APPENDIX F
Noise Technical Report

Palomar Community College District
South Education Center Project

NOISE TECHNICAL REPORT

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1.0 Executive Summary

This report assesses potential noise and vibration impacts associated with the implementation of the Palomar Community College District (PCCD) South Education Center Project, herein referred to as the project. The project consists of an approximately 27-acre property in the city of San Diego, San Diego County, situated approximately 0.8 miles west of Interstate (I) 15 on the south side of Rancho Bernardo Road. This report examines the impacts of the proposed project on noise-sensitive uses in the area and identifies mitigation measures where feasible to address significant noise impacts.

Implementation of the project would not result in excessive noise levels or excessive groundborne vibration. The increase in traffic noise associated with the renovated facilities would not result in a significant direct or cumulative impact. Short-term noise increases from construction equipment would not violate the City's noise ordinance. The project and surrounding area would not be exposed to excessive noise from the nearest airport.

2.0 Project Description

Figure 1, Project Area, illustrates the project's location and surrounding uses. The PCCD South Education Center property is a 27-acre property located at 11111 Rancho Bernardo Road within the Rancho Bernardo community in the City of San Diego, situated approximately 0.8 miles west of Interstate (I) 15 on the south side of Rancho Bernardo Road. In 2003, PCCD prepared a comprehensive educational and facilities master plan, known as the PCCD Master Plan 2022. In May 2010, the PCCD Educational Master Plan Update was completed that revised the educational component of Master Plan 2022 and provided a current perspective, incorporating changes that occurred within the PCCD and the program of instruction over the elapsed seven years. In order to accommodate the PCCD's future academic space needs, the Educational Master Plan Update identifies the PCCD South Education Center as one of two new educational centers in the PCCD. In 2010, the PCCD acquired the 27-acre property at 11111 Rancho Bernardo Road as the future site for the PCCD South Education Center. The site is currently developed with a graded pad containing an unfinished light industrial park which consists of a four-story, 110,000-square foot building accompanied by a detached four-level, 574-space parking structure and 218-space surface parking lot.

The proposed project would convert the existing building into a comprehensive community college education center; construct an approximately 1,238 foot-long looped road connecting the existing parking lot to the existing parking structure; implement drainage improvements; and install walkways, hardscape areas, and landscaping. Figure 2, Proposed PCCD South Education Center Site Plan, provides a photo simulation of the proposed site plan, including the southeasterly and westerly building elevations, parking areas, landscaping, and proposed looped road.

Conversion of the existing building would include construction of three four-story stairwells and interior tenant improvements to create an education center that meets the facility and space needs identified in the Educational Master Plan Update. The education center building is proposed to include the following: 1,000 assignable square feet (ASF) of lobby; 37,470 ASF of academic (lecture and laboratory); 4,600 ASF of faculty offices and support; 10,290 ASF of library resource and instructional support lab; 1,250 ASF of division offices and support; 4,666 ASF of student support services; 5,480 ASF of merchandizing and food services; 1,900 ASF of physical plant facilities and support; 869 ASF of security; and 730 ASF of information systems.

Source: GoogleEarthPro, Atkins 2015

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FIGURE 1
Project Area

Source: LPA 2014

FIGURE 2
Site Plan

3.0 Environmental Setting

3.1 Noise Basics

Quantification of Noise

Noise is commonly defined as unwanted sound. Sound pressure magnitude is measured and quantified using a logarithmic ratio of pressures, the scale of which gives the level of sound in decibels (dB). Sound pressures in the environment have a wide range of values and the sound pressure level was developed as a convenience in describing this range as a logarithm of the sound pressure. The sound pressure level is the logarithm of the ratio of the unknown sound pressure to a reference quantity of the same kind. To account for the pitch of sounds and the corresponding sensitivity of human hearing to them, the raw sound pressure level is adjusted with an A-weighting scheme based on frequency that is stated in units of decibels (dBA). Typical A-weighted noise levels are listed in Table 1.

Table 1 Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: Caltrans 1998.

A given level of noise may be more or less tolerable depending on the sound level, duration of exposure, character of the noise sources, the time of day during which the noise is experienced, and the activity affected by the noise. For example, noise that occurs at night tends to be more disturbing than that which occurs during the day because sleep may be disturbed. Additionally, rest at night is a critical requirement in the recovery from exposure to high noise levels during the day. In consideration of these factors,

different measures of noise exposure have been developed to quantify the extent of the effects anticipated from these activities. For example, some indices consider the 24-hour noise environment of a location by using a weighted average to estimate its habitability on a long term basis. Other measures consider portions of the day and evaluate the nearby activities affected by it as well as the noise sources. The most commonly used indices for measuring community noise levels are the Equivalent Energy Level (Leq), and the Community Noise Equivalent Level (CNEL).

Leq, the Equivalent Energy Level, is the average acoustical or sound energy content of noise, measured during a prescribed period, such as 1 minute, 15 minutes, 1 hour, or 8 hours. It is the decibel sound level that contains an equal amount of energy as a fluctuating sound level over a given period of time.

CNEL, Community Noise Equivalent Level, is the average equivalent A-weighted sound level over a 24-hour period. This measurement applies weights to noise levels during evening and nighttime hours to compensate for the increased disturbance response of people at those times. CNEL is the equivalent sound level for a 24-hour period with a +5 dBA weighting applied to all sound occurring between 7:00 p.m. and 10:00 p.m. and a +10 dBA weighting applied to all sound occurring between 10:00 p.m. and 7:00 a.m. Similar to the CNEL, Ldn, the day-night average noise level, is a 24-hour average Leq with a +10 dBA weighting applied to noise during the hours of 10:00 p.m. to 7:00 a.m. Ldn and CNEL are typically within one dBA of each other and, for most intents and purposes, are interchangeable.

The decibel level of a sound decreases (or attenuates) exponentially as the distance from the source of that sound increases. For a single point source such as a piece of mechanical equipment, the sound level normally decreases by about 6 dBA for each doubling of distance from the source. Sound that originates from a linear, or “line” source such as a heavily traveled traffic corridor, attenuates by approximately 3 dBA per doubling of distance, provided that the surrounding site conditions lack ground effects or obstacles that either scatter or reflect noise. Noise from roadways in environments with major ground effects due to vegetation and loose soils may either absorb or scatter the sound yielding attenuation rates as high as 4.5 dBA for each doubling of distance. Other contributing factors that affect sound reception include meteorological conditions and the presence of manmade obstacles such as buildings and sound barriers.

Noise Effects

Noise has a significant effect on the quality of life. An individual’s reaction to a particular noise depends on many factors such as the source of the noise, its loudness relative to the background noise level, and the time of day. The reaction to noise can also be highly subjective; the perceived effect of a particular noise can vary widely among individuals in a community. Because of the nature of the human ear, a sound must be about 10 dBA greater than the reference sound to be judged as twice as loud. In general, a 5 dBA change in community noise levels is clearly noticeable, and a 3 dBA change is the smallest increment that is perceivable by most receivers. Generally, 1 to 2 dBA changes are not detectable. Although the reaction to noise may vary, it is clear that noise is a significant component of the environment, and excessively noisy conditions can affect an individual’s health and well-being. The effects of noise are often only transitory, but adverse effects can be cumulative with prolonged or repeated exposure. The effects of noise on a community can be organized into six broad categories: sleep disturbance; permanent hearing loss; human performance and behavior; social interaction or communication; extra-auditory health effects; and general annoyance.

3.2 Environmental Vibration Basics

Vibration is defined as any oscillatory motion induced in a structure or mechanical device as a direct result of some type of input excitation. Vibration consists of waves transmitted through solid material. There are several types of wave motion in solids, unlike in air, including compressional, shear, torsional, and bending. The solid medium can be excited by forces, moments, or pressure fields. This leads to the terminology of "structure-borne/ground-borne" vibration.

Vibration energy spreads out as it travels through the ground, causing the vibration amplitude to decrease with distance away from the source. Soil properties also affect the propagation of vibration. When groundborne vibration interacts with a building there is usually a ground-to-foundation coupling loss, but the vibration can also be amplified by the structural resonances of the walls and floors. Vibration in buildings is typically perceived as rattling of windows or items on shelves or the motion of building surfaces. The vibration of building surfaces can also be radiated as sound and heard as a low-frequency rumbling noise, known as groundborne noise.

Ambient and source vibration information for this study are expressed in terms of the peak particle velocity (PPV) in inches per second (in/sec) that correlates best with human perception. The particle velocity is the velocity of the soil particles resulting from a disturbance. Agencies such as California Department of Transportation (Caltrans) use the PPV descriptor because it correlates well with damage or complaints. Caltrans estimates that the threshold of perception is approximately 0.006 in/sec PPV and the level at which continuous vibration begins to annoy people is approximately 0.010 in/sec PPV.

3.3 Regulatory Framework

Federal

Federal Aviation Administration Standards

Enforced by the Federal Aviation Administration (FAA), Code of Federal Regulations (CFR) Title 14, Part 150 prescribes the procedures, standards and methodology governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs, including the process for evaluating and approving or disapproving those programs. Title 14 also identifies those land uses which are normally compatible with various levels of exposure to noise by individuals. The FAA has determined that interior sound levels up to 45 dBA Ldn (or CNEL) are acceptable within residential buildings. The FAA also considers residential land uses to be compatible with exterior noise levels at or less than 65 dBA Ldn (or CNEL).

Federal Highway Administration Standards

CFR Title 23, Part 772 sets procedures for the abatement of highway traffic noise and construction noise. Title 23 is implemented by the Department of Transportation Federal Highway Administration (FHWA). The purpose of this regulation is to provide procedures for noise studies and noise abatement measures to help protect the public health and welfare, to supply noise abatement criteria, and to establish requirements for information to be given to local officials for use in the planning and design of highways. All highway projects which are developed in conformance with this regulation shall be deemed to be in conformance with the Department of Transportation (DOT) Federal Highway Administration Noise Standards. Title 23 establishes 67 dBA as the worst-case hourly average noise level standard for impacts of federal highway projects to land uses including residences, recreational uses, hotels, hospitals, and libraries [23 CFR Chapter 1, Part 772, Section 772.19].

Federal Transit Administration Standards 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 (FRA) have published guidelines for assessing the impacts of groundborne vibration associated with rail projects, which have been applied by other jurisdictions to other types of projects. The FTA measure of the threshold of architectural damage for conventional sensitive structures from groundborne vibration is 0.2 inches/second PPV.

State

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, finds 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 finds that there is 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 Department of Transportation

The California Department of Transportation (Caltrans) provides guidelines for assessing groundborne vibration impacts based on screening distances. According to Caltrans, major construction activity within 200 feet and pile driving within 600 feet of a vibration sensitive use would be potentially disruptive to vibration sensitive operations (Caltrans 2002).

Local

Although the PCCD is constitutionally autonomous and is therefore exempt from municipal regulation, local standards (City of San Diego) may be relevant in establishing guidelines and evaluating impacts. The PCCD typically pursues consistency with local general plans, ordinances, and policies where feasible. Furthermore, City regulations are relevant for addressing impacts to adjacent noise-sensitive land uses located within the City's jurisdiction.

City of San Diego Noise Level Compatibility Standards

The City of San Diego has adopted Noise Level Compatibility Standards in its General Plan for various land uses (Table 2). Based on the City's General Plan noise guidelines, the project would be considered a commercial use.

City of San Diego Noise Ordinance

The City also has a Noise Ordinance that is intended to address impacts from construction, fixed source, and/or operational noise. The City's Noise Ordinance is contained in Chapter V, Article 9.5, Section 59.5.0401 of the *City of San Diego Municipal Code* and contains the maximum one-hour average sound levels for various land uses (see Table 3) for fixed source and/or operational noise.

Table 2 City of San Diego Noise and Land Use Compatibility Guidelines

Land Use	Exterior Noise Exposure (dBA CNEL)					
	50	55	60	65	70	75
Open Space Parks and Recreational						
Community & Neighborhood Parks; Passive Recreation						
Regional Parks; Outdoor Spectator Sports, Golf Courses; Athletic Fields; Outdoor						
Agricultural						
Crop Raising & Farming; Aquaculture, Dairies; Horticulture Nurseries & Greenhouses; Animal Raising, Maintain & Keeping; Commercial Stables						
Residential						
Single Units; Mobile Homes; Senior Housing			45(1)			
Multiple Units; Mixed-Use Commercial/ Residential; Live Work; Group Living Accommodations			45(1)	45(1)		
Institutional						
Hospitals; Nursing Facilities; Intermediate Care Facilities; Kindergarten through Grade 12 Educational Facilities; Libraries; Museums; Places of Worship; Child Care Facilities			45(1)			
Vocational or Professional Educational Facilities; Higher Education Institution Facilities (Community or Junior Colleges, Colleges, or Universities)			45(1)	45(1)		
Cemeteries						
Sales						
Building Supplies/Equipment; Food, Beverages & Groceries; Pets & Pet Supplies; Sundries, Pharmaceutical, & Convenience Sales; Wearing Apparel & Accessories				50(1)	50(1)	
Commercial Services						
Building Services; Business Support; Eating & Drinking; Financial Institutions; Assembly & Entertainment; Radio & Television Studios; Golf Course Support				50(1)	50(1)	
Visitor Accommodations			45(1)	45(1)	45(1)	
Offices						
Business & Professional; Government; Medical, Dental & Health Practitioner; Regional & Corporate Headquarters				50(1)	50(1)	

Compatible

Conditionally Compatible

Incompatible

(1) Indoor compatible noise level

Source: City of San Diego 2008

Table 3 City of San Diego Exterior Noise Level Limits

Land Use Zone	Time of Day	1 Hour Average Sound Level (decibels)
Residential: All R-1 (single family)	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	50 45 40
All R-2 (small multiple-family)	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	55 50 45
R-3, R-4 and all other Residential (large multiple-family)	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	60 55 50
All Commercial	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	65 60 60
Manufacturing all other Industrial, including Agriculture and Extractive Industry	Anytime	75

Source: City of San Diego Noise Ordinance Section 59.5.0401(a) 2005

Section 59.5.0502 of the City's Noise Ordinance established requirements for leaf blowers. Leaf blowers are required not to exceed 65 decibels measured at a distance of 50 feet or greater from the point of noise origin. Leaf blowers must be equipped with functional mufflers and an approved sound-limiting device to ensure that the leaf blower is not capable of generating a sound level that would exceed this noise level limit. Additionally, the operation of leaf blowers is restricted to 8:00 a.m. to 7:00 p.m. on weekdays and 9:00 a.m. to 5:00 p.m. on weekends.

Construction noise is governed by City Noise Ordinance Section 59.5.0404. Relevant portions of this ordinance are cited below.

a. It shall be unlawful for any person, between the hours of 7:00 p.m. of any day and 7:00 a.m. the following day, or on legal holidays as specified in Section 21.04 of the San Diego Municipal Code, with exception of Columbus Day and Washington's Birthday, or on Sundays, to erect, construct, demolish, excavate for, alter or repair any building or structure in such a manner as to create disturbing, excessive, or offensive noise.

b. It shall be unlawful for any person, including the City of San Diego, to conduct any construction activity so as to cause, at or beyond the property lines of any property zoned residential, an average sound level greater than 75 decibels during the 12-hour period from 7:00 a.m. to 7:00 p.m.

Rancho Bernardo Community Plan

The Rancho Bernardo Community Plan serves as a guide for public and private development within the community. It does not include a noise element or any specific guidelines for acceptable noise levels in the community. The Circulation Element does include an objective to ensure that project approvals are conditioned upon provision of noise mitigation measures to achieve compatibility with existing and projected land uses.

3.4 Existing Noise Environment

Existing noise sources that affect the project site are described below.

Operational Noise Sources

The project site is currently developed with a 110,000-square foot building, a parking structure, a surface parking lot, and an access road. The existing building is a "warm shell" with limited interior improvements. It is not in use and does not generate operational noise. The existing access road is blocked. No access is provided to the site and the existing access road and parking facilities do not generate operational noise. A temporary, portable security office is currently located on-site. The facility does not include any noise generating equipment.

The project site is surrounded by single-family residential development to the north, and business park development to the west, south, and east. Businesses in the developments surrounding the site include medical offices, small distribution facilities, and laboratories that do not require machinery that would generate noise levels beyond those typical of general office use. The small distribution facilities would generate heavy duty truck trips on a regular basis, but do not have the loading docks or other access necessary to accommodate the truck traffic typical of a distribution center. General office use and residences are not sources of substantial operational noise. Occasional nuisance noise may result from residences and parking lots, such as loud music or car alarms. Some manufacturing uses are located in the business parks to the east of the site and would have the potential to generate operational noise from the use of heavy machinery. The manufacturing use located closest to the project site is Scripps Mesa Glass, located approximately 680 southwest of the site.

Existing Noise Levels

Ambient sound level surveys were conducted on November 20, 2012 and May 14, 2015 to quantify the noise environment on the project site and in the surrounding area. A total of four measurements were taken. The monitoring locations are shown on Figure 3, Noise Measurement Locations. The measurements were taken during the daytime and were 15 minutes in duration. Larson Davis 820 and 831 ANSI (American National Standards Institute) Type I Integrating Sound Level Meters calibrated with a Larson Davis CAL200 calibrator were used to record ambient sound levels. Weather conditions during the November 2012 measurements were calm with a warm temperature and partly-cloudy to clear skies. Weather conditions during the May 2015 measurements were calm with cool temperatures and cloudy skies. Table 4 summarizes the measured Leq and noise sources for the monitoring locations.

Table 4 Ambient Sound Level Measurements (dBA)

Site	Location	Daytime Noise Sources	Date/Time	Leq	Lmax	Lmin
1	Northwest corner of business park east of the project site (16980 Via Tazon)	Traffic on Rancho Bernardo Road, overhead plane, conversation in parking lot	5-14-2015/ 8:37 a.m.	57.8	78.0	44.9
2	Corner of Olmeda Road and Rancho Bernardo Road in the residential neighborhood north of the project site.	Traffic on Rancho Bernardo Road	5-14-2015/ 9:08 a.m.	62.9	81.4	43.2
3	Corner of Matinal Road and Capilla Road in the residential neighborhood north of the project site.	Traffic on Rancho Bernardo Road and Matinal Road.	5-14-2015/ 9:37 a.m.	59.8	75.4	40.9
4	On the project site, in the existing surface parking lot north of the on-site office structure.	Traffic on Rancho Bernardo Road	11-20-2012 / 11:28 a.m.	52.12	71.15	41.32

Source: Atkins, November 20, 2012 and May 14, 2015; ambient measurements were 15 minutes in duration.

Source: GoogleEarthPro, Atkins 2015

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FIGURE 3

Noise Measurement Locations

The results of the ambient noise surveys reflect noise levels that range between 52 dBA on the project site, and 63 dBA Leq adjacent to Rancho Bernardo Road. The primary noise source at all locations was traffic on Rancho Bernardo Road. The San Diego General Plan considers noise levels up to 60 dBA CNEL to be compatible, and noise levels up to 65 dBA CNEL conditionally compatible, with single-family residences. Noise levels up to 70 dBA are considered compatible with higher education institutional facilities. Noise levels up to 65 dBA CNEL are considered compatible with commercial and office development, with noise levels up to 75 dBA CNEL considered conditionally acceptable. Based on the City of San Diego noise compatibility guidelines, ambient noise levels measured within the project site are compatible with existing land uses on the project site and surrounding area, with the exception of the residences adjacent to Rancho Bernardo Road. Measured noise levels at the residences closest to Ranch Bernardo Road exceed the compatibility guideline of 60 dBA CNEL, but are within the conditionally compatible guideline of 65 dBA.

Transportation Noise Sources

Aviation

The nearest airport to the project site is Marine Corps Air Station (MCAS) Miramar, located approximately 12 miles south of the project site in the City of San Diego. The airport is operated by the U.S. Marine Corps. The airport is a military installation. It is designated as a master jet facility and serves both fixed and rotary-wing aircraft. According the Airport Land Use Compatibility Plan (ALUCP) for MCAS Miramar, the airfield is currently authorized for 112,242 annual aircraft operations (SDCRAA 2011). Due to distance, the project site is not located within the 60 dBA CNEL noise contour for the airport, or within the airport's area of influence.

Roadways

The project site is situated on Rancho Bernardo Road between Matinal Road and Olmeda Way. The park is approximately 0.8 mile west of I-15. An existing access driveway at the intersection of Rancho Bernardo Road and Matinal Road provides the only vehicular access to the project site. Table 5 shows the existing noise levels generated by the roadways surrounding the project site. As shown in Table 5, all segments of Rancho Bernardo Road currently generate noise levels at 50 feet from the roadway centerline that exceed 60 dBA CNEL, the noise compatibility standard for residences, and the noise compatibility standard of 70 dBA for higher education use. Noise levels on West Bernardo Drive exceed the noise compatibility standard of 65 dBA for commercial and office use, but do not exceed the conditionally compatible noise standard of 75 dBA. The noise level on Via Del Campo does not exceed the noise compatibility standard for office or commercial use, or for higher education use.

Table 5 Existing Roadway Noise Levels

Roadway	Segment	Existing Average Daily Trips	Noise Level at 50 feet from Roadway Centerline (dBA CNEL)
Rancho Bernardo Road	Camino San Bernardo Road to Via Del Campo	26,840	73
	Via Del Campo to Matinal Road	27,710	73
	Matinal Road to West Bernado Drive	27,850	73
	West Bernardo Drive to I-15 SB Ramps	46,260	78
West Bernardo Drive	Via Del Campo to Bernardo Center Drive	13,200	68
Via Del Campo	Rancho Bernardo Road to West Bernardo Drive	4,880	62

Source: LLG 2015 (traffic data); FHWA 2004 (noise level estimates).
See Appendix A, Noise Data, for noise model assumptions and output.

Railroads

The Rancho Bernardo community is not serviced by a railroad line. The closest rail line is the SPRINTER light rail line. The eastern terminus of the line is located approximately seven miles north of the project site in the City of Escondido. According to noise technical report prepared for the City of Escondido General Plan Update (Atkins 2011), the 60 dBA CNEL noise contour for the SPRINTER is 50 feet from the track alignment.

Noise Sensitive Land Uses

Noise sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise, such as residences, schools, hospitals, libraries, parks, and places of worship. Industrial and commercial land uses are generally not considered sensitive to noise. The term "noise receptor" is often used to represent a specific location where individuals would be exposed to noise, such as a specific residence. The nearest NSLU to the project site are the residences located north of the project site across Rancho Bernardo Road. The remaining land uses in the project area include office and commercial uses that are not considered noise sensitive.

Vibration Sensitive Land Uses

Land uses in which groundborne vibration could potentially interfere with operations or equipment, such as research, manufacturing, hospitals, and university research operations (FTA 2006) are considered "vibration-sensitive." The degree of sensitivity depends on the specific equipment that would be affected by the groundborne vibration. Excessive levels of groundborne vibration of either a regular or an intermittent nature can result in annoyance to residential uses. The business parks to the east of the project site include several vibration sensitive land uses, including laboratories, medical offices, and manufacturing facilities. The nearest vibration sensitive land use to the project site is the Sharp Rees-Stealy Rancho Bernardo Urgent Care Center, located approximately 330 feet east of the project site. Medical offices often include equipment that may be sensitive to excessive groundborne vibration. Two laboratories are located approximately 520 and 580 feet east of the project site, and the Scripps Mesa Glass manufacturing business is located approximately 680 feet east of the project site.

4.0 Methodology and Significance Criteria

4.1 Methodology

Excessive Noise Levels

Impacts related to potential exposure of NSLU to excessive noise levels as a result of the operation of the project are assessed based on a comparison of the proposed facilities to the noise levels potentially generated by existing off-site noise sources. Estimated noise levels are based on a variety of sources, including noise technical reports for similar facilities. Noise levels at a particular receptor from a stationary noise source are based on an attenuation rate of 6 dBA for every doubling of distance. Traffic noise levels are calculated for post-project traffic volumes along roadway segments in the project vicinity using standard noise modeling equations adapted from the FHWA noise prediction model. The modeling calculations take into account the posted vehicle speed, average daily traffic volume, and the estimated vehicle mix. The noise model assumes that roadways would experience a decrease of approximately 3 dBA for every doubling of distance from the roadway. The traffic volumes are based on the project-specific traffic study prepared for the PCCD South Education Center by Linscott, Law and Greenspan (LLG 2015).

Groundborne Vibration

Groundborne vibration impacts are assessed based on screening distances determined by Caltrans. According to Caltrans, major construction activity within 200 feet may be potentially disruptive to sensitive operations (Caltrans 2002).

Permanent Increase in Ambient Noise

The potential for implementation of the project to permanently increase ambient noise levels as a result of increased traffic noise is assessed using standard noise modeling equations adapted from the FHWA noise prediction model and the traffic impact analysis, as described above in Section 4.1.1. Other potential sources of operational noise from the project are addressed under Issue 1, Excessive Noise Levels.

Temporary Increase in Ambient Noise

Impacts related to temporary increases in ambient noise levels from construction of the proposed project loop road are assessed using estimates of sound levels from typical construction equipment provided by the FHWA in the Roadway Construction Noise Model (FHWA 2008), assuming an attenuation rate of 6 dBA per doubling of distance from the source.

Aircraft Noise

Impacts related to aircraft noise are assessed based on the ALUCP for MCAS Miramar (SDCRAA 2011).

4.2 Significance Criteria

Based on Appendix G of the CEQA Guidelines and the City of San Diego CEQA Thresholds, implementation of the project would result in a significant adverse impact if it would:

- **Threshold 1:** Expose persons to or generate noise levels in excess of standards established in the San Diego General Plan or noise ordinance, or applicable standards of other agencies.

- **Threshold 2:** Expose persons to or generation of excessive groundborne vibration or groundborne noise levels, which is defined as groundborne vibration equal to or in excess of 0.2 in/sec PPV. Construction activities within 200 feet and pile driving within 600 feet of a vibration sensitive use would be potentially disruptive to vibration-sensitive operations (Caltrans 2002).
- **Threshold 3:** Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. A substantial permanent increase in traffic noise would occur if the project exceeds the significance thresholds listed in Table 6.
- **Threshold 4:** Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. Construction activity would be considered significant if it violates the limits established in the City of San Diego Noise Ordinance. Construction noise would be considered significant if it would exceed an average sound level greater than 75 dBA during the 12-hour period from 7:00 a.m. to 7:00 p.m. In addition, construction activity is prohibited between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal holidays and Sundays.
- **Threshold 5:** For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public use airport or private airstrip, expose people residing or working in the project area to excessive noise.

Table 6 City of San Diego Traffic Noise Significance Thresholds

Structure or Proposed Use that would be Impacted by Traffic Noise	Interior Space (dBA CNEL)	Exterior Useable Space (dBA CNEL) [1]
Single-Family Detached Residences	45 dBA	65 dBA
Multi-Family Residences, Schools, Libraries, Hospitals, Day Care, Hotels, Motels, Parks, Convalescent Homes	45 dBA	65 dBA
Offices, Churched, Business, Professional Uses	N/A	70 dBA
Commercial, Retail, Industrial, Outdoor Spectator Sports Uses	N/A	75 dBA

(1) If the existing noise level is currently at or exceeds the significance thresholds for traffic noise, an increase in noise level of 3 dBA or more would be considered a significant impact.

Source: City of San Diego 2011

5.0 Impact Analysis and Mitigation Measures

5.1 Issue 1: Excessive Noise Levels

Impact Analysis

The implementation of the PCCD South Education Center renovations would have the potential to generate noise levels in excess of established standards by developing new stationary sources of noise and by increasing human activity throughout the project site. Potential noise generating facilities on site include the parking lot and outdoor activity areas. This section addresses the potential for sensitive receptors to be exposed to excessive noise levels from proposed educational facilities. Potential impacts are discussed below by noise source, followed by a discussion of overall noise and the potential for noise-sensitive receptors at surrounding areas to be exposed to excessive noise levels from the project. The PCCD South Education Center operating hours would be from 7:00 a.m. to 10:00 p.m. Monday thru Friday. The park would be subject to the City's nighttime noise limits between 10:00 p.m. and 7:00 a.m., the daytime limits between 7:00 a.m. and 7:00 p.m., and evening limits between 7:00 p.m. and 10:00 p.m. The potential for a permanent increase in noise levels that would occur as a result of increased traffic on roadways is addressed in Section 5.1.3, Issue 3: Substantial Permanent Increase in Noise Levels.

The PCCD South Education Center exterior areas are situated in the southern and northern portions of the project site. The site is currently partially developed for an office use with a parking garage and main building. Proposed improvements include the installation of walking paths, landscaping, and drainage. The existing 574 space parking structure and 218 surface parking spaces would remain in place. The walking paths would be passive uses that would generally not generate noise levels beyond normal conversation. The noise level for normal conversation is approximately 65 dBA at three feet and would not exceed 50 dBA more than 20 feet from the source (Caltrans 1998). These passive uses are separated from all NSLU by at least 500 feet due to roadways and landscaping. Therefore, these uses would not result in a new source of noise with the potential to exceed the City's noise limits and a significant impact would not occur.

Noise sources from parking areas include car alarms, door slams, radios, and tire squeals. These sources typically range from about 30 to 66 dBA at a distance of 100 feet (Gordon Bricken & Associates 1996), and are generally short-term and intermittent. However, noise sources from the parking areas would be different from each other in kind, duration, and location, so that the overall effects would be separate and in most cases would not affect noise-sensitive receptors at the same time. Therefore, noise generated from the parking spaces throughout the park would be less than significant. Implementation of the PCCD South Education Center renovations would not expose NSLU to excessive noise levels and a significant impact would not occur.

In addition to the uses proposed above, the exterior areas as a whole would require regular landscape maintenance. Landscaping would require the use of powered equipment that would have the potential to generate excessive noise levels. However, landscape equipment would be subject to Section 10.80.101 of the City's noise ordinance. The ordinance prohibits operation of landscaping equipment between the hours of 7:00 p.m. and 7:00 a.m. during Pacific Standard Time and between 8:00 p.m. and 7:00 a.m. during Pacific Daylight Savings Time. All landscaping power equipment is required to conform to the City's noise limitations listed in Table 3. Therefore, compliance with the City's noise ordinance would ensure that landscaping activities would not result in a new source of excessive noise levels. Impacts would be less than significant.

Mechanical HVAC equipment is typically located on the ground or on rooftops of buildings and would have the potential to generate noise levels that average 65 dBA at a distance of 50 feet, and may run continuously during the day and night. Depending on where it is located, HVAC equipment could have the potential to generate noise that would exceed the City's hourly exterior noise limit for adjacent residences of 50 dBA during daytime hours, 45 dBA during evening hours, and 40 dBA at night, or the daytime limit of 60 dBA for commercial uses. For a single point source such as a piece of mechanical equipment, the sound level normally decreases by about 6 dBA for each doubling of distance from the source. The nearest residential NSLU with exterior uses is approximately 585 feet from the center of the existing structure. Existing HVAC systems located on the rooftop are shielded by mechanical screening. Accounting for the distance to the nearest residential NSLU and partial shielding from mechanical screening, HVAC noise levels would not exceed the City's nighttime standard of 40 dBA. Impacts would be less than significant.

As described above the proposed uses for the PCCD South Education Center are passive and would not generate substantial operational noise. Noise from human activity, which would generally consist of normal conversation, would be scattered throughout the exterior areas and would not combine to generate higher noise levels. HVAC equipment would create a new source of noise; however, compliance with the City's noise ordinance would ensure that noise is not excessive and would not substantially disturb residents. Therefore, impacts would be less than significant.

Impacts to On-Site Uses

The project site is surrounded by commercial and residential development. General office use, churches, and residences are not sources of substantial operational or mechanical noise. Occasional nuisance noise may result from residences and the parking lots, such as loud music or car alarms. Daytime noise levels on the project site was measured at 52 dBA Leq (see Table 4), and traffic noise levels on the roadways surrounding the project site would not exceed 65 dBA CNEL when propagated onto the project site. These ambient noise levels comply with the City's noise compatibility standard of 65 dBA CNEL for professional education facilities. Therefore, implementation of the project would not result in the exposure of the new NSLU to excessive noise levels. Impacts would be less than significant.

Mitigation Measures

Implementation of the project would not result in significant impacts related to excessive noise levels. No mitigation is required.

5.2 Issue 2: Groundborne Vibration

Impact Analysis

The main concerns associated with groundborne vibration from this type of project are annoyance and damage; however, vibration-sensitive instruments and operations, such as those found in hospitals and laboratories, can be disrupted at much lower levels than would typically affect other uses. In extreme cases, the vibration can cause damage to buildings, particularly those that are old or otherwise fragile. No vibration-sensitive land uses are proposed as part of the project or currently exist on the project site. Therefore, this analysis focuses on the potential for the project to generate vibration at surrounding medical, laboratory, educational, and religious uses. Construction of the looped road would require grading, but not deep excavation, and therefore it is assumed that blasting would not occur on the project site.

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. In general, the criteria must be determined based on manufacturer specifications and recommendations by the equipment user. As a guide, major construction activity within 200 feet may be potentially disruptive to sensitive operations (Caltrans 2002).

Construction Vibration

The nearest existing vibration-sensitive land uses to potential heavy duty equipment operation areas on the project site are medical, laboratory, educational, and religious uses to the south of the project site and residential uses to the north of the project site. The nearest of these uses is currently 100 feet from the nearest project boundary line, but more than 200 feet from the center of primary heavy duty equipment operation areas. Vibration levels attributable to heavy duty construction equipment decrease rapidly as they spread through the ground from the source. Vibration levels from the heaviest piece of equipment would attenuate to 0.191 PPV and 69 VdB at 100 feet, which would comply with applicable vibration standards at adjacent uses. Therefore, impacts attributable to heavy duty construction equipment vibration would be less than significant.

Mitigation Measures

Implementation of the project would not result in significant impacts related to groundborne vibration. No mitigation is required.

Significance After Mitigation

Impacts related to groundborne vibration would be less than significant without mitigation.

Cumulative Impacts

Similar to noise effects, vibration is a localized phenomenon and is progressively reduced as the distance from the source increases. Therefore, the area of projects that would be considered for the vibration cumulative analysis would be only those projects close to the project site. There are no approved, planned or foreseeable projects in the vicinity that would generate similar vibration. Therefore, vibration generated by construction on the project site and other sites would not combine to generate cumulative vibration impacts. Once constructed, the proposed land use would not generate a significant source of vibration during normal operation. Therefore, a significant cumulative vibration impact would not occur.

5.3 Issue 3: Substantial Permanent Increase in Ambient Noise Levels

Impact Analysis

This section addresses the potential for implementation of the PCCD South Education Center to permanently increase ambient noise levels as a result of increased traffic noise. The potential for other noise sources associated with project implementation to result in increases in noise levels that would expose NSLU to excessive noise levels is addressed in Section 5.1.1, Issue 1: Excessive Noise Levels.

The potential for the project to permanently increase traffic noise is addressed under the following scenarios: near-term and future (Year 2035). Traffic volumes for each roadway are included in Appendix

A. Noise levels for area roadways were calculated using standard noise modeling equations adapted from the FHWA noise prediction model. The modeling calculations take into account the posted vehicle speed, average daily traffic volume, and the estimated vehicle mix. The estimates are conservative because the model does not take into account buildings or topography that would provide noise attenuation. Noise levels at distances further from the source than the specific receptor would be lower due to attenuation provided by increased distance from the noise source. Generally, noise from heavily traveled roadways would experience a decrease of approximately 3 dBA for every doubling of distance from the roadway.

Near-Term Scenario

Existing and near-term increases in traffic, with and without the project, are provided in Table 7. As shown in Table 7, in the near-term all modeled segments of Rancho Bernardo Road would continue to generate noise levels that exceed the applicable noise threshold from Table 6, either 65 dBA CNEL for residences or 70 dBA CNEL standards for offices and professional uses. West Bernardo Drive and Via Del Campo would not exceed the 70 dBA CNEL threshold for office and professional uses. With implementation of the proposed project, noise levels along Rancho Bernardo Road would continue to meet or exceed the applicable noise compatibility threshold. However, the project would not result in any discernable increase in noise level compared to existing conditions or conditions without the proposed project. The project would also not result in any increase in noise level on Via Del Campo or West Bernardo Drive. Therefore, the project would not result in a significant traffic noise impact under the Near-Term + Project scenario.

Table 7 Near-Term + Project Traffic Noise Levels

Roadway/Segment	Applicable Threshold	Existing	Near Term (No Project)	Exceeds Threshold without Project?	Near Term + Project	Increase in Noise Level	Significant Impact?
Rancho Bernardo Road / Camino San Bernardo Road to Via Del Campo	70	73	73	Yes	74	1	No
Rancho Bernardo Road / Via Del Campo to Matinal Road	65	73	74	Yes	74	0	No
Rancho Bernardo Road / Matinal Road to West Bernardo Drive	65	73	74	Yes	74	0	No
Rancho Bernardo Road / West Bernardo Drive to I-15 SB Ramps	65	78	78	Yes	79	1	No
West Bernardo Drive / Via Del Campo to Bernardo Center Drive	70	68	68	No	68	0	No
Via Del Campo / Rancho Bernardo Road to West Bernardo Drive	70	62	62	No	62	0	No

Note: Noise levels are calculated at 50 feet from roadway centerline. Noise levels are based upon traffic data provided by LLG (2015). Traffic levels for each roadway are included in Appendix G, Traffic Impact Analysis, of this EIR.
Decibel levels are rounded to the nearest whole number. See Appendix A report, Noise Data, for the data sheets.

Future (Year 2035) Scenario

The Future (Year 2035) scenario includes buildout of the project as well as the cumulative growth and development in the Rancho Bernardo Community anticipated by the Year 2035. Future increases in traffic, with and without the project, are provided in Table 8. As shown in Table 8, modeled segments of Rancho

Bernardo Road would continue to exceed the applicable thresholds for residences and offices without implementation of the project. West Bernardo Drive and Via Del Campo would not exceed the 70 dBA CNEL threshold for office and professional uses without the project. Implementation of the project would not result in a discernable increase in noise levels along any of the modeled roadway segments when compared with existing conditions or future conditions without the project. Therefore, the project would not result in a significant impact.

Mitigation Measures

Implementation of the project would not result in a significant increase in traffic noise levels in the project vicinity. No mitigation is required.

Significance After Mitigation

Impacts related to permanent increases in ambient noise levels would be less than significant without mitigation.

Table 8 Future (Year 2035) Traffic Noise Levels

Roadway/Segment	Applicable Threshold	Future	Exceeds Threshold without Project?	Future + Project	Increase in Noise Level	Significant Impact?
Rancho Bernardo Road / Camino San Bernardo Road to Via Del Campo	70	74	Yes	74	0	No
Rancho Bernardo Road / Via Del Campo to Matinal Road	65	74	Yes	74	0	No
Rancho Bernardo Road / Matinal Road to West Bernardo Drive	65	74	Yes	74	0	No
Rancho Bernardo Road / West Bernardo Drive to I-15 SB Ramps	65	78	Yes	79	1	No
West Bernardo Drive / Via Del Campo to Bernardo Center Drive	70	69	No	69	0	No
Via Del Campo / Rancho Bernardo Road to West Bernardo Drive	70	63	No	63	0	No

Note: Noise levels are calculated at 50 feet from roadway centerline. Noise levels are based upon traffic data provided by LLG (2015). Traffic levels for each roadway are included in Appendix G, Traffic Impact Analysis, of this EIR.
Decibel levels are rounded to the nearest whole number. See Appendix A of this report, Noise Data, for data sheets.

Cumulative Impacts

Buildout of the proposed project, along with future cumulative growth in the Rancho Bernardo community, would result in increases in traffic that would cumulatively increase traffic noise. A significant cumulative impact would occur if the project, in combination with the other cumulative projects, would cause a roadway to exceed the City's noise compatibility standard for adjacent land uses. The potential noise impacts that would result from cumulative projects and cumulative growth are included in the Future (Year 2035) scenario. Table 9 compares Future (Year 2035) traffic noise levels to existing conditions. As shown in Table 9, noise levels along Rancho Bernardo Road would exceed the applicable noise threshold under the existing and future scenarios, and noise level would increase by 1 dBA CNEL in

the future. A future increase in noise level would also occur on West Bernardo Road and Via Del Campo; however, noise levels would not exceed the 70 dBA CNEL threshold for office and professional uses. Additionally, none of the increases in noise level would be substantially attributable to the proposed project. A cumulative impact associated with cumulative traffic noise would not occur on the area roadways.

5.4 Issue 4: Construction Noise

Impact Analysis

Construction of the facilities proposed the PCCD South Education Center would generate noise that could expose nearby NSLU 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 phase, distance between the noise source and receiver, and intervening structures. Sound levels from typical construction equipment range from 60 dBA to 90 dBA Leq at 50 feet from the source (FHWA 2008). Noise from construction equipment generally exhibits point source acoustical characteristics. Strictly speaking, a point source sound decays at a rate of 6 dBA per doubling of distance from the source. The rule applies to the propagation of sound waves with no ground interaction.

Table 9 Cumulative Traffic Noise Impacts

Roadway/Segment	Existing[1]	Future (Year 2035) + Project	Increase in Noise Level	Significant Cumulative Impact?	Increase Attributable to Project[1]	Cumulatively Considerable Contribution?
Rancho Bernardo Road / Camino San Bernardo Road to Via Del Campo	73	74	+1	No	0	No
Rancho Bernardo Road / Via Del Campo to Matinal Road	73	74	+1	No	0	No
Rancho Bernardo Road / Matinal Road to West Bernardo Drive	73	74	+1	No	0	No
Rancho Bernardo Road / West Bernardo Drive to I-15 SB Ramps	78	79	+1	No	1	No
West Bernardo Drive / Via Del Campo to Bernardo Center Drive	68	69	+1	No	0	No
Via Del Campo / Rancho Bernardo Road to West Bernardo Drive	62	63	+1	No	0	No

Note: N/A = Not applicable because noise level would not exceed the 70 dBA threshold for office and professional uses.
[1] Based on the results in Tables 7 and 8. The project's contribution to the cumulative noise impact is based on the increase in traffic noise attributable to the proposed project under the Future (Year 2035) scenario. If the project's contribution is less than three decibels, the project's contribution is not cumulatively considerable.
Note: Noise levels are calculated at 50 feet from roadway centerline. Noise levels are based upon traffic data provided by LLG (2015). Traffic levels for each roadway are included in Appendix G, Traffic Impact Analysis, of this EIR.
Decibel levels are rounded to the nearest whole number. See Appendix A of this report, Noise Data, for data sheets.

The project would construct an approximately 1,238 foot-long looped road connecting the existing parking lot to the existing parking structure; implement drainage improvements; and install walkways, hardscape areas, and landscaping. Construction would begin in July 2016 and be completed in January 2018.

Construction Noise

Standard equipment, including front end loaders, backhoes, graders, and dozers, would be used for construction of the proposed project. Noise levels from construction on the project site were determined based on the construction equipment list provided by the applicant and typical equipment noise levels determined by the Roadway Construction Noise Model (RCNM) (FHWA 2008). The six noisiest pieces of construction equipment (grader, dozer, tractor, scraper, excavator, and paver) that could be required for the project were assumed to operate simultaneously in the same location, which would have the potential to generate noise levels up to 87 dBA at 50 feet from the construction site. These estimates are conservative because construction equipment would be spread out over several acres and would not be operating all at once.

The project site is surrounded by NSLU, including single-family residences, medical facilities, laboratories, educational institutes, and a church, the closest of which is located approximately 180 feet from the project boundary. The site is located 250 feet from a residential neighborhood and additional NSLU are located beyond the homes located north of the site. The worst-case construction noise levels would range from approximately 70 dBA to 75 dBA at the residential and medical, laboratory, educational, and religious uses to the north and south of the project site, respectively.

Although the project is not expected to exceed the City's construction noise limit of 75 dBA during the 12-hour period from 7:00 a.m. to 7:00 p.m., the exposure of short-term construction noise may be considered disruptive to adjacent uses during construction daytime operations. Because construction would comply with the applicable regulation for construction noise, temporary increases in noise levels from typical construction activities would be less than significant.

Mitigation Measures

Implementation of the project would not result in significant impacts from construction noise. No mitigation is required.

Significance After Mitigation

Impacts related to construction noise would be less than significant without mitigation.

Cumulative Impacts

Construction noise impacts are localized in nature because they are limited to the construction site where construction equipment is operating. As discussed above, sound levels from project construction would be up to 75 dBA approximately 250 feet from the construction site (FHWA 2008). However, there are no approved, planned, or foreseeable projects in the vicinity that would generate similar construction noise levels and the project would be subject to the San Diego construction noise ordinance, which limits construction noise to 75 dBA during the 12-hour period from 7:00 a.m. and 7:00 p.m. Compliance with the San Diego noise ordinance would reduce impacts to a less than significant level. Therefore, a significant cumulative impact would not occur.

5.5 Issue 5: Aircraft Noise

Impact Analysis

The nearest airport to the project site is Marine Corps Air Station (MCAS) Miramar, located approximately 12 miles south of the project site in the City of San Diego. The project site is not located within the 60 dBA CNEL noise contour of MCAS Miramar. Therefore, the project would not be exposed to excessive noise from the airfield. It is not foreseeable that additional aviation uses would be introduced in the immediate vicinity of the project site because it is currently developed with office and residential land uses. In addition, the implementation of the project would not result in a significant impact on future air traffic operations. Therefore, NSLU would not be exposed to excessive noise levels from aviation noise as a result of the project.

Mitigation Measures

Implementation of the project would not result in significant impacts from aircraft noise. No mitigation is required.

Significance After Mitigation

Impacts related to aircraft noise would be less than significant without mitigation.

Cumulative Impacts

No additional aviation uses are planned to be introduced in the immediate vicinity of the project site. In addition, the project does not propose any new air traffic. No NSLU would be exposed to excessive noise levels from aviation as a result of the project. Therefore, a cumulative impact related to aviation would not occur.

6.0 Conclusion

Implementation of the project would not result in excessive noise levels or excessive groundborne vibration. The increase in traffic noise associated with the renovated facilities would not result in a significant direct or cumulative impact. Short-term noise increases from construction equipment would not violate the City's noise ordinance. The project and surrounding area would not be exposed to excessive noise from the nearest airport.

7.0 References

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Appendix A:
Noise Data

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 100028572
Project Name: PCCD South Education Center

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Linscott, Law, and Greenspan, October 2012
Community Noise Descriptor: L_{dn}: CNEL: X

"-" = contour is located within the roadway right-of-way.
Distance is from the centerline of the roadway segment to the receptor location.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition / Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	CNEL at 50 Feet	Distance from Centerline of Roadway: Distance to Contour 70 CNEL	65 CNEL	60 CNEL	55 CNEL
Rancho Bernardo Road												
Camino San Bernardo Rd to Via Del Campo, Existing	4	10	26,840	50	0.5	3.0%	2.0%	**73.2**	82	176	379	817
Camino San Bernardo Rd to Via Del Campo, Near-term	4	10	28,335	50	0.5	3.0%	2.0%	**73.4**	85	183	393	847
Camino San Bernardo Rd to Via Del Campo, Near-term + project	4	10	28,875	50	0.5	3.0%	2.0%	**73.5**	86	185	398	858
Camino San Bernardo Rd to Via Del Campo, future (2035)	4	10	32,570	50	0.5	3.0%	2.0%	**74.0**	93	200	432	930
Camino San Bernardo Rd to Via Del Campo, future + project	4	10	33,650	50	0.5	3.0%	2.0%	**74.2**	95	205	441	950
Rancho Bernardo Road												
Via Del Campo to Matinal Road, Existing	4	10	27,710	50	0.5	3.0%	2.0%	**73.3**	83	180	387	835
Via Del Campo to Matinal Road, Near-term	4	10	29,205	50	0.5	3.0%	2.0%	**73.6**	86	186	401	864
Via Del Campo to Matinal Road, Near-term + project	4	10	30,015	50	0.5	3.0%	2.0%	**73.7**	88	190	409	880
Via Del Campo to Matinal Road, future (2035)	4	10	31,800	50	0.5	3.0%	2.0%	**73.9**	91	197	425	915
Via Del Campo to Matinal Road, future + project	4	10	33,650	50	0.5	3.0%	2.0%	**74.2**	95	205	441	950
Rancho Bernardo Road												
Matinal Road to West Bernardo Drive, Existing	4	10	27,850	50	0.5	3.0%	2.0%	**73.4**	84	180	389	838
Matinal Road to West Bernardo Drive, Near-term	4	10	29,387	50	0.5	3.0%	2.0%	**73.6**	87	187	403	868
Matinal Road to West Bernardo Drive, Near-term + project	4	10	31,884	50	0.5	3.0%	2.0%	**73.9**	92	197	425	917
Matinal Road to West Bernardo Drive, future (2035)	4	10	29,150	50	0.5	3.0%	2.0%	**73.6**	86	186	401	863
Matinal Road to West Bernardo Drive, future + project	4	10	34,145	50	0.5	3.0%	2.0%	**74.2**	96	207	445	959
Rancho Bernardo Road												
West Bernardo Drive to I-15 SB Ramps, Existing	6	10	46,260	50	0.5	5.0%	3.0%	**78.1**	173	372	801	1,726
West Bernardo Drive to I-15 SB Ramps, Near-term	6	10	49,438	50	0.5	5.0%	3.0%	**78.4**	180	389	837	1,804
West Bernardo Drive to I-15 SB Ramps, Near-term + project	6	10	51,665	50	0.5	5.0%	3.0%	**78.6**	186	400	862	1,858
West Bernardo Drive to I-15 SB Ramps, future (2035)	6	10	50,420	50	0.5	5.0%	3.0%	**78.4**	183	394	848	1,828
West Bernardo Drive to I-15 SB Ramps, future + project	6	10	54,875	50	0.5	5.0%	3.0%	**78.8**	193	417	898	1,934
West Bernardo Drive												
Via Del Campo to Bernardo Center Drive, Existing	4	0	13,200	40	0.5	3.0%	2.0%	**67.8**	-	76	165	355
Via Del Campo to Bernardo Center Drive, Near-term	4	0	13,457	40	0.5	3.0%	2.0%	**67.9**	-	77	167	359
Via Del Campo to Bernardo Center Drive, Near-term + project	4	0	13,727	40	0.5	3.0%	2.0%	**67.9**	-	78	169	364
Via Del Campo to Bernardo Center Drive, future (2035)	4	0	16,230	40	0.5	3.0%	2.0%	**68.7**	-	88	189	407
Via Del Campo to Bernardo Center Drive, future + project	4	0	16,770	40	0.5	3.0%	2.0%	**68.8**	-	90	193	416
Via Del Campo												
Rancho Bernardo Road to West Bernardo Drive, Existing	2	0	4,880	35	0.5	3.0%	2.0%	**61.9**	-	-	67	144
Rancho Bernardo Road to West Bernardo Drive, Near-term	2	0	4,900	35	0.5	3.0%	2.0%	**61.9**	-	-	67	145
Rancho Bernardo Road to West Bernardo Drive, Near-term + project	2	0	5,170	35	0.5	3.0%	2.0%	**62.2**	-	32	70	150
Rancho Bernardo Road to West Bernardo Drive, future (2035)	2	0	6,030	35	0.5	3.0%	2.0%	**62.8**	-	36	77	166
Rancho Bernardo Road to West Bernardo Drive, future + project	2	0	6,570	35	0.5	3.0%	2.0%	**63.2**	-	38	82	176