening near the project boundary within 100 feet of noise-sensitive receptors. Typical conditions represent noise levels if construction were being conducted near the center of the project site.

Table 11-12
Health and Human Services Building
Construction Noise Modeling Summary Results

Construction Phase	Leq (dBA) at 100 feet
Demolition	60
Site Preparation	60
Grading	62
Paving	60
Building Construction	59
Architectural Coating	48

Source: Appendix F

As the table shows, the highest noise levels are expected to occur during the Grading and Paving Phases. Construction-related noise levels could reach up to 62 dBA Leq for noise-sensitive office uses (buildings 208, 209, and 210, which house County staff from the Administrative Services, Department of Public Works Facility Services Division, Placer County Sheriff’s Office) and institutional-residential uses to the south. As shown in Table 11-12, construction of the Health and Human Services building would result in construction noise levels not much greater than ambient levels, and consequently would have a less than significant construction noise impact.

Multifamily Residential Project

Construction of the Multifamily Residential project located at 1st Street and B Avenue is expected to include site preparation, grading, paving, building construction, and architectural coating. Construction equipment with substantially higher noise-generation characteristics (such as pile drivers, rock drills, blasting equipment) would not be necessary. Table 11-13 shows the expected equipment use by phase for the construction of the project.

Table 11-13
Typical Construction Equipment Usage

Construction Phase Name	Equipment	Number of Pieces of Equipment
Site Preparation	Rubber Tired Dozers	3
Site Preparation	Tractors/Loaders/Backhoes	4
Grading	Excavators	2
Grading	Graders	1
Grading	Rubber Tired Dozers	1
Grading	Scrapers	2
Grading	Tractors/Loaders/Backhoes	2
Paving	Pavers	2
Paving	Paving Equipment	2
Paving	Rollers	2
Building Construction	Cranes	1
Building Construction	Forklifts	3
Building Construction	Generator Sets	1
Building Construction	Tractors/Loaders/Backhoes	3
Building Construction	Trenchers	1
Building Construction	Welders	1
Architectural Coating	Air Compressors	1

Source: Appendix G

Table 11-14 shows the calculated noise levels at nearby noise-sensitive receptors during construction phases for this project, employing the RCNM software and based on construction equipment listed in Table 11-13. The noise levels shown in Table 11-14 take into account operation of multiple pieces of construction equipment simultaneously for the Leq results. More details from the RCNM analysis can be found in Appendix F. Because of stringent air quality emissions standards, newer, cleaner, and quieter heavy equipment is used on most construction projects in California. Thus, construction phase noise levels indicated in Table 11-14 represent worst-case conditions.

Worst-case conditions occur when construction is happening near the project boundary closest to the noise sensitive receptors (such as the “Nearest Receiver” column). The closest receiver is the office

buildings directly east of the multifamily residential project which would be about 150 feet from the closest construction activities. Typical conditions represent noise levels if construction were being conducted near the center of the project site. Residences and medical facilities on the north side of Bell Road and the northern end of Professional Drive are the “Typical Receivers.”

**Table 11-14
Multifamily Residential Construction Noise Modeling Summary Results**

Construction Phase	Leq (dBA)	
	Nearest Receiver 150'	Typical Receiver 230'
Site Preparation	74	72
Grading	76	75
Paving	76	73
Building Construction	74	72
Architectural Coating	64	60

Source: Appendix F

As Table 11-14 shows, the highest noise levels are expected to occur during the Grading and Paving Phases. Construction-related noise levels could reach up to 76 dBA Leq at the existing medical office on Professional Drive when construction occurs in the southern portion of the Multifamily Residential site. Table 11-2 shows the Leq in close proximity to Bell Road at ST5. Measured traffic noise at this location was 60 dBA. LT4 on Table 11-3 shows average daytime hourly Leq in the vicinity of the Multifamily Residential project are 57 dBA. Thus, construction noise levels could be approximately 15 dBA above ambient noise levels at the closest sensitive receptor in the worst case situations. Typically, construction noise levels will be less than the worst-case. Typical construction noise levels would be 1 to 4 dB lower for the different phases of construction of the Multifamily Residential project. As shown in Table 11-1, typical noise reduction from exterior to interior of office buildings with windows closed is 25 dB. Thus the interior noise levels at the offices closest to the Multifamily Residential project would be 51 dB. This noise level exceeds the allowable interior noise levels for offices established by the Placer County General Plan. To ensure that construction noise does not substantially interfere with operations at the adjacent medical office, Mitigation Measure 11b requires that the Multifamily Residential project implement noise reduction measures. With implementation of Mitigation Measure 11b, construction of the Multifamily Residential project would have a less-than-significant impact on nearby sensitive receptors.

Impact 19-4	Would the project expose people residing or working in the project area to excessive noise levels associated with the proximity of the site to a public or private airport or airstrip?		
	<i>PCGC Master Plan Update</i>	<i>Health and Human Services Building</i>	<i>Multifamily Residential Project</i>
Level of Significance:	Less than Significant	Less than Significant	Less than Significant
Mitigation Measures:	None required	None required	None required
Significance after Mitigation:	Less than Significant	Less than Significant	Less than Significant

PCGC Master Plan Update

The project site is located approximately 1.25 miles from the Auburn Municipal Airport, outside the 55 dB CNEL contour, but within the “Airport Influence Area” as designated on Exhibit 7D in the Airport Land Use Compatibility Plan (Placer County Airport Land Use Commission 2014). There are no private airstrips in the vicinity of the project site.

The State of California (California Code of Regulations Title 21) and the FAA (Part 150 Regulation) consider sound levels less than 65 dB CNEL to be compatible with all land uses. Therefore, the project would not expose people residing or working in the project site to excessive noise levels from Auburn Municipal Airport and the impact is considered **less than significant**.

Health and Human Services Building

The proposed Health and Human Services building would be located in Zone D of the Auburn Municipal Airport Land Use Compatibility Plan. This site is outside of the 55 dB CNEL contour. The State of California (California Code of Regulations Title 21) and the FAA (Part 150 Regulation) consider sound levels less than 65 dB CNEL to be compatible with all land uses. Therefore, the project would not expose people residing or working in the project site to excessive noise levels from Auburn Municipal Airport and the impact is considered less than significant.

Multifamily Residential Project

The proposed Multifamily Residential project would be located in Zone C2 of the Auburn Municipal Airport Land Use Compatibility Plan. This site is outside of the 55 dB CNEL contour. The State of California (California Code of Regulations Title 21) and the FAA (Part 150 Regulation) consider sound levels less than 65 dB CNEL to be compatible with all land uses. Therefore, the project would not expose people residing or working in the project site to excessive noise levels from Auburn Municipal Airport and the impact is considered less than significant.

Impact 11-5	Would the project make a cumulatively considerable contribution to increases in noise levels in the cumulative scenario?		
	<i>PCGC Master Plan Update</i>	<i>Health and Human Services Building</i>	<i>Multifamily Residential Project</i>
Level of Significance:	Less than Significant	Less than Significant	Less than Significant
Mitigation Measures:	None required	None required	None required
Significance after Mitigation:	Less than Significant	Less than Significant	Less than Significant

PCGC Master Plan Update

Noise levels tend to diminish quickly with distance from a source; therefore, the geographic scope for the analysis of cumulative impacts related to noise is limited to locations within proximity to noise-generating operational components and construction equipment. Table 11-15 shows the results of the traffic noise modeling for the Future and Future with PCGC Master Plan Update Build-out traffic.

Table 11-15
Cumulative Traffic Noise Model Results at Representative Receivers

Receiver Location/Description	Traffic Noise CNEL (dBA)		Increase	Significant Impact?
	<i>Cumulative</i>	<i>Cumulative Plus Master Plan Build Out</i>		
M01 – The Gathering Inn, Yolo Community Care Continuum (Building 504)	42	43	0.7	No
M02 – Women’s Emergency Shelter (Building 503)	42	43	0.7	No
M03 - Juvenile Detention Center (Building 530)	44	44	0.7	No
M04 - Main Jail (Building 520)	46	47	0.8	No
M05 - Emergency Shelter (Building 303)	46	46	0.7	No
M06 - Health and Human Services Department	44	45	0.6	No
M07 - Vacant	45	45	0.5	No
M08 - Vacant	46	46	0.4	No
M09 - Foothill Center for Spiritual Living	46	47	0.7	No
M10 - Vacant	46	47	0.7	No
M11 - Auburn Grace Community Church	46	46	0.7	No
M12 - Residential neighborhoods on Bell	66	67	0.9	No
M13 - Residential neighborhood on Wilson	59	60	0.9	No
M14 - Oakwood Assisted Living	49	50	0.8	No
M15 - Solstice Senior Living on Blue Oak	50	51	0.7	No

Table 11-15
Cumulative Traffic Noise Model Results at Representative Receivers

Receiver Location/Description	Traffic Noise CNEL (dBA)		Increase	Significant Impact?
	Cumulative	Cumulative Plus Master Plan Build Out		
M16 - Medical offices located north of Bell	61	62	0.9	No
M17 - Rock Creek School	55	56	0.7	No
M18 - Medical offices on Professional D	50	50	0.6	No
M19 - Sierra Council on Alcoholism Treatment Center	52	52	0.3	No
M20 - Residences on Cottage Drive	48	48	0.4	No
M21 - St. Joseph's Catholic School	51	52	0.8	No
M22 - Residential neighborhoods on Atwood	61	62	0.8	No
M23 - Auburn Elementary School	42	43	0.6	No
M24 - Bell's Preschool and Daycare	53	54	0.8	No
M25 - Residence	51	52	0.8	No
M26 - Atwood Rd North Residence	59	60	0.7	No

Source: Appendix F

No noise levels at modeled receivers would go from below 60 dBA CNEL to greater than 60 dBA CNEL due to the project in the cumulative traffic scenarios. Additionally, the increases due build-out of the PCGC Master Plan Update are all less than 1 dB in the cumulative traffic scenario. Thus, no significant cumulative traffic noise impacts are expected from build-out of the PCGC Master Plan Update, when compared to traffic noise levels from cumulative projects in the region absent the Master Plan.

With no cumulative significant impacts due to build-out of the PCGC Master Plan Update, the Health and Human Services Building Project and the Multifamily Project are also expected to have a less than significant traffic-related noise impact when viewed in the context of noise levels from cumulative projects traffic in the region.

Health and Human Services Building

Traffic Noise Exposure

The proposed new Health and Human Services building would allow the County to consolidate the six Health and Human Services divisions (i.e., Administration, Adult System of Care, Children's System of Care, Environmental Health, Human Services, and Public Health) in a single location. Building space would include a main lobby, conference and team rooms, open and private

office areas, training and interview rooms, storage and work rooms, break rooms, central storage, and a receiving area. Outdoor spaces for the facility would include patios, a play area, a garden, and a service/loading dock.

With an outdoor play area and garden part of this project, some project areas would be considered noise sensitive. Thus, the project site could experience potentially significant traffic noise exposure impacts from vicinity roadways. The cumulative plus PCGC Master Plan Update build-out traffic scenario provides the most distant horizon year traffic data that can be used to assess the potential for on-site traffic noise exposure impacts.

Table 11-16 shows the results of the traffic noise modeling for the Health and Human Services project site.

Table 11-16
Health and Human Services
Cumulative Traffic Noise Model Results at Representative Receivers

Receiver Name	Cumulative Plus Master Plan Build-Out CNEL dBA
MHHS1 - South Corner	45
MHHS2 - West Corner	44
MHHS3 - North Corner	45
MHHS4 - East Corner	45

Source: Appendix F

As shown in Table 11-16, the noise modeling indicates that traffic noise in the cumulative plus PCGC Master Plan build-out traffic scenario at the Health and Human Services Project site is expected to be less than 60 dBA. Thus, traffic noise exposure at the Health and Human Services building would meet the County's standard for professional office and recreation land uses and this impact would remain less than significant.

Multifamily Residential Project

Traffic Noise Exposure

As a residential development, the Multifamily Residential project located at 1st Street and B Avenue is considered a noise sensitive receptor. Thus, the potential exists for exposure of future residents to traffic noise levels that exceed allowable limits in the Noise Element, thereby constituting a potentially significant noise impact. The cumulative plus PCGC Master Plan Update build-out traffic scenario provides the most distant horizon year traffic data that can be used to assess the potential for on-site traffic noise impacts.

Table 11-17 shows the results of the traffic noise modeling for the multifamily residential project site.

Table 11-17
Multifamily Residential
Cumulative Traffic Noise Model Results at Representative Receivers

Receiver Name	Cumulative Plus Master Plan Build-Out CNEL dBA
M-MFR01 - Building Facade	51
M-MFR02 - Northwest Corner Parking Lot	51
M-MFR03 - Middle Building	47
M-MFR04 - Middle Parking Lot	48

Source: Appendix F

As shown in Table 11-17, the noise modeling indicates that traffic noise in the cumulative plus PCGC Master Plan build-out traffic scenario at the Multifamily Residential project site is expected to be less than 60 dBA. Thus, traffic noise exposure at the Multifamily Residential project would meet the County’s standard for residential land uses and this impact would remain less than significant.

11.4 MITIGATION MEASURES

Mitigation Measure 11a Prior to approval of Improvement Plans or issuance of grading permits for any project construction that would occur within 200 feet of on-site or off-site sensitive receptors, the County or project applicant shall prepare construction noise modeling that documents the existing Community Noise Environment Level at the sensitive receptor locations, provides a construction schedule and anticipated equipment usage, and calculates construction noise levels at the property line adjacent to the nearest sensitive receptors. Where construction noise would exceed the existing Community Noise Environment Level by 5 dBA or more, the construction noise modeling shall recommend specific noise attenuation measures to be implemented during construction sufficient to reduce noise exposure to sensitive receptors to a maximum of 5 dBA above the existing Community Noise Environment Level. Noise attenuation measures may include:

1. Stipulating that construction activities shall comply with the Placer County Noise Ordinance.
2. Locating fixed construction equipment, such as compressors and generators, as far away from sensitive receptors as is feasible.

3. Using appropriate shielding and muffling for impact tools and the intake and exhaust ports of powered construction equipment
4. Appointing a disturbance coordinator for the project site who would receive any public noise-related complaints about construction equipment and practices. The disturbance coordinator shall be responsible for determining the cause of the complaint(s) and the implementation of any feasible measures to alleviate the complaint(s). The disturbance coordinator's contact information shall be posted throughout the site and adjacent public spaces.
5. Placing or constructing temporary or permanent noise barriers between the construction site and the sensitive receptors.

Mitigation Measure 11b Prior to approval of Improvement Plans for the Multifamily Residential project, Placer County shall ensure that the grading and building plans incorporate the following requirements:

1. Materials stockpiles and equipment staging areas shall be located a minimum of 200 feet from the nearest façade of the medical offices located on Professional Drive. Where feasible, fixed construction equipment shall also be located a minimum of 200 feet from the nearest façade of the medical offices located on Professional Drive.
2. Impact tools shall be shielded or shrouded and the intake and exhaust ports of powered construction equipment shall be muffled or shielded.
3. Place a temporary noise barrier between grading and paving activities and equipment and the medical offices located at 3111 Professional Drive. The barrier shall be sufficient to achieve a 6 dB reduction in construction noise. Retain this temporary barrier in place during other construction phases or place a temporary noise barrier around all stationary and fixed equipment located within 200 feet of the nearest façade of the medical offices located on Professional Drive.

11.5 REFERENCES CITED

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County of Placer. 2013. Placer County General Plan, Noise Section, update 2013.

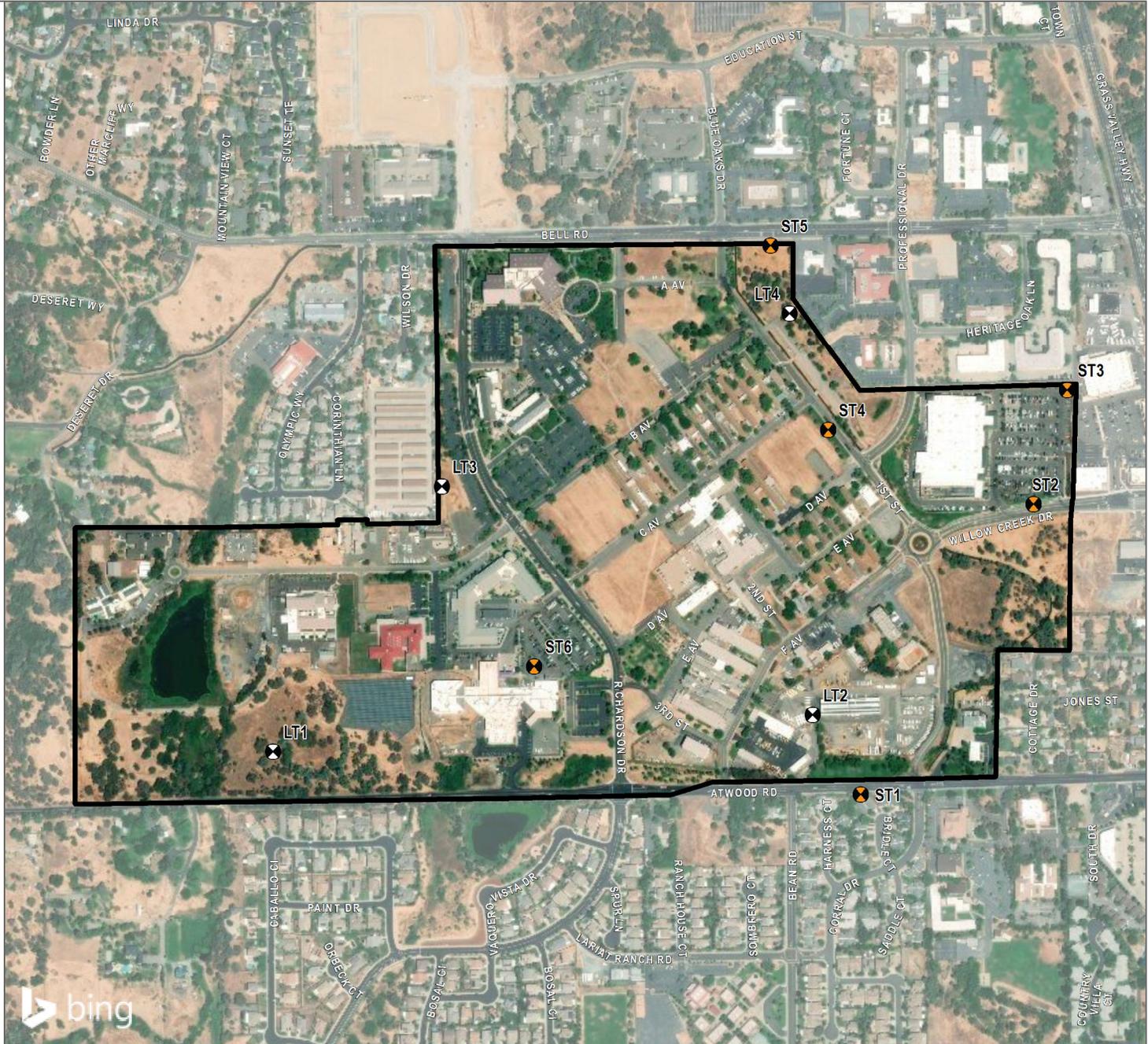
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Placer County Airport Land Use Commission. 2014. *Placer County Airport Land Use Compatibility Plan*. Prepared by Mead & Hunt. February 26, 2014.

OPR (Governor’s Office of Planning and Research). 2003. *State of California General Plan Guidelines*. October 2003.

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-  Placer County Government Center Property
-  Long-term Noise Measurement Location
 - LT1 - Future residential
 - LT2 - Corporate yard
 - LT3 - Richardson Drive
 - LT4 - 1st Street
-  Short-term Noise Measurement Location
 - ST1 - Atwood Road
 - ST2 - Willow Creek
 - ST3 - Home Depot parking lot
 - ST4 - 1st Street
 - ST5 - Bell Road
 - ST6 - Sheriff



SOURCE: Bing Maps 2018; Placer County 2016

FIGURE 11-1
Noise Measurement Locations
 Placer County Government Center Master Plan Update

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-  Plan Area Boundary
-  Noise Modeling Location (General Plan)
 - M1 - The Gathering Inn, Yolo Community Care Continuum
 - M2 - Women's Emergency Shelter
 - M3 - Juvenile Detention Center
 - M4 - Auburn Main Jail
 - M5 - Homeless shelter
 - M6 - Health & Human Services Department
 - M7 - Vacant
 - M8 - Vacant
 - M9 - Foothill Center for Spiritual Living
 - M10 - Vacant
 - M11 - Auburn Grace Community Church
 - M12 - Residential neighborhood on Bell Road
 - M13 - Residential neighborhood on Wilson Drive
 - M14 - Oakwood Assisted Living
 - M15 - Solstice Senior Living on Blue Oaks Drive
 - M16 - Medical offices located north of Bell Road
 - M17 - Rock Creek Elementary School
 - M18 - Medical offices on Professional Drive
 - M19 - Sierra Council on Alcoholism Treatment Center
 - M20 - Residential neighborhood on Cottage Drive
 - M21 - St. Joseph's Catholic School
 - M22 - Residential neighborhood on Atwood Road
 - M23 - Auburn Elementary School
 - M24 - Bell's Preschool & Daycare
 - M25 - Residential neighborhood on Richardson Drive
 - M26 - Residence on Atwood Road
-  Noise Modeling Location (Project Specific)
 - M-HHS1 - South corner
 - M-HHS2 - West corner
 - M-HHS3 - North corner
 - M-HHS4 - East corner
 - M-MFR1 - Building facade
 - M-MFR2 - Northwest corner parking lot
 - M-MFR4 - Middle parking lot
 - M-MFR3 - Middle building



SOURCE: Bing Maps 2018; Placer County 2016

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