Noise Impact Analysis
Mental Health Crisis Beds Facility Project
San Luis Obispo County

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SECTION 1: INTRODUCTION

1.1 - Purpose of Analysis and Study Objectives

This Noise Impact Analysis has been prepared by Vista Environmental on behalf of Michael Brandman Associates to determine the offsite and onsite noise impacts associated with the proposed Mental Health Crisis Beds (MHCB) Facility (proposed project). The following is provided in this report:

- A description of the study area and the proposed project
- Information regarding the fundamentals of noise
- Information regarding the fundamentals of vibration
- A description of the local noise guidelines and standards
- An evaluation of the current noise environment
- An analysis of the potential short-term construction-related noise and vibration impacts from the proposed project
- An analysis of long-term operations-related noise and vibration impacts from the proposed project

1.2 - Site Location and Study Area

The California Men's Colony (CMC) is located in western San Luis Obispo County, California, approximately one mile north of the City of San Luis Obispo's northern boundary. The institution is located in a rural setting along State Highway 1, and is situated immediately to the northeast of the intersection of Highway 1 and Colony Drive, which provide the regional and local access to the project site The CMC facility is approximately 356 acres and includes existing facilities such as housing barracks and buildings, medical facilities, operations and maintenance buildings, and recreational yard areas. The proposed project site is located within the north-eastern portion of the 356 acre facility. The site location and study area for this analysis is shown on Figure 1.

1.3 - Proposed Project Description

The proposed project consists of the construction of a 50-bed MHCB facility and would feature approximately 45,000 square feet of space for housing, treatment, and support and administrative services. For the purposes of this analysis, it is assumed that the project may directly or indirectly result in an increase of as many as 50 additional inmates and 200 additional staff. This would potentially increase CMC's inmate count from a total of approximately 6,586 to as many as 6,636. The number of staff at the facility would potentially increase from the existing total of approximately

2,135 to a projected total of as many as 2,335. It is important to note that the estimated addition of as many as 50 inmates and 200 staff is intended to capture any possible increases resulting directly from the activation of the proposed MHCB facility, as well as any possible increases resulting indirectly when the existing outpatient housing unit (OHU) facility is re-purposed. The OHU currently operates as the temporary MHCB facility. Because the ultimate use of the existing OHU is not known at the present time, it is not possible to precisely predict future increases in either inmates or staffing. It is probable, however, that the number of new inmates and staff resulting directly and indirectly from activation of the MHCB would in reality prove to be less than 50 inmates and less than 200 staff.

The current site plans indicate that the proposed project will be constructed within the existing 407-space staff parking lot for the east facility, Lot B. This will require the removal of all but 189 of the existing spaces in this lot. The parking spaces proposed to be eliminated will be replaced with a new 316-space parking lot constructed south of Lot B. Additionally, a new 189- space parking lot will be constructed adjacent to Lot A, resulting in approximately 505 new parking spaces for the entire facility. The future parking supply will include 506 spaces in Lot A for visitor/staff parking and 505 spaces in Lot B for staff only, resulting in a total future parking supply of 1,011 spaces. The proposed project would also include a new detention basin at the south end of Lot B and improvements to the existing drainage channel on the east side of Lot B. The proposed site plan is shown on Figure 2.

SOURCE: Google Earth Pro, 2007 and MBA GIS Data, 2009.

Figure 1
Site Location and Study Area

SOURCE: Google Earth Pro, 2005 and MBA GIS Data, 2009.

Figure 2
Proposed Site Plan

SECTION 2: NOISE FUNDAMENTALS

Noise is defined as unwanted sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit, which expresses the ratio of the sound pressure level being measured to a standard reference level. A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies that are audible to the human ear.

2.1 - Noise Descriptors

Noise Equivalent sound levels are not measured directly, but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The peak traffic hour L_{eq} is the noise metric used by California Department of Transportation (Caltrans) for all traffic noise impact analyses.

The Day-Night Average Level (L_{dn}) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of ten decibels to sound levels at night between 10 p.m. and 7 a.m. While the Community Noise Equivalent Level (CNEL) is similar to the L_{dn}, except that it has another addition of 4.77 decibels to sound levels during the evening hours between 7 p.m. and 10 p.m. These additions are made to the sound levels at these time periods because during the evening and nighttime hours, when compared to daytime hours, there is a decrease in the ambient noise levels, which creates an increased sensitivity to sounds. For this reason the sound appears louder in the evening and nighttime hours and is weighted accordingly. The County of San Luis Obispo relies on the CNEL noise standard to assess transportation-related impacts on noise sensitive land uses.

2.2 - Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features. Sound from point sources, such as air conditioning condensers, radiate uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be

impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

2.3 - Ground Absorption

The sound drop-off rate is highly dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models, soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA/DD is typically observed over soft ground with landscaping, as compared with a 6.0 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. For line sources a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3.0 dBA/DD drop-off rate for hard-site conditions. Caltrans research has shown that the use of soft-site conditions is more appropriate for the application of the Federal Highway Administration (FHWA) traffic noise prediction model used in this analysis.

2.4 - Traffic Noise Prediction

The level of traffic noise depends on the three primary factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and greater number of trucks. Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires. Because of the logarithmic nature of traffic noise levels, a doubling of the traffic noise (acoustic energy) results in a noise level increase of 3 dBA. Based on the FHWA community noise assessment criteria, this change is “barely perceptible.” In other words, doubling the traffic volume (assuming that the speed and truck mix do not change) results in a noise increase of 3 dBA. The truck mix on a given roadway also has an effect on community noise levels. As the number of heavy trucks increases and becomes a larger percentage of the vehicle mix, adjacent noise levels increase.

2.5 - Noise Barrier Attenuation

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. For a noise barrier to work, it must be high enough and long enough to block the view of a road. A noise barrier is most effective when placed close to the noise source or receiver. A noise barrier can achieve a 5-dBA noise level reduction when it is tall enough to break the line-of-sight. When the noise barrier is a berm instead of a wall, the noise attenuation can be increased by another 3 dBA.

2.6 - Construction Noise Assumptions

The Federal Highway Administration (FHWA) compiled noise measurement data regarding the noise generating characteristics of several different types of construction equipment used during the Central Artery/Tunnel project in Boston. Table A below provides a list of the construction equipment measured along with the associated measured noise emissions and measured percentage of typical equipment use per day. From this acquired data, the FHWA developed the Roadway Construction Noise Model (RCNM), which may be used for the prediction of construction noise. For the purposes of this analysis, the RCNM will be used to calculate the construction equipment noise emissions.

Table A: Construction Equipment Noise Emissions and Usage Factors

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Spec 721.560 L_{max} @ 50 ft (dBA, slow)	Actual Measured L_{max} @ 50 ft (dBA, slow)	No. of Actual Data Samples (Count)
All Other Equipment > 5 HP	No	50	85	—	0
Auger Drill Rig	No	20	85	84	36
Backhoe	No	40	80	78	372
Bar Bender	No	20	80	—	0
Blasting	Yes	—	94	—	0
Boring Jack Power	No	50	80	83	1
Chain Saw	No	20	85	84	46
Clam Shovel (dropping)	Yes	20	93	87	4
Compactor (ground)	No	20	80	83	57
Compressor (air)	No	40	80	78	18
Concrete Batch	No	15	83	—	0
Concrete Mixer Truck	No	40	85	79	40
Concrete Pump	No	20	82	81	30
Concrete Saw	No	20	90	90	55
Crane	No	16	85	81	405
Dozer	No	40	85	82	55
Drill Rig Truck	No	20	84	79	22
Drum Mixer	No	50	80	80	1
Dump Truck	No	40	84	76	31
Excavator	No	40	85	81	170
Flat Bed Truck	No	40	84	74	4
Front End Loader	No	40	80	79	96
Generator	No	50	82	81	19

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Spec 721.560 L_{max} @ 50 ft (dBA, slow)	Actual Measured L_{max} @ 50 ft (dBA, slow)	No. of Actual Data Samples (Count)
Generator (<25KVA, VMS signs)	No	50	70	73	74
Gradall	No	40	85	83	70
Grader	No	40	85	—	0
Grapple (on backhoe)	No	40	85	87	1
Horizontal Boring Hydraulic Jack	No	25	80	82	6
Hydra Break Ram	Yes	10	90	—	0
Impact Pile Driver	Yes	20	95	101	11
Jackhammer	Yes	20	85	89	133
Man Lift	No	20	85	75	23
Mounted Impact Hammer (hoe ram)	Yes	20	90	90	212
Pavement Scarafier	No	20	85	90	2
Paver	No	50	85	77	9
Pickup Truck	No	40	55	75	1
Pneumatic Tools	No	50	85	85	90
Pumps	No	50	77	81	17
Refrigerator Unit	No	100	82	73	3
Rivit Buster/chipping gun	Yes	20	85	79	19
Rock Drill	No	20	85	81	3
Roller	No	20	85	80	16
Sand Blasting (Single Nozzle)	No	20	85	96	9
Scraper	No	40	85	84	12
Shears (on backhoe)	No	40	85	96	5
Slurry Plant	No	100	78	78	1
Slurry Trenching Machine	No	50	82	80	75
Soil Mix Drill Rig	No	50	80	—	0
Tractor	No	40	84	—	0
Vacuum Excavator	No	40	85	85	149
Vacuum Street Sweeper	No	10	80	82	19
Ventilation Fan	No	100	85	79	13
Vibrating Hopper	No	50	85	87	1

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Spec 721.560 L_{max} @ 50 ft (dBA, slow)	Actual Measured L_{max} @ 50 ft (dBA, slow)	No. of Actual Data Samples (Count)
Vibratory Concrete Mixer	No	20	80	80	1
Vibratory Pile Driver	No	20	95	101	44
Warning Horn	No	5	85	83	12
Welder/Torch	No	40	73	74	5
Source: U.S. Department of Transportation, 2006.					

SECTION 3: GROUNDBORNE VIBRATION FUNDAMENTALS

Groundborne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of groundborne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although groundborne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Groundborne noise is an effect of groundborne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

3.1 - Vibration Descriptors

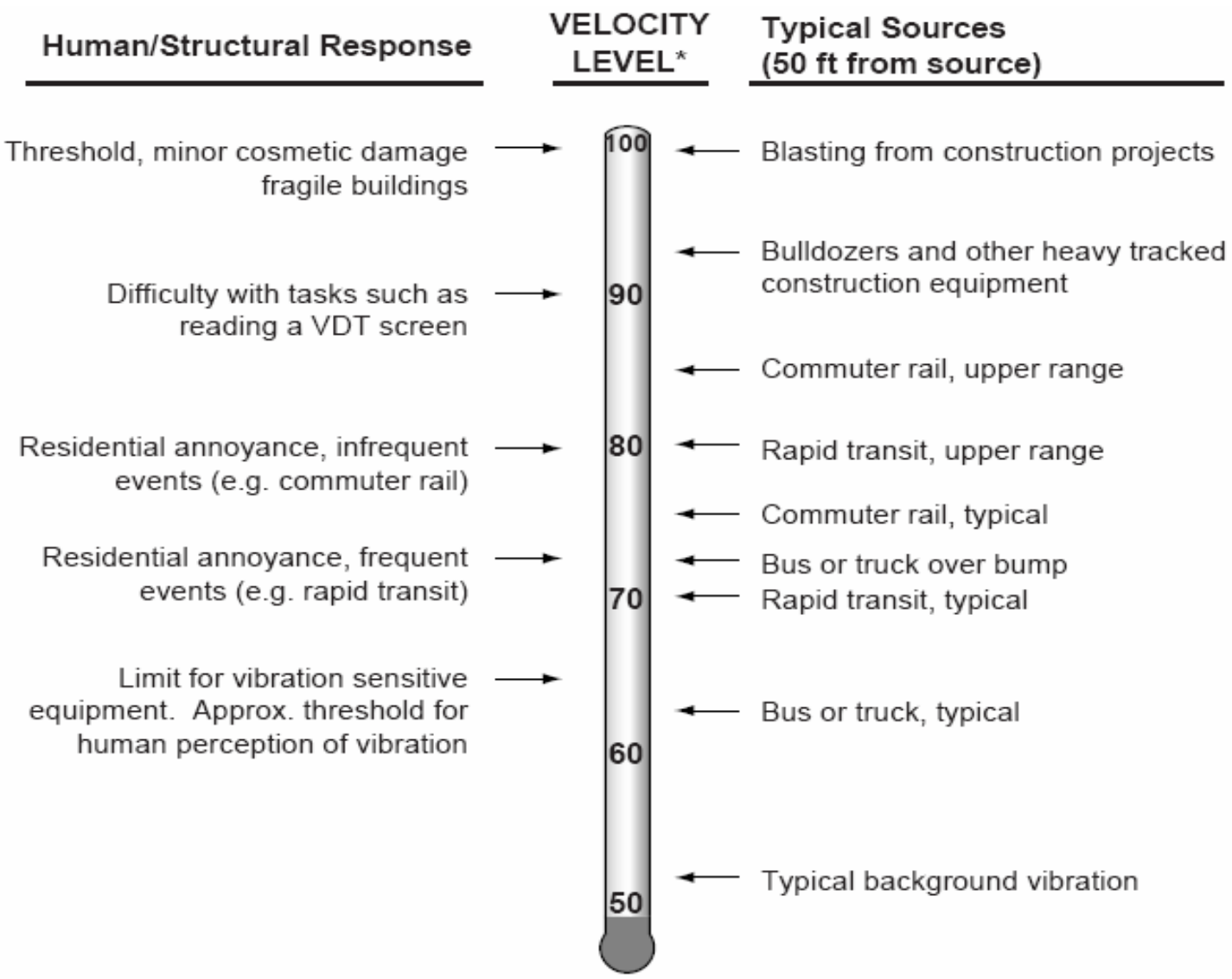
Several different methods are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (rms) amplitude of the vibration velocity. Because of the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels and is denoted as L_v and is based on the rms velocity amplitude. A commonly used abbreviation is VdB, which in this text, is when L_v is based on the reference quantity of 1 microinch per second.

3.2 - Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Offsite sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible groundborne noise or vibration. Figure 3 shows typical sources of vibration and the associated human responses to the vibration.

3.3 - Vibration Propagation

The propagation of groundborne vibration is not as simple to model as airborne noise. This is because noise in the air travels through a relatively uniform median, while groundborne vibrations travel through the earth, which may contain significant geological differences. There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse,



SOURCE: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006,

Figure 3
Typical Vibration Levels

or side-to-side and perpendicular to the direction of propagation. As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

3.4 - Construction-Related Vibration Level Prediction

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of the construction site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to slight damage at the highest levels. Table B gives approximate vibration levels for particular construction activities. The data in Table B provides a reasonable estimate for a wide range of soil conditions.

Table B: Vibration Source Levels for Construction Equipment

Equipment	Peak Particle Velocity (inches/second)	Approximate Vibration Level (L_v) at 25 feet
Pile driver (impact)	1.518 (upper range) 0.644 (typical)	112 104
Pile driver (sonic)	0.734 upper range 0.170 typical	105 93
Clam shovel drop (slurry wall)	0.202	94
Hydromill (slurry wall)	0.008 in soil 0.017 in rock	66 75
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58
Source: Federal Transit Administration, 2006.		

SECTION 4: REGULATORY SETTING

The proposed project is located in the County of San Luis Obispo and noise regulations are addressed through the efforts of various federal, state, and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 - Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

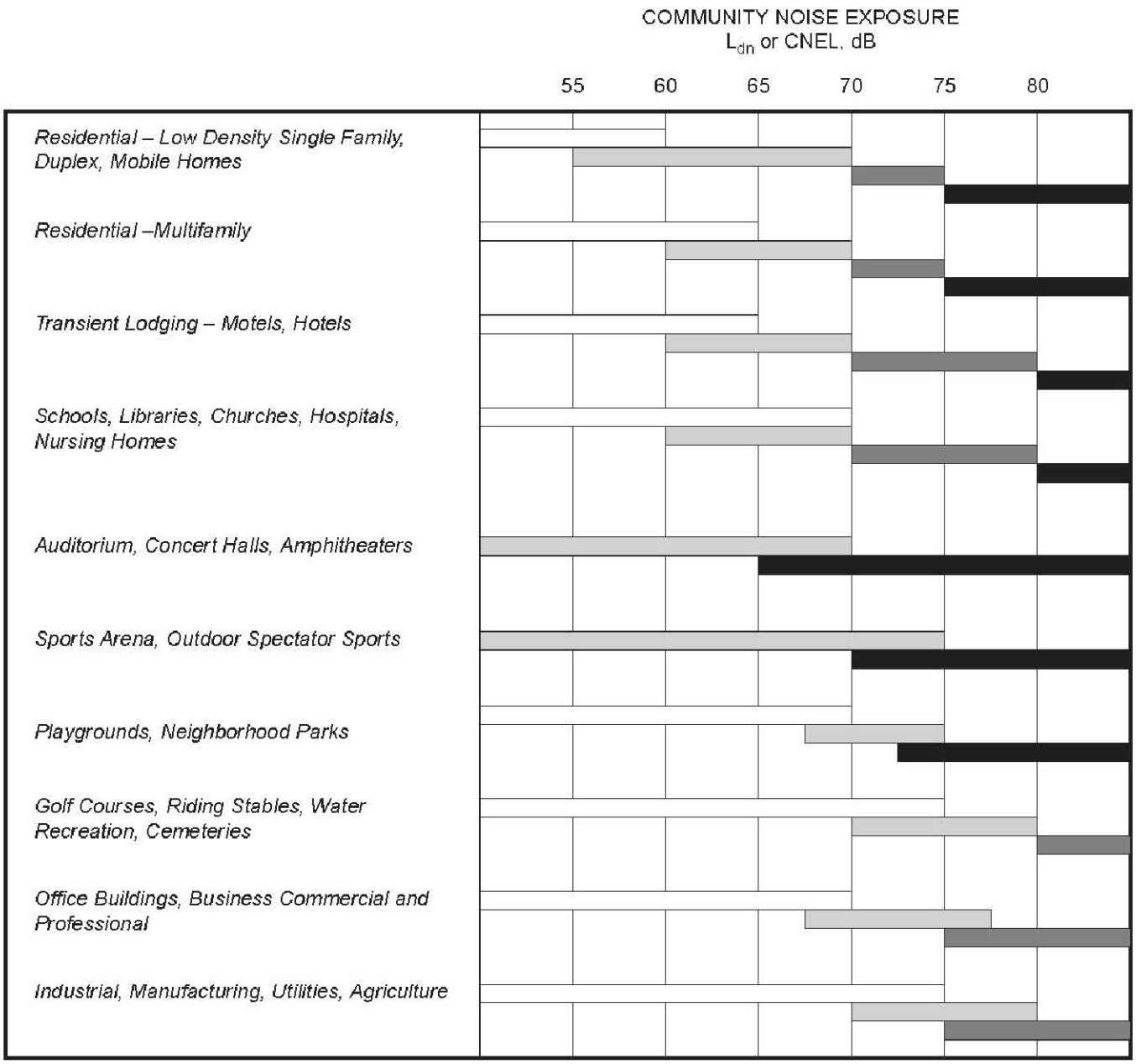
- Promulgating noise emission standards for interstate commerce
- Assisting state and local abatement efforts
- Promoting noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees. For example, the Occupational Safety and Health Administration (OSHA) agency prohibits exposure of workers to excessive sound levels. The Department of Transportation (DOT) assumed a significant role in noise control through its various operating agencies. The Federal Aviation Administration (FAA) regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the Federal Transit Administration (FTA). Transit noise is regulated by the federal Urban Mass Transit Administration (UMTA), while freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA). Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that “noise sensitive” uses are either prohibited from being sited adjacent to a highway or, alternately that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation sources, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

4.2 - State Regulations

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the “Land Use Compatibility for Community Noise Environments Matrix,” which allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise and which is shown below in Figure 4.



LEGEND:

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.

NORMALLY UNACCEPTABLE
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and neede noise insulation features included in the design.

CONDITIONALLY ACCEPTABLE
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

CLEARLY UNACCEPTABLE
New construction or development should generally not be undertaken.

Source: California Department of Health. *Guidelines for the Preparation and Content of Noise Elements of the General Plan.* November, 1990.

Figure 4
Land Use Compatibility Matrix

Article 4 of the California Administrative Code (California Noise Insulation Standards, Title 25, Chapter 1) and State Building Code, Part 2, Title 24, Appendix Chapter 35, requires noise insulation in new hotels, motels, apartment houses, and dwellings (other than single-family detached housing) that provides an annual average noise level of no more than 45 dBA CNEL. When such structures are located within a 60-dBA CNEL (or greater) noise contour, an acoustical analysis is required to ensure that interior levels do not exceed the 45-dBA CNEL annual threshold.

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable and clearly unacceptable.

4.3 - Local Regulations

4.3.1 - County of San Luis Obispo General Plan

The General Plan establishes the following policies associated with noise that are applicable to the proposed project:

General:

- **Policy 3.3.1** The noise standards in this chapter represent maximum acceptable noise levels. New development should minimize noise exposure and noise generation.

Transportation Noise Sources:

- **Policy 3.3.2** New development of noise-sensitive land uses (see Section 1.5 – Definitions of the County of San Luis Obispo Noise Element) shall not be permitted in areas exposed to existing or projected future levels of noise from transportation noise sources which exceed 60 dB L_{DN} or CNEL (70 L_{DN} or CNEL for outdoor sports and recreation) unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaced to or below the levels specified for the given land use in Table 3-1 [Table C].
- **Policy 3.3.3** Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table 3-1 [Table C] within the outdoor activity areas are interior spaces of existing noise sensitive land uses.

Stationary Noise Sources:

- **Policy 3.3.4** New development of noise-sensitive land uses shall not be permitted where the noise level due to existing stationary noise sources will exceed the noise level standards of Table 3-2 [Table D], unless effective noise mitigation measures have been incorporated into the design of the development to reduce noise exposure to or below the levels specified in Table 3-2 [Table D].

- **Policy 3.3.5** Noise created by new proposed stationary noise sources or existing stationary noise sources which undergo modifications that may increase noise levels shall be mitigated as follows and shall be the responsibility of the developer of the stationary noise source:

  a) Noise from agricultural operations conducted in accordance with accepted standards and practices is not required to be mitigated.

  b) Noise levels shall be reduced to or below the noise level standards in Table 3-2 [Table D] where the stationary noise source will expose an existing noise-sensitive land use (which is listed in the Land Use element as an allowable use within its existing land use category) to noise levels which exceed the standards in Table 3-2 [Table D]. When the affected noise-sensitive land use is Outdoor Sports and Recreation, the noise level standards in Table 3-2 [Table D] shall be increased by 10 dB.

  Where the noise source is one of the following electrical substations which is not modified so as to increase noise levels, the noise standards shall instead be fifty dB between 10 p.m. and 7 a.m. and fifty-five dB between 7 a.m. and 10 p.m., determined at the property line of the receiving land use: the Cholame, San Miguel, Templeton, Cambria, Perry, Cayucos, Baywood, Highway 1 between Morro Bay and the California Men's Colony, Goldtree, Foothill, San Luis Obispo, Oceano, Mesa, Union Oil, Callender, and Mustang electrical substations.

  c) Noise levels shall be reduced to or below the noise level standards in Table 3-2 [Table D] where the stationary noise source will expose vacant land in the Agriculture, Rural Lands, Residential rural, Residential Suburban, Residential Single-Family, Residential Multi-Family, Recreation, Office and Professional, and Commercial Retail land use categories to noise levels which exceed the standards in Table 3-2 [Table D].

  Where the noise source is one of the following electrical substations which is not modified so as to increase noise levels, the noise standards shall instead be fifty dB between 10 p.m. and 7 a.m. and fifty-five dB between 7 a.m. and 10 p.m., determined at the property line of the receiving land use: the Cholame, San Miguel, Templeton, Cambria, Perry, Cayucos, Baywood, Highway 1 between Morro Bay and the California Men's Colony, Goldtree, Foothill, San Luis Obispo, Oceano, Mesa, Union Oil, Callender, and Mustang electrical substations.

  This policy may be waived when the Director of Planning and Building determines that such vacant land is not likely to be developed with a noise sensitive land use.

  d) For new proposed resource extraction, manufacturing or processing noise sources or modifications to those sources which increase noise levels: where such noise sources will expose existing noise-sensitive land uses (which are listed in the Land Use Element as

allowable uses within their land use categories) to noise levels which exceed the standards in Table 3-2 [Table D], best available control technologies shall be used to minimize noise levels. The noise levels shall in no case exceed the noise level standards in Table 3-2 [Table D].

Existing and Cumulative Noise Impacts:

- **Policy 3.3.6** San Luis Obispo County shall consider implementing mitigation measures where existing noise levels produce significant noise impacts to noise-sensitive land uses or where new development may result in cumulative increases of noise upon noise-sensitive land uses.

Table C: Maximum Allowable Noise Exposure-Transportation Noise Sources

Land Use[4]	Outdoor Activity Areas[1] L_{dn}/CNEL, dB	Interior Spaces	
		L_{dn}/CNEL, dB	L_{eq9} dB[2]
Residential (except temporary dwellings and res accessory uses)	60[3]	45	---
Bed and Breakfast Facilities, Hotels and Motels	60[3]	45	---
Hospitals, Nursing and Personal Care	60[3]	45	---
Public Assembly and Entertainment (except Meeting Halls)	---	---	35
Offices	60[3]	---	45
Churches, Meeting Halls	---	---	45
Schools-Preschool to Secondary, College and University, Specialized Education and Training Libraries and Musemums	---	---	45
Outdoor Sports and Recreation	70	---	---

Notes:
[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] For other than residential uses, where an outdoor activity area is not proposed, the standard shall not apply. Where it is not possible to reduce noise in outdoor activity areas to 60 dB 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.
Source: County of San Luis Obispo General Plan, Noise Element, Table 3-1.

Table D: Maximum Allowable Noise Exposure-Stationary Noise Sources[1]

	Daytime (7 a.m. to 10 p.m.)	Nighttime[2] (10 p.m. to 7 a.m.)
Hourly L_{eq9}, dB	50	45

	Daytime (7 a.m. to 10 p.m.)	Nighttime[2] (10 p.m. to 7 a.m.)
Maximum level, dB	70	65
Maximum level, dB-Impulsive Noise	65	60

Note: [1] As determined at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures.
Source: County of San Luis Obispo General Plan, Noise Element, Table 3-2.

4.3.2 - County of San Luis Obispo Municipal Code

The following is located in the County of San Luis Obispo Municipal Code, Title 22 Land Use, Chapter 22.10 General Property Development and Operating Standards. Several of these standards are also repeated in the Title 23 Coastal Zone Land Use.

Section 22.10.120 Noise standards.

This section establishes standards for acceptable exterior and interior noise levels and describe how noise shall be measured. These standards are intended to protect persons from excessive noise levels, which are detrimental to the public, health, welfare and safety and contrary to the public interest because they can: interfere with sleep, communication, relaxation and full enjoyment of one's property; contribute to hearing impairment and a wide range of adverse physiological stress conditions; and adversely affect the value of real property.

A. Exceptions to Noise Standards. The standards of this section are not applicable to noise from the following sources.

1. Activities conducted in public parks, public playgrounds and public or private school grounds, including but not limited to school athletic and school entertainment events;
2. The use of any mechanical device, apparatus or equipment related to or connected with emergency activities or emergency work to protect life or property;
3. Safety signals, warning devices, and emergency pressure relief valves;
4. Noise sources associated with construction, provided such activities do not take place before seven a.m. or after nine p.m. on any day except Saturday or Sunday, or before eight a.m. or after five p.m. on Saturday or Sunday;
5. Noise sources associated with the maintenance of a residential use as listed in Section 22.06.030 (Allowable Land Uses and Permit Requirements), provided that the activities take place between the hours of seven a.m. and nine p.m.;
6. Noise sources associated with agricultural land uses as listed in Section 22.06.030 (Allowable Land Uses and Permit Requirements), including but not limited to wind machines used for direct climate control, water well pumps and pest-repelling devices, provided that the pest-repelling devices are used in accordance with accepted standards and practices.
7. Noise sources associated with work performed by private or public utilities in the maintenance or modification of its facilities;

8. Noise sources associated with the collection of waste or garbage from property devoted to other than residential uses listed in Section 22.06.030 (Allowable Land Uses and Permit Requirements).
9. Traffic on public roadways, railroad line operations, aircraft in flight, and any other activity to the extent regulation thereof has been preempted by state or federal law.

B. Exterior Noise Level Standards. The exterior noise level standards of this section are applicable when a land use affected by noise is one of the following noise-sensitive uses: residential uses listed in Section 22.06.030 (Allowable Land Uses and Permit Requirements), except for residential accessory uses and temporary dwellings; health care services (hospitals and similar establishments only); hotels and motels; bed and breakfast facilities; schools (pre-school to secondary, college and university, specialized education and training); churches; libraries and museums; public assembly and entertainment; offices, and outdoor sports and recreation.

1. No person shall create any noise or allow the creation of any noise at any location within the unincorporated areas of the county on property owned, leased, occupied or otherwise controlled by the person which causes the exterior noise level when measured at any of the preceding noise-sensitive land uses situated in either the incorporated or unincorporated areas to exceed the noise level standards in the following table [Table E]. When the receiving noise-sensitive land use is outdoor sports and recreation, the following noise level standards shall be increased by ten dB.

Table E: Maximum Allowed Exterior Noise Level Standards

Sound Levels	Daytime 7 a.m. to 10 p.m.	Nighttime[1] 10 p.m. to 7 a.m.
Hourly Equivalent Sound Level (Leq, dB)	50	45
Maximum level, dB	70	65
Notes: [1] Applies only to uses that operate or are occupied during nighttime hours Source: County of San Luis Obispo Municipal Code Sec. 22.10.120 Subsection B.1		

2. In the event the measured ambient noise level exceeds the applicable exterior noise level standard in Subsection B.1, the applicable standard shall be adjusted so as to equal the ambient noise level plus one dB.
3. Each of the exterior noise level standards specified in Subsection B.1 shall be reduced by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.
4. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be measured, the noise level measured while the source is in operation shall be compared directly to the exterior noise level standards.

C. Interior Noise Level Standards. The interior noise level standards of this section are applicable when the land use which is the source of noise and the land use which is affected by noise are both

residential uses as listed in Section 22.06.030 (Allowable Land Uses and Permit Requirements), except for residential accessory uses and temporary dwellings.

1. No person shall operate or cause to be operated a source of noise within a residential use in any location in the unincorporated areas of the county or allow the creation of any noise which causes the noise level when measured inside a residential use located in either the incorporated or unincorporated area to exceed the interior noise level standards in the following table [Table F].

Table F: Maximum Allowed Interior Noise Level Standards

Sound Levels	Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
Hourly Equivalent Sound Level (Leq, dB)	40	35
Maximum level, dB	60	55
Source: County of San Luis Obispo Municipal Code Sec. 22.10.120 Subsection C.1.		

2. In the event the measured ambient noise level exceeds the applicable interior noise level standard in Subsection C.1, the applicable standard shall be adjusted so as to equal the ambient noise level plus one dB.
3. Each of the interior noise level standards specified in Subsection C.1 shall be reduced by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.
4. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be measured, the noise level measured while the source is in operation shall be compared directly to the interior noise level standards.

D. Other Noise Sources. The noise level standards in this section apply to the following.

1. Air Conditioning and Refrigeration. Not-withstanding the provisions of Subsection B.1, when the intruding noise source is an air conditioning or refrigeration system or associated equipment installed prior to June 4, 1992, the exterior noise level as measured as provided in Subsection E. shall not exceed fifty-five dB, except where the equipment is exempt from the provisions of this chapter. The exterior noise level shall not exceed fifty dB for equipment installed or in use after June 4, 1993.
3. Electrical Substations. Notwithstanding the provisions of Subsection B.1, noise from the following electrical substations shall not exceed an exterior noise level of fifty dB between ten p.m. and seven a.m. and fifty-five dB between seven a.m. and ten p.m., as determined at the property line of the receiving land use: Cholame, San Miguel, Templeton, Cambria, Perry, Cayucos, Baywood, Highway 1 between Morro Bay and the California Men's Colony, Goldtree, Foothill, San Luis Obispo, Oceano, Mesa, Union Oil, Callendar, and Mustang. If any of these substations undergo modifications that increase noise levels, they shall be mitigated in compliance with the policies of the Noise Element Policy Document.

SECTION 5: NOISE AND VIBRATION STANDARDS

The project site is located in the jurisdiction of the County of San Luis Obispo, which has separate standards for transportation, stationary, and construction noise and vibration sources. The following provides a discussion of the standards for these types of noise and vibration sources.

5.1 - Transportation-Related Noise

To control transportation-related noise sources such as arterial roads, freeways, airports, and railroads, the County has established guidelines for acceptable community noise levels in the General Plan Noise Element. The Noise Element outlines the land use compatibility for community noise exposure by land use category. For development of a site with exterior noise levels less than 65 dBA CNEL, development near residential is normally acceptable, with typically no noise analysis or mitigation required. For development of a site with exterior noise levels in the 60- to 70-dBA CNEL range, development near residential is conditionally acceptable upon further analysis through a noise impact analysis and possible mitigation. For development of a site with exterior noise levels in the 70- to 75-dBA CNEL range, development near residential is normally unacceptable unless a detailed analysis shows that noise reduction features are included in the design. For exterior noise levels in excess of 75 dBA CNEL, development of a site near residential uses is clearly unacceptable. The Land Use Compatibility Matrix has been shown above in Figure 4, which identifies compatibility of land uses with noise levels.

For the residential areas nearby, Policy 3.3.3 from the General Plan Noise Element provides an interior noise level standard of 45 dBA CNEL or less and an exterior noise standard of 60 dBA CNEL. In the context of this noise impact analysis, the noise impacts from transportation-related noise associated with the proposed project are controlled by the County Noise Element.

The CEQA Guidelines and the County's General Plan provide no definition of what constitutes a substantial noise increase; however, the California Department of Transportation provides guidance that can be used to define substantial changes in noise levels that may be caused by a project. The thresholds below generally apply to transportation noise that is usually expressed in terms of average noise exposure during a 24-hour period, such as the L_{dn} or CNEL. Project-generated increases in noise levels that exceed those outlined in the thresholds below and that affect existing noise-sensitive land uses (receptors) are considered substantial; therefore, they would constitute a significant noise impact. The project will create a significant noise-related impact if it would:

- Increase noise levels by 5 dB or more where the without project noise level is less than 60 dB.
- Increase noise levels by 3 dB or more where the without project noise level is 60 to 65 dB.
- Increase noise levels by 1.5 dB or more where the without project noise level is greater than 65 dB.

5.2 - Stationary Noise and Vibration

The County Noise Element has also established performance standards to control stationary source/non-transportation related noise impacts. General Plan Policy 3.3.5 stipulates that the maximum allowable noise exposure for a stationary noise source be maintained at 50 dBA L_{eq} and 70 dBA L_{max} or less during the daytime (7 a.m. to 10 p.m.) and 45 dBA L_{eq} and 65 dBA L_{max} or less during the nighttime (10 p.m. to 7 a.m.).

Since the County of San Luis Obispo does not have specific vibration impact criteria for operations-related vibration levels, the Federal Transit Administration's vibration impact thresholds presented in the *Transportation Noise and Vibration Impact Analysis*, May 2006, were utilized. The report recommends a threshold of 0.2 inches per second or 94 VdB (dB re: 1 micro-inch per second) as the significance level for potential damage to any nearby non-engineered timber and masonry buildings.

In the context of this Noise Impact Analysis, the noise and vibration impacts from stationary sources associated with the proposed project are controlled by the Municipal Code.

5.3 - Construction Noise and Vibration

Pursuant to Section 22.10.120 of the County's Municipal Code, construction noise is considered a nuisance and the Municipal Code places restrictions on the time when construction noise may occur. However, since neither the General Plan nor the Municipal Code provides quantitative construction noise, construction noise and vibration impacts have been analyzed according to the same regulations as stated above for stationary noise.

In the context of this Noise Impact Analysis, the noise and vibration impacts from construction sources associated with the proposed project are controlled by the Municipal Code.

5.4 - California Environmental Quality Act Thresholds of Significance

Consistent with the California Environmental Quality Act (CEQA) and the CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels
- A substantial permanent increase in ambient noise levels in the project vicinity above existing levels without the proposed project
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above noise levels existing without the proposed project

- Exposure of persons residing or working in the project area to excessive noise levels from aircraft

For the purposes of this noise impact analysis, a construction-related noise impact would be considered significant if construction activities are undertaken between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday or between the hours of 5 p.m. and 8:00 a.m. on Saturday and Sunday.

For the purposes of this noise impact analysis, a traffic-related noise impact would be considered significant if the proposed project increases the noise levels for a noise sensitive land use by (1) 5 dBA CNEL, where the without project noise level is less than 60 dBA CNEL; (2) 3 dBA CNEL, where the without project noise level is 60 to 65 dBA CNEL; *or* (3) 1.5 dBA CNEL, where the without project noise level is greater than 65 dBA CNEL.

For the purposes of this noise impact analysis, construction-related and operations-related vibration impacts would be considered significant if it involves any construction or ongoing operations activities that would create a vibration in excess of 0.2 inch per second or 94 VdB at the nearby sensitive receptors.

For the purposes of this noise impact analysis, an onsite noise impact would be considered significant if the onsite noise levels exceeds 50 dBA Leq during the daytime hours of 7:00 a.m. to 10:00 p.m. and 45 dBA Leq during the noise sensitive nighttime hours between 10:00 p.m. and 7:00 a.m. at any nearby sensitive receptors.

SECTION 6: EXISTING NOISE CONDITIONS

To determine the existing noise level environment, short-term noise measurements were taken at three locations in the project study area. The following describes the measurement procedures, measurement locations, and the noise measurement results.

6.1 - Measurement Procedure and Criteria

To ascertain the existing noise at and adjacent to the project site, field monitoring was conducted on Thursday, July 2, 2009. The field survey noted that noise within the proposed project area is generally characterized by vehicular traffic on Santa Rosa Avenue (SR-1), as well as communications over the prison loudspeakers. In addition, only high-altitude aircraft over-flights were observed during the noise measurements, with minimal noise impact.

6.1.1 - Noise Measurement Equipment

The short-term peak hour noise measurements were taken using a Larson-Davis Model 824 Type 1 precision sound level meter programmed in “slow” mode to record noise levels in “A” weighted form as well as the frequency spectrum of the noise broken down into 1/3 octaves. The sound level meter and microphone were mounted on a tripod five feet above the ground and were equipped with a windscreen during all measurements. The sound level meter was calibrated before and after the monitoring using a Larson-Davis calibrator, Model CAL 200. The accuracy of the calibrator is maintained through a program established through the manufacturer and is traceable to the National Bureau of Standards. The unit meets the requirements of ANSI Standard S1.4-1984 and IEC Standard 942: 1988 for Class 1 equipment. All noise level measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA).

All traffic noise measurement durations were measured according to the standards stated in Section N-3320 of Caltrans Technical Noise Supplement (TeNS), which specifies that the measurements be a duration of at least 10 minutes and shall be continued past 10 minutes until the fluctuations in the displayed L_{eq} is less than 0.5 dBA.

6.1.2 - Noise Measurement Locations

The project site is located in a moderately developed area. The project site is bounded by the prison to the north, vacant land to the east, Santa Cruz Road to the south and a prison parking lot to the west.

The noise monitoring locations were selected in order to obtain noise measurements of the current noise sources located on the project site and to provide a baseline for any potential noise impacts that may be created by development of the proposed project. Site 1 was positioned to capture the parking lot and prison noise impacts to the project site and is located approximately five feet east of the northeast corner of the parking lot. Site 2 was positioned to capture the highway noise impact on

residences south of the facility, and was located approximately 100 feet south of Santa Rosa Street (SR-1) on Bridle Ridge Trail, approximately five feet southeast of the centerline. Site 3 was positioned to capture highway noise impact on residences north of the facility, and was placed approximately 100 feet south of Santa Rosa Street (SR-1) on Mainini Ranch Road, approximately five feet west of the centerline. Figure 5 shows the noise monitoring sites. Appendix A includes a photo index of the study area and noise level measurement locations.

6.1.3 - Noise Measurement Timing and Climate

The noise measurements were recorded between 3:30 p.m. and 5:26 p.m. on July 2, 2009. During the noise measurements, the sky was clear, the temperature was 89 degrees Fahrenheit, barometric pressure was 29.38 inches of mercury, and the wind speed average was 5 mph.

6.2 - Noise Measurement Results

6.2.1 - Short-Term Noise Measurement Results

The results of the short-term noise level measurements are presented in Table G. The noise level measurements were monitored for a minimum time period of 30 minutes. The existing noise level measurements ranged from 49.3 to 68.0 dBA Leq, with the highest noise measurement at Site 3.

Table G: Existing (Ambient) Noise Level Measurements

Site No.	Site Description	Primary Noise Source	Start Time and Measurement (Minutes)	Noise Level (dBA L_{eq})
1	Located approximately 5 feet east of the northeast corner of the prison parking lot.	Loudspeaker noise from the prison and parking lot noise.	3:30 p.m. (32:40)	49.3
2	Located approximately 100 feet south of Santa Rosa Street (SR-1) on Bridle Ridge Trail, approximately five feet southeast of the centerline	Traffic noise from SR-1.	4:10 p.m. (30:30)	65.7
3	Located approximately 100 feet south of Santa Rosa Street (SR-1) on Mainini Ranch Road, approximately five feet west of the centerline	Traffic noise from SR-1	4:52 p.m. (33:30)	68.0
Notes: Noise measurements taken on July 2, 2009.				

The noise level measurements were taken during the peak afternoon traffic period. The noise monitoring data printouts are included in Appendix B. According to Section N-2230 of the TeNS, the CNEL values are generally within plus or minus 2 dBA of the measured peak hour Leq dBA.

6.2.2 - Modeled Existing Noise Levels

Since the noise monitoring found that traffic noise on the nearby roads is the primary noise sources impacting the project site, the noise created by the nearby roads have been modeled using a computer

N

SOURCE: Michael Brandman Associates, 2009.

LEGEND

3 Noise Measurement Location

Figure 5
Noise Measurement Locations

program that replicates the FHWA Traffic Noise Prediction Model- FHWA-RD-77-108 (the "FHWA Model"). The following section provides a discussion of the software and modeling input parameters used in this analysis and a discussion of the resultant existing noise model.

Methodology

The following section describes the noise analysis methodologies, which includes a discussion of the software and modeling input parameters used in this analysis.

FHWA Model

Since the noise impacts in the immediate vicinity of the project site are caused primarily by vehicle noise, the FHWA Model was used to analyze the offsite roadway noise levels. The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Adjustments are then made to the reference energy mean emission level to account for: the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT) and the percentage of (ADT) which flows during the day, evening and night, the travel speed, the vehicle mix on the roadway, which is a percentage of the volume of automobiles, medium trucks and heavy trucks, the roadway grade, the angle of view of the observer exposed to the roadway, the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement or landscaping.

Roadway Assumptions

The model analyzed the noise impacts from the nearby roadways onto the project vicinity. All roadways were based on a single-lane-equivalent noise source combining both directions of travel. Based on the County's Transportation Plan, Santa Rosa Street (SR-1) and Highland Drive north of Santa Rosa Street (SR-1) are classified as county arterials and Colony Drive and Highland Drive south of Santa Rosa Street (SR-1) are classified as collectors. The existing average daily traffic (ADT) volumes were obtained from traffic counts taken by Kimley-Horn and Associates, Inc. in April and June 2009. Soft site conditions were used to develop the offsite noise contours. The roadway parameters used for the FHWA Model are presented below in Table H.

Table H: FHWA Model Roadway Parameters

Roadway	Segment	General Plan Classification	Vehicle Speed (mph)	Existing ADTs
Colony Drive	North of Santa Cruz Road	Collector	25	4,550
Colony Drive	North of State Route 1	Collector	25	4,740
Highland Drive	North of State Route 1	County Arterial	30	8,470
Highland Drive	South of State Route 1	Collector	25	5,700
Santa Rosa St. (SR-1)	West of Highland Drive	County Arterial	55	29,150
Santa Rosa St. (SR-1)	East of Highland Drive	County Arterial	45	31,250
Source: Kimley-Horn and Associates, Inc., 2009; County of San Luis Obispo, General Plan.				

Table I presents the hourly traffic flow distributions (vehicle mix) used in this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks and heavy trucks for input into the FHWA Model.

Table I: Roadway Vehicle Mixes

Roadway Classification	Vehicle Type	Hourly Traffic Flow Distributions (percent)			
		Day (7 a.m. to 7p.m.)	Evening (7 p.m. to 10 p.m.)	Night (10 p.m. to 7 a.m.)	Overall
State Route 1	Automobiles	66.7%	13.7%	16.0%	96.3%
	Medium Trucks	1.4%	0.3%	0.7%	2.4%
	Heavy Trucks	0.7%	0.1%	0.5%	1.3%
Minor Collector and Local	Automobiles	73.60%	13.60%	10.22%	97.40%
	Medium Trucks	0.90%	0.90%	0.04%	1.84%
	Heavy Trucks	0.35%	0.04%	0.35%	0.74%
Source: Caltrans, 2008 and field observations.					

In order to determine the height above the road grade where the noise is being emitted from, each type of vehicle has been analyzed independently with autos at road grade, medium trucks at 2.3 feet above road grade, and heavy trucks at 8 feet above road grade. These elevations were determined through a noise-weighted average of the elevation of the exhaust pipe, tires, and mechanical parts in the engine, which are the primary noise emitters from a vehicle.

FHWA Model Results

The noise contours of the nearby existing roadways have been calculated in order to provide a baseline of the existing traffic noise levels. The calculated existing noise contours are shown below in Table J and Appendix C.

Table J: Calculated Existing Roadway Noise Levels

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Colony Drive	North of Santa Cruz Road	50.5	RW	RW	RW	50
Colony Drive	North of State Route 1	50.7	RW	RW	RW	51
Highland Drive	North of State Route 1	55.7	RW	RW	51	111
Highland Drive	South of State Route 1	51.5	RW	RW	RW	58
Santa Rosa Street (SR-1)	West of Highland Drive	68.6	80	173	373	803
Santa Rosa Street (SR-1)	East of Highland Drive	66.1	55	118	255	549
Notes: RW = Noise contour is located within right-of-way of roadway.						

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Source: FHWA-Road-77-108 Traffic Noise Prediction Model; Caltrans, 1998.						

Table J above shows that at 100 feet only the analyzed sections of Santa Rosa Street (SR-1) currently exceed the County's 60 dBA CNEL residential standard. Existing noise levels on all roadway segments range from 50.5 to 68.6 dBA CNEL.

SECTION 7: SHORT-TERM CONSTRUCTION IMPACTS

Construction noise and vibration represents a short-term increase in ambient noise and vibration levels. Noise and vibration impacts from construction activities associated with the proposed project would be a function of the noise and vibration generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities.

The construction activities for the proposed project are anticipated to include demolition of a parking lot, ground clearing/excavation and grading of the project site land and construction of the 50-bed MHCB, a new 316 space parking lot south of Lot B, a new 189 space parking lot south of Lot A, and a water detention basin south of the new 316 space parking lot. The following section provides a discussion of construction noise and vibration assumptions and an analysis of potential short-term construction impacts associated with the proposed project.

7.1 - Potential Short-Term Construction Noise Impacts

Short-term noise impacts could occur during construction activities from either the noise impacts created from the transport of workers and movement of construction materials to and from the project site, or from the noise generated onsite during: ground clearing/excavation, grading, and building construction activities.

The project site is located in a moderately developed area. The nearest noise sensitive land uses to the project site would be single-family residential homes located as near as 50 feet south of the proposed water detention basin at the northeast corner of Colony Drive and Santa Cruz Road.

Construction noise impacts onto the nearby sensitive receptors have been calculated according to the equipment noise levels listed above in Table A and through the use of the RCNM. The greatest noise impacts to the nearby residential homes would be anticipated to occur during the simultaneous construction of the new parking lot and MCHB facility of the project site, since the demolition equipment produces the highest noise levels. Construction noise has been modeled based on the equipment assumption used in the Air Quality and Climate Change Analysis, (Michael Brandman Associates, 2009), which assumed that the simultaneous operation of four cement mixers, one paver, two paving equipment one roller, one tractor, two graders, one loader, and one water truck would occur during construction of the proposed project. The equipment was placed 100 feet apart starting at the edge of the area to be graded in order to create the worst-case noise levels at the nearby sensitive receptors. This would result in a noise level of: 75.9 dBA L_{eq} and 78.8 dBA L_{max} at the nearest single-family residences. The RCNM printouts are provided in Appendix D.

With compliance of the limitation in construction hours detailed in Section 22.10.120 of the Municipal Code, the construction-related noise associated with the proposed project would not generate noise levels in excess of standards. However, construction activities may expose nearby

sensitive receptors to significant noise levels. The estimated construction noise levels represent a potentially significant impact. Mitigation Measure NOI-1 is provided to reduce construction noise to less than significant levels.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM NOI-1 The project applicant shall require construction contractors to adhere to the following noise attenuation requirements:

- Construction activities shall be limited to between the hours of 7:00 a.m. and 9:00 p.m. on weekdays and between the hours of 8 a.m. and 5 p.m. on Saturdays and Sundays.
- All construction equipment shall use noise-reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.
- Construction staging and heavy equipment maintenance activities shall be performed a minimum distance of 300 feet from the nearest offsite building, unless safety or technical factors take precedence.
- Stationary combustion equipment such as pumps or generators operating within 300 feet of the nearest single family residence shall be shielded with a noise protection barrier.

Level of Significance After Mitigation

Less than significant impact.

7.2 - Potential Short-Term Construction Vibration Impacts

Construction activities can produce vibration that may be felt by adjacent uses. The construction of the proposed project would not require the use of equipment such as jackhammers and pile drivers, which are known to generate substantial construction vibration levels. The primary sources of vibration during construction would be from a large bulldozer. From Table B, a large bulldozer would produce a vibration level of 0.089 PPV or 87 VdB at 25 feet.

The closest vibration-sensitive land uses are the single-family residential homes located approximately 50 feet south of the proposed storm drain basin. It is anticipated that the vibration levels caused by a large bulldozer operating on the southern edge of the project site at the nearest home will be around 0.02 inches per second PPV or 81 VdB, which is below the 0.2 inch per second or 94 VdB vibration threshold discussed in Section 5.0. Therefore, construction-related vibration would not create a significant impact.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

SECTION 8: LONG-TERM OPERATIONS NOISE IMPACTS

The ongoing operation of the proposed project would result in a potential long-term increase in ambient noise levels. Potential noise impacts associated with the operations of the proposed project are a result of project-generated vehicular traffic on the project vicinity roadways and from stationary noise sources associated with the proposed project. The following section provides an analysis of potential long-term offsite and onsite noise and vibration impacts associated with the ongoing operations of the proposed project.

8.1 - Potential Offsite Vehicular Noise Impacts

The proposed project would generate additional vehicular trips on roadways in the project vicinity. Noise from motor vehicles is generated by engine vibrations, the interaction between tires and the road, and the exhaust system.

The potential offsite traffic noise impacts created by the on-going operations of the proposed project have been analyzed through utilization of the FHWA Model and parameters described above in Section 6.0 for the existing noise calculations. The future average daily traffic (ADT) volumes on the study area roadways were obtained from the Traffic Impact Analysis (Kimley-Horn Associates, Inc. 2009). The ADT volumes have been provided for the near term baseline, near term with project, year 2030 cumulative baseline, and year 2030 cumulative with project scenarios. The ADT volumes used in this analysis are shown below in Table K.

Table K: Future Average Daily Traffic

Roadway	Segment	Average Daily Traffic			
		Near Term Baseline	Near Term With Project	Cumulative Baseline	Cumulative With Project
Colony Drive	North of Santa Cruz Road	4,550	4,900	4,550	4,900
Colony Drive	North of State Route 1	4,740	5,090	4,740	5,090
Highland Drive	North of State Route 1	9,040	9,060	10,610	10,620
Highland Drive	South of State Route 1	5,750	5,780	7,140	7,180
Santa Rosa Street (SR-1)	West of Highland Drive	29,220	29,510	36,440	36,720
Santa Rosa Street (SR-1)	East of Highland Drive	31,690	31,920	39,070	39,300
Source: Kimley-Horn and Associates, Inc., 2009.					

The vehicle mix used in the FHWA Model have been provided previously in Table I. The FHWA-Model utilized the Local vehicle mix, which has been based on typical vehicle mixes observed in California.

8.1.1 - Model Results

The potential offsite noise impacts caused by the increase in vehicular traffic from the ongoing operations from the proposed project onto the project study area roadways have been analyzed for the following four traffic scenarios:

- **Near Term Baseline Condition:** This scenario refers to projected traffic noise conditions in the near term, without construction of the proposed project.
- **Near Term With Project Condition:** This scenario refers to projected traffic noise conditions in the near term, with construction of the proposed project.
- **Cumulative Baseline Condition:** This scenario refers to the future year 2030 traffic noise conditions that were estimated by using growth rates derived from the San Luis Obispo Council of Governments (SLOCOG) travel demand forecasting model, without construction of the proposed project.
- **Cumulative With Project Condition:** This scenario refers to the future year 2030 traffic noise conditions consisting of cumulative baseline conditions, with construction of the proposed project.

In order to quantify the traffic noise impacts along the analyzed roadways, the roadway noise contours were calculated. Noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway. For analysis comparison purposes, the Ldn and CNEL noise levels are calculated at 100 feet from the centerline. In addition, the distance from the centerline to the 55-, 60-, 65-, and 70-dBA noise levels are calculated for both Ldn and CNEL standards.

Near Term Baseline

The calculated near term baseline noise contours are shown below in Table L and Appendix E.

Table L: Near Term Baseline Traffic Noise Contours

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Colony Drive	North of Santa Cruz Road	50.5	RW	RW	RW	50
Colony Drive	North of State Route 1	50.7	RW	RW	RW	51
Highland Drive	North of State Route 1	55.9	RW	RW	54	116
Highland Drive	South of State Route 1	51.5	RW	RW	RW	59
Santa Rosa Street (SR-1)	West of Highland Drive	68.6	80	173	373	804
Santa Rosa Street (SR-1)	East of Highland Drive	66.4	58	125	268	578

Notes: RW = Noise contour is located within right-of-way of roadway.
Source: FHWA-Road-77-108 Traffic Noise Prediction Model; Caltrans, 1998.

Table L shows that for the near term baseline condition at 100 feet, only Santa Rosa Street (SR-1) would exceed the County's 60 dBA CNEL residential standard. The noise levels on all roadway segments would range from 50.5 to 68.6 dBA CNEL.

Near Term With Project

The calculated near term with project noise contours are shown below in Table M and Appendix E.

Table M: Near Term With Project Traffic Noise Contours

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Colony Drive	North of Santa Cruz Road	50.8	RW	RW	RW	53
Colony Drive	North of State Route 1	51.0	RW	RW	RW	54
Highland Drive	North of State Route 1	56.0	RW	RW	54	116
Highland Drive	South of State Route 1	51.5	RW	RW	RW	59
Santa Rosa Street (SR-1)	West of Highland Drive	68.6	81	174	376	810
Santa Rosa Street (SR-1)	East of Highland Drive	66.5	58	125	270	581

Notes: RW = Noise contour is located within right-of-way of roadway.
Source: FHWA-Road-77-108 Traffic Noise Prediction Model; Caltrans, 1998.

Table M shows that for the near term with project condition at 100 feet, when compared to the near term without project condition, no additional roadway segments would exceed the County's 60 dBA CNEL residential standard. The noise levels on all roadway segments would range from 50.8 to 68.6 dBA CNEL.

Cumulative Baseline

The calculated cumulative baseline noise contours are shown below in Table N and Appendix E.

Table N: Cumulative Baseline Traffic Noise Contours

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Colony Drive	North of Santa Cruz Road	50.5	RW	RW	RW	50
Colony Drive	North of State Route 1	50.7	RW	RW	RW	51
Highland Drive	North of State Route 1	56.6	RW	RW	60	129
Highland Drive	South of State Route 1	52.4	RW	RW	31	68
Santa Rosa Street (SR-1)	West of Highland Drive	69.5	93	201	433	932
Santa Rosa Street (SR-1)	East of Highland Drive	67.3	66	143	309	665

Notes: RW = Noise contour is located within right-of-way of roadway.
Source: FHWA-Road-77-108 Traffic Noise Prediction Model; Caltrans, 1998.

Table N shows that for the cumulative baseline condition at 100 feet, only Santa Rosa Street (SR-1) exceeds the County's 60 dBA CNEL residential standard. The noise levels on all roadway segments would range from 50.5 to 69.5 dBA CNEL.

Cumulative With Project

The calculated cumulative with project noise contours are shown below in Table O and Appendix E.

Table O: Cumulative With Project Traffic Noise Contours

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Colony Drive	North of Santa Cruz Road	50.8	RW	RW	RW	53
Colony Drive	North of State Route 1	51.0	RW	RW	RW	54
Highland Drive	North of State Route 1	56.6	RW	RW	60	129
Highland Drive	South of State Route 1	52.5	RW	RW	31	68
Santa Rosa Street (SR-1)	West of Highland Drive	69.6	94	202	435	937
Santa Rosa Street (SR-1)	East of Highland Drive	67.4	67	144	310	667

Notes: RW = Noise contour is located within right-of-way of roadway.
Source: FHWA-Road-77-108 Traffic Noise Prediction Model; Caltrans, 1998.

Table O shows that for the cumulative with project condition at 100 feet, when compared to the cumulative baseline condition, no additional roadway segments would exceed the County's 60 dBA CNEL residential standard. The noise levels on all roadway segments would range from 50.8 to 69.6 dBA CNEL.

8.1.2 - Project Impacts

In order for offsite roadway noise impacts created by the proposed project's operations to be considered significant, the proposed project would need to increase the noise levels for a noise sensitive land use by (1) 5 dBA CNEL, where the without project noise level is less than 60 dBA CNEL; (2) 3 dBA CNEL, where the without project noise level is 60 to 65 dBA CNEL; or (3) 1.5 dBA CNEL, where the without project noise level is greater than 65 dBA CNEL. These criteria for significance have been previously discussed in Section 5.0. In order for a project to increase the noise level by 3 dBA CNEL, the volume of traffic on an impacted roadway would have to double. The fundamentals of traffic noise propagation have been previously discussed in greater detail above in Section 2.0. The proposed project's offsite traffic noise impacts have been analyzed for the near term and cumulative conditions, which are discussed below.

Near Term Conditions

The proposed project's potential offsite noise impacts have been calculated through a comparison of the near term baseline scenario to the near term with project scenario. The results of this comparison are shown below in Table P.

Table P: Near-Term Project Traffic Noise Contributions

Roadway	Segment	CNEL at 100 feet			
		No Project	With Project	Project Contribution	Potential Significant Impact?
Colony Drive	North of Santa Cruz Road	50.5	50.8	0.3	No
Colony Drive	North of State Route 1	50.7	51.0	0.3	No
Highland Drive	North of State Route 1	55.9	56.0	0.1	No
Highland Drive	South of State Route 1	51.5	51.5	0.0	No
Santa Rosa Street (SR-1)	West of Highland Drive	68.6	68.6	0.0	No
Santa Rosa Street (SR-1)	East of Highland Drive	66.4	66.5	0.1	No
Source: FHWA-Road-77-108 Traffic Noise Prediction Model; Caltrans, 1998.					

Table P above indicates that for the near term condition, the noise level contributions from the proposed project to the study area roadways would range from 0.0 to 0.3 dBA CNEL. A 0.3 dBA noise increase would be below the thresholds of significance discussed above in Section 5.0. Therefore, based on thresholds of significance defined above, no significant near-term offsite noise impacts from project-related vehicle noise would occur along the study area roadways segments.

Cumulative Conditions

The proposed project's potential offsite noise impacts have been calculated through a comparison of the cumulative baseline scenario to the cumulative with project scenario. The results of this comparison are shown below in Table Q.

Table Q: Cumulative Project Traffic Noise Contributions

Roadway	Segment	CNEL at 100 feet			
		No Project	With Project	Project Contribution	Potential Significant Impact?
Colony Drive	North of Santa Cruz Road	50.5	50.8	0.3	No
Colony Drive	North of State Route 1	50.7	51.0	0.3	No
Highland Drive	North of State Route 1	56.6	56.6	0.0	No
Highland Drive	South of State Route 1	52.4	52.5	0.1	No
Santa Rosa Street (SR-1)	West of Highland Drive	69.5	69.6	0.1	No
Santa Rosa Street (SR-1)	East of Highland Drive	67.3	67.4	0.1	No

Roadway	Segment	CNEL at 100 feet			
		No Project	With Project	Project Contribution	Potential Significant Impact?
Source: FHWA-Road-77-108 Traffic Noise Prediction Model; Caltrans, 1998.					

Table Q above indicates that for the cumulative condition, the noise level contributions from the proposed project to the study area roadways would range from 0.0 to 0.3 dBA CNEL. A 0.3 dBA noise increase would be below the thresholds of significance discussed above in Section 5.0. Therefore, based on thresholds of significance defined above, no significant cumulative offsite noise impacts from project-related vehicle noise would occur along the study area roadways segments.

8.2 - Potential Offsite Stationary Noise Impacts

Stationary noise impacts associated with the ongoing operations of the proposed project have been analyzed separately from the offsite vehicular noise impacts, since onsite noise sources may be directly regulated by local jurisdictions and are typically defined by stationary source noise regulations. The regulatory framework, which preempts direct regulation of transportation noise by local jurisdictions, has been described previously in Section 4.0. The proposed project would have potential stationary noise impact to the nearby residences from a new backup generator, an expanded prison speaker system, additional HVAC units, parking lot areas, and onsite vehicular traffic.

According to Policy 3.3.5 of the General Plan, a stationary exterior noise impact would be considered significant if the noise levels created onsite exceeds 50 dBA L_{eq} during the daytime (7 a.m. to 10 p.m.) and 45 dBA L_{eq} during the nighttime (10 p.m. to 7 a.m.) when measured on the property line of any nearby residential property.

According to Table A above a generator would create a noise level of 82 dB at 50 feet. The proposed backup generator would be located in the southeast corner of the new secure perimeter area. The nearest sensitive receptors to the proposed backup generator are the single-family homes located as near as 1,150 feet to the south. Based on the noise attenuation rate for “hard sites” of 6 dB per doubling of distance, the anticipated stationary noise impact created by the operations of the proposed backup generator at the single-family residences to the south would be 54.8 dBA L_{eq}. A noise level of 54.8 dBA L_{eq} would exceed both the daytime and nighttime residential stationary noise standards by 4.8 dB and 9.8 dB, respectively. Therefore, operation of the backup generator would create a significant impact. Mitigation Measure MM-NOI-2 is provided that would reduce the generator noise to a less than significant impact.

The noise created from the expanded prison speaker system, additional HVAC units, parking lot areas, and onsite vehicular traffic are all existing noise sources on the project site that will be expanded closer to the existing single-family homes to the south. Noise Measurement Site 1 described above in Section 6.0 was taken at the northern edge of the existing prison parking lot and

captured the noise created from all of these sources. Noise Measurement Site 1 recorded a noise level of 49.3 dBA L_{eq}. The nearest sensitive receptors are the single-family homes located as near as 160 feet south of the expanded portion of Parking Lot B. Based on the noise attenuation rate for "hard sites" of 6 dB per doubling of distance, the anticipated stationary noise impact created by the operations of the proposed project at the single-family residences to the south would be 25.2 dBA L_{eq}. An operational noise level of 25.2 dBA L_{eq} would be within the residential exterior noise thresholds for both daytime and nighttime. Therefore, a less than significant stationary noise impact is anticipated to occur from the expanded prison speaker system, additional HVAC units, parking lot areas, and onsite vehicular traffic on to the occupants of any of the existing nearby residential uses.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM NOI-2 The project applicant shall require that a minimum 10 dB of attenuation is provided for the backup generator. This may be achieved through placing the backup generator in an enclosure with a roof. The enclosure shall not have any cutouts on the south side.

Level of Significance After Mitigation

Less than significant impact.

8.3 - Potential Long-Term Vibration Impacts

The proposed project would result in the development of a 50-bed MHCB facility and the expansion of two parking lots. The ongoing operations of the proposed project would require additional truck deliveries to the project site. The nearest sensitive receptors are single-family residences located as near as 160 feet south of the expanded portion of Parking Lot B.

According to Figure 3 above, a truck on a paved surface would typically produce a vibration level of 63 VdB at 50 feet. This would result in a vibration level of 0.0008 inches per second PPV or 53 VdB at the nearest residence, which is below the 0.2 inch per second PPV or 94 VdB vibration threshold discussed above in Section 5.0. Therefore, the vibration impacts caused by the ongoing operations of the proposed project onto the existing nearby homes would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

SECTION 9: FINDINGS AND RECOMMENDATIONS

9.1 - Short-Term Construction Impacts

9.1.1 - Short-Term Construction Noise Impacts

The analysis found that construction activities would result in a noise level of: 75.9 dBA L_{eq} and 78.8 dBA L_{max} at the nearest single-family residences. With compliance of the limitation in construction hours detailed in Section 22.10.120 of the Municipal Code, the construction-related noise associated with the proposed project would not generate noise levels in excess of standards. However, construction activities may expose nearby sensitive receptors to significant noise levels. The estimated construction noise levels represent a potentially significant impact. Mitigation Measure NOI-1 is provided to reduce construction noise to less than significant levels.

MM NOI-1 The project applicant shall require construction contractors to adhere to the following noise attenuation requirements:

- Construction activities shall be limited to between the hours of 7:00 a.m. and 9:00 p.m. on weekdays and between the hours of 8 a.m. and 5 p.m. on Saturdays and Sundays.
- All construction equipment shall use noise-reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.
- Construction staging and heavy equipment maintenance activities shall be performed a minimum distance of 300 feet from the nearest offsite building, unless safety or technical factors take precedence.
- Stationary combustion equipment such as pumps or generators operating within 300 feet of the nearest single family residence shall be shielded with a noise protection barrier.

9.1.2 - Short-Term Construction Vibration Impacts

The closest vibration-sensitive land uses are the single-family residential homes located approximately 50 feet south of the proposed storm drain basin. It is anticipated that the vibration levels caused by a large bulldozer operating on the southern edge of the project site at the nearest home will be around 0.02 inches per second PPV or 81 VdB, which is below the 0.2 inch per second or 94 VdB vibration threshold discussed in Section 5.0. Therefore, construction-related vibration would not create a significant impact.

9.2 - Long-Term Operations Noise Impacts

9.2.1 - Offsite Long-Term Vehicular Noise Impacts

The proposed project's offsite traffic noise impacts have been analyzed for the near term and cumulative conditions discussed below.

Near Term Conditions

The analysis above indicates that for the near term condition, the noise level contributions from the proposed project to the study area roadways would range from 0.0 to 0.3 dBA CNEL. A 0.3 dBA noise increase would be below the thresholds of significance discussed above in Section 5.0. Therefore, based on thresholds of significance defined above, no significant near-term offsite noise impacts from project-related vehicle noise would occur along the study area roadways segments.

Cumulative Conditions

The analysis above indicates that for the cumulative condition, the noise level contributions from the proposed project to the study area roadways would range from 0.0 to 0.3 dBA CNEL. A 0.3 dBA noise increase would be below the thresholds of significance discussed above in Section 5.0. Therefore, based on thresholds of significance defined above, no significant cumulative offsite noise impacts from project-related vehicle noise would occur along the study area roadways segments.

9.2.2 - Offsite Stationary Noise Impacts

The nearest sensitive receptors to the proposed backup generator are the single-family homes located as near as 1,150 feet to the south. Based on the noise attenuation rate for "hard sites" of 6 dB per doubling of distance, the anticipated stationary noise impact created by the operations of the proposed backup generator at the single-family residences to the south would be 54.8 dBA L_{eq}. A noise level of 54.8 dBA L_{eq} would exceed both the daytime and nighttime residential stationary noise standards by 4.8 dB and 9.8 dB, respectively. Therefore, operation of the backup generator would create a significant impact. Mitigation Measure MM-NOI-2 is provided that would reduce the generator noise to a less than significant impact.

The noise created from the expanded prison speaker system, additional HVAC units, parking lot areas, and onsite vehicular traffic are all existing noise sources on the project site that will be expanded closer to the existing single-family homes to the south. Noise Measurement Site 1 described above in Section 6.0 was taken at the northern edge of the existing prison parking lot and captured the noise created from all of these sources. Noise Measurement Site 1 recorded a noise level of 49.3 dBA L_{eq}. The nearest sensitive receptors are the single-family homes located as near as 160 feet south of the expanded portion of Parking Lot B. Based on the noise attenuation rate for "hard sites" of 6 dB per doubling of distance, the anticipated stationary noise impact created by the operations of the proposed project at the single-family residences to the south would be 25.2 dBA L_{eq}. An operational noise level of 25.2 dBA L_{eq} would be within the residential exterior noise thresholds for both daytime and nighttime. Therefore, a less than significant stationary noise impact is

anticipated to occur from the expanded prison speaker system, additional HVAC units, parking lot areas, and onsite vehicular traffic on to the occupants of any of the existing nearby residential uses.

MM NOI-2 The project applicant shall require that a minimum 10 dB of attenuation is provided for the backup generator. This may be achieved through placing the backup generator in an enclosure with a roof. The enclosure shall not have any cutouts on the south side.

9.2.3 - Long-Term Vibration Impacts

The ongoing operations of the proposed project would require additional truck deliveries to the project site that may create vibration impacts. The nearest sensitive receptors are single-family residences located as near as 160 feet south of the expanded portion of Parking Lot B. According to Figure 3 above, a truck on a paved surface would typically produce a vibration level of 63 VdB at 50 feet. This would result in a vibration level of 0.0008 inches per second PPV or 53 VdB at the nearest residence, which is below the 0.2 inch per second PPV or 94 VdB vibration threshold discussed above in Section 5.0. Therefore, the vibration impacts caused by the ongoing operations of the proposed project onto the existing nearby homes would be less than significant.

SECTION 10: REFERENCES

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Appendix A:
Study Area Photo Index

Noise Measurement Site 1 - looking north

Noise Measurement Site 1 - looking northwest

Noise Measurement Site 1 - looking west

Noise Measurement Site 1 - looking south

Noise Measurement Site 2 - looking west

Noise Measurement Site 2 - looking northwest

Noise Measurement Site 2 - looking south

Noise Measurement Site 3 - looking east

Noise Measurement Site 3 - looking northeast

Noise Measurement Site 3 - looking north

Noise Measurement Site 1 - looking south

Appendix B:
Field Noise Measurement Printouts

SLM & RTA Summary
Translated: 03-Jul-2009 13:23:01

File Translated: Z:\Vista Env\2009\090505-San Luis Obisbo MHCB\Noise Measurements\1.slmdl
Model Number: 824
Serial Number: A3176
Firmware Rev: 4.283
Software Version: 3.120
Name: Vista Environmental
Descr1: 1021 Didrikson Way
Descr2: Laguna Beach, CA 92651
Setup: SLM&RTA.ssa
Setup Descr: SLM & Real-Time Analyzer
Location: On edge of prison visitor parking lot, near south guard tower
Note 1:
Note 2:

Overall Any Data
Start Time: 02-Jul-2009 15:30:11
Elapsed Time: 00:32:43.3

	A Weight	C Weight	Flat
Leq:	49.3 dBA	65.1 dBC	70.9 dBF
SEL:	82.2 dBA	98.0 dBC	103.8 dBF
Peak:	88.3 dBA	97.5 dBC	100.8 dBF
	02-Jul-2009 15:30:22	02-Jul-2009 15:52:27	02-Jul-2009 15:52:27
Lmax (slow):	65.9 dBA	80.9 dBC	87.7 dBF
	02-Jul-2009 15:59:09	02-Jul-2009 15:56:31	02-Jul-2009 15:56:31
Lmin (slow):	43.8 dBA	55.8 dBC	58.5 dBF
	02-Jul-2009 15:40:43	02-Jul-2009 15:30:12	02-Jul-2009 15:49:46
Lmax (fast):	69.3 dBA	86.0 dBC	91.1 dBF
	02-Jul-2009 15:59:09	02-Jul-2009 15:52:28	02-Jul-2009 15:56:31
Lmin (fast):	43.1 dBA	54.7 dBC	56.5 dBF
	02-Jul-2009 15:40:43	02-Jul-2009 15:50:16	02-Jul-2009 15:50:16
Lmax (impulse):	71.0 dBA	90.2 dBC	94.2 dBF
	02-Jul-2009 15:59:09	02-Jul-2009 15:52:27	02-Jul-2009 15:52:28
Lmin (impulse):	43.2 dBA	56.2 dBC	58.8 dBF
	02-Jul-2009 15:40:43	02-Jul-2009 15:30:12	02-Jul-2009 15:30:12

Spectra
Start Time: 02-Jul-2009 15:30:11 Run Time: 00:32:43.3

Freq	Leq 1/3	Leq 1/1	Max 1/3	Max 1/1	Min 1/3	Min 1/1
12.5 Hz	65.9		67.1		37.6	
16.0 Hz	63.8	68.8	65.6	70.0	36.1	42.1
20.0 Hz	61.3		61.3		38.1	
25.0 Hz	59.3		60.7		36.9	
31.5 Hz	56.9	62.2	56.8	64.1	37.8	42.2
40.0 Hz	54.9		59.6		37.6	
50.0 Hz	53.9		57.4		39.3	
63.0 Hz	51.4	57.6	53.4	60.5	38.5	43.8
80.0 Hz	52.7		55.4		39.2	
100 Hz	53.8		57.3		38.0	
125 Hz	50.5	55.7	52.2	58.6	41.7	43.9
160 Hz	43.6		43.1		35.3	
200 Hz	41.2		39.6		31.1	
250 Hz	39.8	44.9	38.9	51.7	30.8	35.3
315 Hz	39.2		51.2		29.7	
400 Hz	39.2		57.5		29.8	
500 Hz	40.7	45.5	59.5	69.2	32.9	36.8

630 Hz	41.9		68.4		32.7	
800 Hz	41.7		60.2		33.0	
1000 Hz	41.7	45.9	57.0	62.3	32.3	36.8
1250 Hz	39.6		51.5		30.5	
1600 Hz	37.2		49.2		29.1	
2000 Hz	34.5	39.7	45.9	51.4	27.6	32.2
2500 Hz	31.3		42.2		24.2	
3150 Hz	31.1		39.2		22.6	
4000 Hz	30.8	34.8	32.1	40.2	21.3	26.0
5000 Hz	27.1		26.8		19.3	
6300 Hz	22.9		21.1		17.6	
8000 Hz	21.5	26.6	21.2	25.3	17.6	22.4
10000 Hz	20.7		18.9		17.6	
12500 Hz	20.4		19.0		17.8	
16000 Hz	20.6	25.7	20.0	25.0	18.8	24.0
20000 Hz	21.6		21.4		20.7	

Ln Start Level: 15 dB

L (1.00) 0.0
L (5.00) 0.0
L (50.00) 0.0
L (90.00) 0.0
L (95.00) 0.0
L (99.00) 0.0

Detector: Slow
Weighting: A
SPL Exceedance Level 1: 85.0 dB Exceeded: 0 times
SPL Exceedance Level 2: 120.0 dB Exceeded: 0 times
Peak-1 Exceedance Level: 105.0 dB Exceeded: 0 times
Peak-2 Exceedance Level: 100.0 dB Exceeded: 0 times
Hysteresis: 2
Overloaded: 0 time(s)
Paused: 0 times for 00:00:00.0

Current Any Data
Start Time: 02-Jul-2009 15:30:11
Elapsed Time: 00:32:43.3

	A Weight	C Weight	Flat
Leq:	49.3 dBA	65.1 dBC	70.9 dBF
SEL:	82.2 dBA	98.0 dBC	103.8 dBF
Peak:	88.3 dBA	97.5 dBC	100.8 dBF
	02-Jul-2009 15:30:22	02-Jul-2009 15:52:27	02-Jul-2009 15:52:27
Lmax (slow):	65.9 dBA	80.9 dBC	87.7 dBF
	02-Jul-2009 15:59:09	02-Jul-2009 15:56:31	02-Jul-2009 15:56:31
Lmin (slow):	43.8 dBA	55.8 dBC	58.5 dBF
	02-Jul-2009 15:40:43	02-Jul-2009 15:30:12	02-Jul-2009 15:49:46
Lmax (fast):	69.3 dBA	86.0 dBC	91.1 dBF
	02-Jul-2009 15:59:09	02-Jul-2009 15:52:28	02-Jul-2009 15:56:31
Lmin (fast):	43.1 dBA	54.7 dBC	56.5 dBF
	02-Jul-2009 15:40:43	02-Jul-2009 15:50:16	02-Jul-2009 15:50:16
Lmax (impulse):	71.0 dBA	90.2 dBC	94.2 dBF
	02-Jul-2009 15:59:09	02-Jul-2009 15:52:27	02-Jul-2009 15:52:28
Lmin (impulse):	43.2 dBA	56.2 dBC	58.8 dBF
	02-Jul-2009 15:40:43	02-Jul-2009 15:30:12	02-Jul-2009 15:30:12

Calibrated: 02-Jul-2009 15:27:38 Offset: -47.2 dB
Checked: 02-Jul-2009 15:27:38 Level: 94.0 dB

Calibrator	not set	Level:	94.0 dB
Cal Records Count:	1		
Interval Records:	Disabled	Number Interval Records:	0
Time History:	Disabled	Number History Records:	0
Run/Stop Records:		Number Run/Stop Records:	2

SLM & RTA Summary
Translated: 03-Jul-2009 13:24:45

File Translated: Z:\Vista Env\2009\090505-San Luis Obisbo MHCB\Noise Measurements\2.slmdl
Model Number: 824
Serial Number: A3176
Firmware Rev: 4.283
Software Version: 3.120
Name: Vista Environmental
Descr1: 1021 Didrikson Way
Descr2: Laguna Beach, CA 92651
Setup: SLM&RTA.ssa
Setup Descr: SLM & Real-Time Analyzer
Location: 100 feet from SR-1 highway, on southern side of Bridle Ridge Trail Rd.
Note 1:
Note 2:

Overall Any Data
Start Time: 02-Jul-2009 16:10:25
Elapsed Time: 00:30:30.8

	A Weight	C Weight	Flat
Leq:	65.7 dBA	79.5 dBC	80.9 dBF
SEL:	98.3 dBA	112.1 dBC	113.5 dBF
Peak:	103.9 dBA	110.3 dBC	111.1 dBF
	02-Jul-2009 16:29:17	02-Jul-2009 16:17:15	02-Jul-2009 16:17:15
Lmax (slow):	84.3 dBA	104.6 dBC	105.6 dBF
	02-Jul-2009 16:23:20	02-Jul-2009 16:17:15	02-Jul-2009 16:17:15
Lmin (slow):	41.5 dBA	54.3 dBC	58.2 dBF
	02-Jul-2009 16:31:25	02-Jul-2009 16:18:58	02-Jul-2009 16:18:58
Lmax (fast):	86.4 dBA	105.9 dBC	106.9 dBF
	02-Jul-2009 16:29:17	02-Jul-2009 16:17:15	02-Jul-2009 16:17:15
Lmin (fast):	39.9 dBA	50.4 dBC	53.4 dBF
	02-Jul-2009 16:33:10	02-Jul-2009 16:33:09	02-Jul-2009 16:33:09
Lmax (impulse):	87.8 dBA	106.1 dBC	107.2 dBF
	02-Jul-2009 16:29:17	02-Jul-2009 16:17:15	02-Jul-2009 16:17:15
Lmin (impulse):	41.5 dBA	55.0 dBC	59.4 dBF
	02-Jul-2009 16:31:24	02-Jul-2009 16:18:58	02-Jul-2009 16:33:09

Spectra
Start Time: 02-Jul-2009 16:10:25 Run Time: 00:30:30.8

Freq	Leq 1/3	Leq 1/1	Max 1/3	Max 1/1	Min 1/3	Min 1/1
12.5 Hz	68.6		72.2		32.6	
16.0 Hz	66.7	71.7	73.3	77.6	34.9	39.9
20.0 Hz	64.4		73.0		36.9	
25.0 Hz	62.5		76.7		36.6	
31.5 Hz	61.8	68.0	72.2	78.7	38.6	42.8
40.0 Hz	64.7		70.0		38.6	
50.0 Hz	79.1		74.8		35.2	
63.0 Hz	69.4	79.8	93.4	96.6	35.7	41.0
80.0 Hz	68.1		93.8		37.4	
100 Hz	64.1		80.7		35.6	
125 Hz	63.2	67.7	78.5	84.7	33.1	38.4
160 Hz	61.1		80.3		31.1	
200 Hz	59.3		74.9		27.9	
250 Hz	59.1	63.5	71.3	78.5	27.1	32.3
315 Hz	57.7		74.3		27.4	
400 Hz	57.0		72.5		26.9	

500 Hz	55.9	61.4	72.1	77.0	26.7	31.7
630 Hz	57.0		72.2		27.2	
800 Hz	57.9		73.8		28.6	
1000 Hz	57.4	61.9	74.5	80.0	29.2	33.4
1250 Hz	55.8		76.9		28.0	
1600 Hz	53.8		75.6		26.2	
2000 Hz	53.0	57.7	77.5	81.2	24.2	29.2
2500 Hz	51.8		75.9		22.0	
3150 Hz	49.0		71.9		21.1	
4000 Hz	46.1	51.6	70.0	75.6	20.6	25.1
5000 Hz	44.0		70.2		19.1	
6300 Hz	40.7		62.4		18.4	
8000 Hz	38.5	43.3	60.3	65.1	18.1	22.9
10000 Hz	34.1		56.5		17.8	
12500 Hz	29.9		51.7		17.8	
16000 Hz	25.8	31.9	47.0	53.1	19.0	24.1
20000 Hz	23.0		38.6		20.7	

Ln Start Level: 15 dB

L (1.00) 0.0
L (5.00) 0.0
L (50.00) 0.0
L (90.00) 0.0
L (95.00) 0.0
L (99.00) 0.0

Detector: Slow
Weighting: A
SPL Exceedance Level 1: 85.0 dB Exceeded: 0 times
SPL Exceedance Level 2: 120.0 dB Exceeded: 0 times
Peak-1 Exceedance Level: 105.0 dB Exceeded: 2 times
Peak-2 Exceedance Level: 100.0 dB Exceeded: 1 times
Hysteresis: 2
Overloaded: 0 time(s)
Paused: 0 times for 00:00:00.0

Current Any Data
Start Time: 02-Jul-2009 16:10:25
Elapsed Time: 00:30:30.8

	A Weight	C Weight	Flat
Leq:	65.7 dBA	79.5 dBC	80.9 dBF
SEL:	98.3 dBA	112.1 dBC	113.5 dBF
Peak:	103.9 dBA	110.3 dBC	111.1 dBF
	02-Jul-2009 16:29:17	02-Jul-2009 16:17:15	02-Jul-2009 16:17:15
Lmax (slow):	84.3 dBA	104.6 dBC	105.6 dBF
	02-Jul-2009 16:23:20	02-Jul-2009 16:17:15	02-Jul-2009 16:17:15
Lmin (slow):	41.5 dBA	54.3 dBC	58.2 dBF
	02-Jul-2009 16:31:25	02-Jul-2009 16:18:58	02-Jul-2009 16:18:58
Lmax (fast):	86.4 dBA	105.9 dBC	106.9 dBF
	02-Jul-2009 16:29:17	02-Jul-2009 16:17:15	02-Jul-2009 16:17:15
Lmin (fast):	39.9 dBA	50.4 dBC	53.4 dBF
	02-Jul-2009 16:33:10	02-Jul-2009 16:33:09	02-Jul-2009 16:33:09
Lmax (impulse):	87.8 dBA	106.1 dBC	107.2 dBF
	02-Jul-2009 16:29:17	02-Jul-2009 16:17:15	02-Jul-2009 16:17:15
Lmin (impulse):	41.5 dBA	55.0 dBC	59.4 dBF
	02-Jul-2009 16:31:24	02-Jul-2009 16:18:58	02-Jul-2009 16:33:09

Calibrated: 02-Jul-2009 15:27:38 Offset: -47.2 dB

Checked:	02-Jul-2009 15:27:38	Level:	94.0 dB
Calibrator	not set	Level:	94.0 dB
Cal Records Count:	0		
Interval Records:	Disabled	Number Interval Records:	0
Time History:	Disabled	Number History Records:	0
Run/Stop Records:		Number Run/Stop Records:	2

SLM & RTA Summary
Translated: 03-Jul-2009 13:25:26

File Translated: Z:\Vista Env\2009\090505-San Luis Obisbo MHCB\Noise Measurements\3.slmdl
Model Number: 824
Serial Number: A3176
Firmware Rev: 4.283
Software Version: 3.120
Name: Vista Environmental
Descr1: 1021 Didrikson Way
Descr2: Laguna Beach, CA 92651
Setup: SLM&RTA.ssa
Setup Descr: SLM & Real-Time Analyzer
Location: Mainini Ranch Road (south side), 100 ft from highway SR-1
Note 1:
Note 2:

Overall Any Data
Start Time: 02-Jul-2009 16:52:04
Elapsed Time: 00:33:26.1

	A Weight	C Weight	Flat
Leq:	68.0 dBA	72.6 dBC	74.1 dBF
SEL:	101.1 dBA	105.6 dBC	107.2 dBF
Peak:	96.0 dBA	100.9 dBC	101.2 dBF
	02-Jul-2009 17:23:06	02-Jul-2009 17:04:26	02-Jul-2009 17:04:26
Lmax (slow):	78.4 dBA	86.6 dBC	87.6 dBF
	02-Jul-2009 17:04:27	02-Jul-2009 17:04:27	02-Jul-2009 17:04:27
Lmin (slow):	48.4 dBA	56.9 dBC	59.4 dBF
	02-Jul-2009 17:12:25	02-Jul-2009 17:18:34	02-Jul-2009 17:16:28
Lmax (fast):	82.3 dBA	90.1 dBC	90.8 dBF
	02-Jul-2009 17:04:26	02-Jul-2009 17:04:26	02-Jul-2009 17:04:26
Lmin (fast):	47.8 dBA	55.0 dBC	57.4 dBF
	02-Jul-2009 17:12:24	02-Jul-2009 17:16:28	02-Jul-2009 17:16:28
Lmax (impulse):	83.4 dBA	91.1 dBC	91.9 dBF
	02-Jul-2009 17:04:26	02-Jul-2009 17:04:26	02-Jul-2009 17:04:26
Lmin (impulse):	48.3 dBA	57.1 dBC	60.0 dBF
	02-Jul-2009 17:12:24	02-Jul-2009 17:16:28	02-Jul-2009 17:16:27

Spectra
Start Time: 02-Jul-2009 16:52:04 Run Time: 00:33:26.1

Freq	Leq 1/3	Leq 1/1	Max 1/3	Max 1/1	Min 1/3	Min 1/1
12.5 Hz	64.7		78.4		37.8	
16.0 Hz	63.3	68.3	78.7	82.2	36.6	41.7
20.0 Hz	62.2		73.4		36.4	
25.0 Hz	61.1		74.0		39.0	
31.5 Hz	60.0	64.9	72.2	76.8	36.6	43.0
40.0 Hz	59.1		67.9		38.7	
50.0 Hz	59.9		76.5		39.1	
63.0 Hz	61.3	66.0	66.3	80.7	39.4	43.4
80.0 Hz	62.1		78.3		37.1	
100 Hz	63.3		81.0		36.9	
125 Hz	62.4	66.8	75.6	83.0	34.0	39.5
160 Hz	59.7		75.5		31.6	
200 Hz	56.1		77.3		32.4	
250 Hz	56.4	60.5	85.8	87.7	30.3	36.2
315 Hz	54.3		82.0		31.2	
400 Hz	53.9		80.8		31.9	
500 Hz	54.5	60.0	67.6	81.1	34.3	39.2

630 Hz	56.8		64.1		36.2	
800 Hz	60.6		70.0		40.6	
1000 Hz	62.2	66.0	68.0	73.2	41.6	45.3
1250 Hz	60.7		66.7		38.8	
1600 Hz	58.1		64.1		36.8	
2000 Hz	55.6	60.7	61.0	66.4	33.4	38.9
2500 Hz	51.9		57.5		29.0	
3150 Hz	48.2		55.9		28.7	
4000 Hz	44.6	50.3	55.0	60.4	26.0	31.1
5000 Hz	41.1		55.8		21.8	
6300 Hz	37.6		49.7		19.8	
8000 Hz	33.3	39.4	45.6	51.5	18.7	23.7
10000 Hz	29.0		41.2		18.2	
12500 Hz	24.8		34.2		18.1	
16000 Hz	22.6	28.2	27.1	35.3	19.2	24.3
20000 Hz	22.5		23.2		20.8	

Ln Start Level: 15 dB

L (1.00) 0.0
L (5.00) 0.0
L (50.00) 0.0
L (90.00) 0.0
L (95.00) 0.0
L (99.00) 0.0

Detector: Slow
Weighting: A
SPL Exceedance Level 1: 85.0 dB Exceeded: 0 times
SPL Exceedance Level 2: 120.0 dB Exceeded: 0 times
Peak-1 Exceedance Level: 105.0 dB Exceeded: 0 times
Peak-2 Exceedance Level: 100.0 dB Exceeded: 0 times
Hysteresis: 2
Overloaded: 0 time(s)
Paused: 0 times for 00:00:00.0

Current Any Data
Start Time: 02-Jul-2009 16:52:04
Elapsed Time: 00:33:26.1

	A Weight	C Weight	Flat
Leq:	68.0 dBA	72.6 dBC	74.1 dBF
SEL:	101.1 dBA	105.6 dBC	107.2 dBF
Peak:	96.0 dBA	100.9 dBC	101.2 dBF
	02-Jul-2009 17:23:06	02-Jul-2009 17:04:26	02-Jul-2009 17:04:26
Lmax (slow):	78.4 dBA	86.6 dBC	87.6 dBF
	02-Jul-2009 17:04:27	02-Jul-2009 17:04:27	02-Jul-2009 17:04:27
Lmin (slow):	48.4 dBA	56.9 dBC	59.4 dBF
	02-Jul-2009 17:12:25	02-Jul-2009 17:18:34	02-Jul-2009 17:16:28
Lmax (fast):	82.3 dBA	90.1 dBC	90.8 dBF
	02-Jul-2009 17:04:26	02-Jul-2009 17:04:26	02-Jul-2009 17:04:26
Lmin (fast):	47.8 dBA	55.0 dBC	57.4 dBF
	02-Jul-2009 17:12:24	02-Jul-2009 17:16:28	02-Jul-2009 17:16:28
Lmax (impulse):	83.4 dBA	91.1 dBC	91.9 dBF
	02-Jul-2009 17:04:26	02-Jul-2009 17:04:26	02-Jul-2009 17:04:26
Lmin (impulse):	48.3 dBA	57.1 dBC	60.0 dBF
	02-Jul-2009 17:12:24	02-Jul-2009 17:16:28	02-Jul-2009 17:16:27

Calibrated: 02-Jul-2009 15:27:38 Offset: -47.2 dB
Checked: 02-Jul-2009 15:27:38 Level: 94.0 dB

Calibrator	not set	Level:	94.0 dB
Cal Records Count:	0		
Interval Records:	Disabled	Number Interval Records:	0
Time History:	Disabled	Number History Records:	0
Run/Stop Records:		Number Run/Stop Records:	2

Appendix C:
FHWA Model Existing Traffic Noise Printouts

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING CONDITIONS **Project Name: CDCR - 50 bed MHCB Facility**

	Vehicle Mix (SR-1)				Vehicle Mix (Collector or local)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily
Automobiles	66.66%	13.66%	15.98%	96.30%	73.60%	13.60%	10.22%	97.40%
Medium Trucks	1.45%	0.26%	0.73%	2.44%	0.90%	0.90%	0.04%	1.84%
Heavy Trucks	0.69%	0.07%	0.50%	1.26%	0.35%	0.04%	0.35%	0.74%

Site Conditions: Soft

Road Name: Colony Drive **Segment: North of Santa Cruz Road**

Average Daily Traffic: 4550 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 2 Roadway Classification: Collector

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.72 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-2.82	-4.60	-1.20	50.82	48.70	47.38	41.37	49.79	50.42	70 dBA:	**5**	**5**
Medium Trucks	71.09	-20.06	-4.60	-1.20	45.23	23.98	30.00	11.71	24.85	27.60	65 dBA:	**10**	**11**
Heavy Trucks	78.74	-24.01	-4.60	-1.20	48.93	23.58	20.18	24.83	31.03	31.12	60 dBA:	**21**	**23**
				Total:	**53.66**	**48.73**	**47.47**	**41.47**	**49.86**	**50.49**	55 dBA:	**45**	**50**

Road Name: Colony Drive **Segment: North of State Route 1**

Average Daily Traffic: 4740 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 2 Roadway Classification: Collector

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.72 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-2.64	-4.60	-1.20	51.00	48.88	47.56	41.55	49.97	50.60	70 dBA:	**5**	**5**
Medium Trucks	71.09	-19.88	-4.60	-1.20	45.41	24.16	30.18	11.89	25.03	27.78	65 dBA:	**10**	**11**
Heavy Trucks	78.74	-23.83	-4.60	-1.20	49.11	23.75	20.35	25.00	31.20	31.30	60 dBA:	**22**	**24**
				Total:	**53.84**	**48.90**	**47.65**	**41.65**	**50.04**	**50.67**	55 dBA:	**47**	**51**

Road Name: Highland Drive **Segment: North of State Route 1**

Average Daily Traffic: 8470 Vehicles Vehicle Speed: 30 MPH Vehicle Mix: 2 Roadway Classification: County Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 96.56 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	62.51	-0.91	-4.39	-1.20	56.01	53.89	52.57	46.56	54.98	55.61	70 dBA:	**10**	**11**
Medium Trucks	73.11	-17.36	-4.39	-1.20	50.17	28.12	34.15	15.85	29.00	31.75	65 dBA:	**22**	**24**
Heavy Trucks	80.26	-22.11	-4.39	-1.20	52.56	27.21	23.81	28.46	34.66	34.76	60 dBA:	**47**	**51**
				Total:	**58.35**	**53.91**	**52.64**	**46.63**	**55.03**	**55.66**	55 dBA:	**100**	**111**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING CONDITIONS **Project Name: CDCR - 50 bed MHCB Facility**

	Vehicle Mix (SR-1)				Vehicle Mix (Collector or local)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily
Automobiles	66.66%	13.66%	15.98%	96.30%	73.60%	13.60%	10.22%	97.40%
Medium Trucks	1.45%	0.26%	0.73%	2.44%	0.90%	0.90%	0.04%	1.84%
Heavy Trucks	0.69%	0.07%	0.50%	1.26%	0.35%	0.04%	0.35%	0.74%

Site Conditions: Soft

Road Name: Highland Drive **Segment: South of State Route 1**

Average Daily Traffic: 5700 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 2 Roadway Classification: Collector

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.72 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-1.84	-4.60	-1.20	51.80	49.68	48.36	42.35	50.77	51.40	70 dBA:	**5**	**6**
Medium Trucks	71.09	-19.08	-4.60	-1.20	46.21	24.96	30.98	12.69	25.83	28.58	65 dBA:	**11**	**13**
Heavy Trucks	78.74	-23.03	-4.60	-1.20	49.91	24.56	21.16	25.80	32.00	32.10	60 dBA:	**25**	**27**
				Total:	**54.64**	**49.70**	**48.45**	**42.45**	**50.84**	**51.47**	55 dBA:	**53**	**58**

Road Name: Santa Rosa St (SR-1) **Segment: West of Highland Drive**

Average Daily Traffic: 29150 Vehicles Vehicle Speed: 55 MPH Vehicle Mix: 2 Roadway Classification: County Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 96.56 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	72.73	1.82	-4.39	-1.20	68.96	66.84	65.52	59.51	67.93	68.56	70 dBA:	**73**	**80**
Medium Trucks	79.85	-11.99	-4.39	-1.20	62.27	37.60	43.62	25.33	38.47	41.22	65 dBA:	**157**	**173**
Heavy Trucks	83.81	-19.37	-4.39	-1.20	58.85	33.50	30.10	34.75	40.95	41.05	60 dBA:	**339**	**373**
				Total:	**70.14**	**66.84**	**65.55**	**59.53**	**67.94**	**68.57**	55 dBA:	**729**	**803**

Road Name: Santa Rosa St (SR-1) **Segment: East of Highland Drive**

Average Daily Traffic: 31250 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: County Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 96.56 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	3.00	-4.39	-1.20	66.75	64.63	63.31	57.30	65.72	66.35	70 dBA:	**52**	**57**
Medium Trucks	77.62	-11.69	-4.39	-1.20	60.34	36.54	42.56	24.27	37.41	40.16	65 dBA:	**112**	**123**
Heavy Trucks	82.14	-18.20	-4.39	-1.20	58.35	33.00	29.60	34.25	40.45	40.55	60 dBA:	**241**	**266**
				Total:	**68.13**	**64.64**	**63.35**	**57.33**	**65.74**	**66.37**	55 dBA:	**520**	**573**

Appendix D:
RCNM Model Construction Equipment Noise Printouts

Roadway Construction Noise Model (RCNM),Version 1.0

Report date: 9/22/2009
Case Description: San Luis Obispo MCHB Facility

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Single-Family Residential	Residential	65	60	60

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	50	0
Concrete Mixer Truck	No	40		78.8	150	0
Concrete Mixer Truck	No	40		78.8	250	0
Concrete Mixer Truck	No	40		78.8	350	0
Paver	No	50		77.2	450	0
Pavement Scarafier	No	20		89.5	550	0
Roller	No	20		80	650	0
Tractor	No	40	84		750	0
Grader	No	40	85		850	0
Grader	No	40	85		950	0
Front End Loader	No	40		79.1	1050	0
Dump Truck	No	40		76.5	1150	0

Results

Equipment	Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Concrete Mixer Truck	78.8	74.8	N/A	N/A	N/A	N/A
Concrete Mixer Truck	69.3	65.3	N/A	N/A	N/A	N/A
Concrete Mixer Truck	64.8	60.8	N/A	N/A	N/A	N/A
Concrete Mixer Truck	61.9	57.9	N/A	N/A	N/A	N/A
Paver	58.1	55.1	N/A	N/A	N/A	N/A
Pavement Scarafier	68.7	61.7	N/A	N/A	N/A	N/A
Roller	57.7	50.7	N/A	N/A	N/A	N/A
Tractor	60.5	56.5	N/A	N/A	N/A	N/A
Grader	60.4	56.4	N/A	N/A	N/A	N/A
Grader	59.4	55.4	N/A	N/A	N/A	N/A
Front End Loader	52.7	48.7	N/A	N/A	N/A	N/A
Dump Truck	49.2	45.2	N/A	N/A	N/A	N/A
Total	**78.8**	**75.9**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Appendix E:
FHWA Model Future Year Traffic Noise Printouts

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: NEAR TERM BASELINE **Project Name: CDCR - 50 bed MHCB Facility**

	Vehicle Mix (SR-1)				Vehicle Mix (Collector or local)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily
Automobiles	66.66%	13.66%	15.98%	96.30%	73.60%	13.60%	10.22%	97.40%
Medium Trucks	1.45%	0.26%	0.73%	2.44%	0.90%	0.90%	0.04%	1.84%
Heavy Trucks	0.69%	0.07%	0.50%	1.26%	0.35%	0.04%	0.35%	0.74%

Site Conditions: Soft

Road Name: Colony Drive **Segment: North of Santa Cruz Road**

Average Daily Traffic: 4550 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 2 Roadway Classification: Collector

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.72 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-2.82	-4.60	-1.20	50.82	48.70	47.38	41.37	49.79	50.42	70 dBA:	**5**	**5**
Medium Trucks	71.09	-20.06	-4.60	-1.20	45.23	23.98	30.00	11.71	24.85	27.60	65 dBA:	**10**	**11**
Heavy Trucks	78.74	-24.01	-4.60	-1.20	48.93	23.58	20.18	24.83	31.03	31.12	60 dBA:	**21**	**23**
				Total:	**53.66**	**48.73**	**47.47**	**41.47**	**49.86**	**50.49**	55 dBA:	**45**	**50**

Road Name: Colony Drive **Segment: North of State Route 1**

Average Daily Traffic: 4740 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 2 Roadway Classification: Collector

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.72 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-2.64	-4.60	-1.20	51.00	48.88	47.56	41.55	49.97	50.60	70 dBA:	**5**	**5**
Medium Trucks	71.09	-19.88	-4.60	-1.20	45.41	24.16	30.18	11.89	25.03	27.78	65 dBA:	**10**	**11**
Heavy Trucks	78.74	-23.83	-4.60	-1.20	49.11	23.75	20.35	25.00	31.20	31.30	60 dBA:	**22**	**24**
				Total:	**53.84**	**48.90**	**47.65**	**41.65**	**50.04**	**50.67**	55 dBA:	**47**	**51**

Road Name: Highland Drive **Segment: North of State Route 1**

Average Daily Traffic: 9040 Vehicles Vehicle Speed: 30 MPH Vehicle Mix: 2 Roadway Classification: County Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 96.56 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	62.51	-0.63	-4.39	-1.20	56.29	54.17	52.86	46.84	55.26	55.89	70 dBA:	**10**	**12**
Medium Trucks	73.11	-17.07	-4.39	-1.20	50.45	28.41	34.43	16.13	29.28	32.03	65 dBA:	**23**	**25**
Heavy Trucks	80.26	-21.82	-4.39	-1.20	52.85	27.50	24.10	28.75	34.94	35.04	60 dBA:	**49**	**54**
				Total:	**58.63**	**54.19**	**52.92**	**46.91**	**55.31**	**55.94**	55 dBA:	**105**	**116**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: NEAR TERM BASELINE **Project Name: CDCR - 50 bed MHCB Facility**

	Vehicle Mix (SR-1)				Vehicle Mix (Collector or local)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily
Automobiles	66.66%	13.66%	15.98%	96.30%	73.60%	13.60%	10.22%	97.40%
Medium Trucks	1.45%	0.26%	0.73%	2.44%	0.90%	0.90%	0.04%	1.84%
Heavy Trucks	0.69%	0.07%	0.50%	1.26%	0.35%	0.04%	0.35%	0.74%

Site Conditions: Soft

Road Name: Highland Drive **Segment: South of State Route 1**

Average Daily Traffic: 5750 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 2 Roadway Classification: Collector

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.72 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-1.80	-4.60	-1.20	51.84	49.71	48.40	42.39	50.81	51.44	70 dBA:	**5**	**6**
Medium Trucks	71.09	-19.04	-4.60	-1.20	46.25	25.00	31.02	12.73	25.87	28.62	65 dBA:	**11**	**13**
Heavy Trucks	78.74	-23.00	-4.60	-1.20	49.94	24.59	21.19	25.84	32.04	32.14	60 dBA:	**25**	**27**
				Total:	**54.68**	**49.74**	**48.49**	**42.49**	**50.88**	**51.51**	55 dBA:	**53**	**59**

Road Name: Santa Rosa St (SR-1) **Segment: West of Highland Drive**

Average Daily Traffic: 29220 Vehicles Vehicle Speed: 55 MPH Vehicle Mix: 2 Roadway Classification: County Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 96.56 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	72.73	1.83	-4.39	-1.20	68.97	66.85	65.53	59.52	67.94	68.57	70 dBA:	**73**	**80**
Medium Trucks	79.85	-11.98	-4.39	-1.20	62.28	37.61	43.63	25.34	38.48	41.23	65 dBA:	**157**	**173**
Heavy Trucks	83.81	-19.36	-4.39	-1.20	58.86	33.51	30.11	34.76	40.96	41.06	60 dBA:	**339**	**373**
				Total:	**70.15**	**66.85**	**65.56**	**59.54**	**67.95**	**68.58**	55 dBA:	**730**	**804**

Road Name: Santa Rosa St (SR-1) **Segment: East of Highland Drive**

Average Daily Traffic: 31690 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: County Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 96.56 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	3.06	-4.39	-1.20	66.81	64.69	63.38	57.36	65.78	66.41	70 dBA:	**52**	**58**
Medium Trucks	77.62	-11.63	-4.39	-1.20	60.40	36.60	42.62	24.33	37.47	40.23	65 dBA:	**113**	**125**
Heavy Trucks	82.14	-18.14	-4.39	-1.20	58.41	33.06	29.66	34.31	40.51	40.61	60 dBA:	**244**	**268**
				Total:	**68.19**	**64.70**	**63.41**	**57.39**	**65.80**	**66.43**	55 dBA:	**525**	**578**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: NEAR TERM WITH PROJECT **Project Name: CDCR - 50 bed MHCB Facility**

	Vehicle Mix (SR-1)				Vehicle Mix (Collector or local)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily
Automobiles	66.66%	13.66%	15.98%	96.30%	73.60%	13.60%	10.22%	97.40%
Medium Trucks	1.45%	0.26%	0.73%	2.44%	0.90%	0.90%	0.04%	1.84%
Heavy Trucks	0.69%	0.07%	0.50%	1.26%	0.35%	0.04%	0.35%	0.74%

Site Conditions: Soft

Road Name: Colony Drive **Segment: North of Santa Cruz Road**

Average Daily Traffic: 4900 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 2 Roadway Classification: Collector

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.72 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-2.50	-4.60	-1.20	51.14	49.02	47.71	41.69	50.11	50.74	70 dBA:	**5**	**5**
Medium Trucks	71.09	-19.73	-4.60	-1.20	45.55	24.30	30.32	12.03	25.17	27.93	65 dBA:	**10**	**11**
Heavy Trucks	78.74	-23.69	-4.60	-1.20	49.25	23.90	20.50	25.15	31.35	31.44	60 dBA:	**22**	**24**
				Total:	**53.98**	**49.05**	**47.79**	**41.79**	**50.19**	**50.81**	55 dBA:	**48**	**53**

Road Name: Colony Drive **Segment: North of State Route 1**

Average Daily Traffic: 5090 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 2 Roadway Classification: Collector

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.72 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-2.33	-4.60	-1.20	51.31	49.18	47.87	41.86	50.28	50.91	70 dBA:	**5**	**5**
Medium Trucks	71.09	-19.57	-4.60	-1.20	45.72	24.47	30.49	12.20	25.34	28.09	65 dBA:	**11**	**12**
Heavy Trucks	78.74	-23.53	-4.60	-1.20	49.41	24.06	20.66	25.31	31.51	31.61	60 dBA:	**23**	**25**
				Total:	**54.15**	**49.21**	**47.96**	**41.96**	**50.35**	**50.98**	55 dBA:	**49**	**54**

Road Name: Highland Drive **Segment: North of State Route 1**

Average Daily Traffic: 9060 Vehicles Vehicle Speed: 30 MPH Vehicle Mix: 2 Roadway Classification: County Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 96.56 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	62.51	-0.62	-4.39	-1.20	56.30	54.18	52.87	46.85	55.27	55.90	70 dBA:	**11**	**12**
Medium Trucks	73.11	-17.07	-4.39	-1.20	50.46	28.42	34.44	16.14	29.29	32.04	65 dBA:	**23**	**25**
Heavy Trucks	80.26	-21.81	-4.39	-1.20	52.86	27.51	24.11	28.76	34.95	35.05	60 dBA:	**49**	**54**
				Total:	**58.64**	**54.20**	**52.93**	**46.92**	**55.32**	**55.95**	55 dBA:	**105**	**116**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: NEAR TERM WITH PROJECT **Project Name: CDCR - 50 bed MHCB Facility**

	Vehicle Mix (SR-1)				Vehicle Mix (Collector or local)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily
Automobiles	66.66%	13.66%	15.98%	96.30%	73.60%	13.60%	10.22%	97.40%
Medium Trucks	1.45%	0.26%	0.73%	2.44%	0.90%	0.90%	0.04%	1.84%
Heavy Trucks	0.69%	0.07%	0.50%	1.26%	0.35%	0.04%	0.35%	0.74%

Site Conditions: Soft

Road Name: Highland Drive **Segment: South of State Route 1**

Average Daily Traffic: 5780 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 2 Roadway Classification: Collector

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.72 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-1.78	-4.60	-1.20	51.86	49.74	48.42	42.41	50.83	51.46	70 dBA:	**5**	**6**
Medium Trucks	71.09	-19.02	-4.60	-1.20	46.27	25.02	31.04	12.75	25.89	28.64	65 dBA:	**11**	**13**
Heavy Trucks	78.74	-22.97	-4.60	-1.20	49.97	24.62	21.22	25.87	32.06	32.16	60 dBA:	**25**	**27**
				Total:	**54.70**	**49.76**	**48.51**	**42.51**	**50.90**	**51.53**	55 dBA:	**53**	**59**

Road Name: Santa Rosa St (SR-1) **Segment: West of Highland Drive**

Average Daily Traffic: 29510 Vehicles Vehicle Speed: 55 MPH Vehicle Mix: 2 Roadway Classification: County Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 96.56 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	72.73	1.88	-4.39	-1.20	69.01	66.89	65.58	59.56	67.98	68.61	70 dBA:	**74**	**81**
Medium Trucks	79.85	-11.94	-4.39	-1.20	62.33	37.65	43.67	25.38	38.52	41.28	65 dBA:	**158**	**174**
Heavy Trucks	83.81	-19.32	-4.39	-1.20	58.91	33.56	30.16	34.81	41.00	41.10	60 dBA:	**341**	**376**
				Total:	**70.19**	**66.90**	**65.60**	**59.58**	**68.00**	**68.63**	55 dBA:	**735**	**810**

Road Name: Santa Rosa St (SR-1) **Segment: East of Highland Drive**

Average Daily Traffic: 31920 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: County Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 96.56 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	3.09	-4.39	-1.20	66.84	64.72	63.41	57.39	65.81	66.44	70 dBA:	**53**	**58**
Medium Trucks	77.62	-11.60	-4.39	-1.20	60.44	36.63	42.65	24.36	37.50	40.26	65 dBA:	**114**	**125**
Heavy Trucks	82.14	-18.10	-4.39	-1.20	58.45	33.10	29.70	34.34	40.54	40.64	60 dBA:	**245**	**270**
				Total:	**68.22**	**64.73**	**63.44**	**57.42**	**65.83**	**66.46**	55 dBA:	**528**	**581**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: YEAR 2030 CUMULATIVE BASELINE **Project Name: CDCR - 50 bed MHCB Facility**

	Vehicle Mix (SR-1)				Vehicle Mix (Collector or local)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily
Automobiles	66.66%	13.66%	15.98%	96.30%	73.60%	13.60%	10.22%	97.40%
Medium Trucks	1.45%	0.26%	0.73%	2.44%	0.90%	0.90%	0.04%	1.84%
Heavy Trucks	0.69%	0.07%	0.50%	1.26%	0.35%	0.04%	0.35%	0.74%

Site Conditions: Soft

Road Name: Colony Drive **Segment: North of Santa Cruz Road**

Average Daily Traffic: 4550 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 2 Roadway Classification: Collector

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.72 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-2.82	-4.60	-1.20	50.82	48.70	47.38	41.37	49.79	50.42	70 dBA:	**5**	**5**
Medium Trucks	71.09	-20.06	-4.60	-1.20	45.23	23.98	30.00	11.71	24.85	27.60	65 dBA:	**10**	**11**
Heavy Trucks	78.74	-24.01	-4.60	-1.20	48.93	23.58	20.18	24.83	31.03	31.12	60 dBA:	**21**	**23**
				Total:	**53.66**	**48.73**	**47.47**	**41.47**	**49.86**	**50.49**	55 dBA:	**45**	**50**

Road Name: Colony Drive **Segment: North of State Route 1**

Average Daily Traffic: 4740 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 2 Roadway Classification: Collector

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.72 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-2.64	-4.60	-1.20	51.00	48.88	47.56	41.55	49.97	50.60	70 dBA:	**5**	**5**
Medium Trucks	71.09	-19.88	-4.60	-1.20	45.41	24.16	30.18	11.89	25.03	27.78	65 dBA:	**10**	**11**
Heavy Trucks	78.74	-23.83	-4.60	-1.20	49.11	23.75	20.35	25.00	31.20	31.30	60 dBA:	**22**	**24**
				Total:	**53.84**	**48.90**	**47.65**	**41.65**	**50.04**	**50.67**	55 dBA:	**47**	**51**

Road Name: Highland Drive **Segment: North of State Route 1**

Average Daily Traffic: 10610 Vehicles Vehicle Speed: 30 MPH Vehicle Mix: 2 Roadway Classification: County Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 96.56 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	62.51	0.07	-4.39	-1.20	56.99	54.86	53.55	47.54	55.96	56.59	70 dBA:	**12**	**13**
Medium Trucks	73.11	-16.38	-4.39	-1.20	51.14	29.10	35.12	16.83	29.97	32.73	65 dBA:	**25**	**28**
Heavy Trucks	80.26	-21.13	-4.39	-1.20	53.54	28.19	24.79	29.44	35.64	35.74	60 dBA:	**54**	**60**
				Total:	**59.32**	**54.89**	**53.62**	**47.61**	**56.01**	**56.64**	55 dBA:	**117**	**129**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: YEAR 2030 CUMULATIVE BASELINE

Project Name: CDCR - 50 bed MHCB Facility

	Vehicle Mix (SR-1)				Vehicle Mix (Collector or local)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily
Automobiles	66.66%	13.66%	15.98%	96.30%	73.60%	13.60%	10.22%	97.40%
Medium Trucks	1.45%	0.26%	0.73%	2.44%	0.90%	0.90%	0.04%	1.84%
Heavy Trucks	0.69%	0.07%	0.50%	1.26%	0.35%	0.04%	0.35%	0.74%

Site Conditions: Soft

Road Name: Highland Drive **Segment: South of State Route 1**

Average Daily Traffic: 7140 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 2 Roadway Classification: Collector

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.72 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-0.86	-4.60	-1.20	52.78	50.65	49.34	43.33	51.75	52.38	70 dBA:	**6**	**7**
Medium Trucks	71.09	-18.10	-4.60	-1.20	47.19	25.94	31.96	13.67	26.81	29.56	65 dBA:	**13**	**15**
Heavy Trucks	78.74	-22.06	-4.60	-1.20	50.88	25.53	22.13	26.78	32.98	33.08	60 dBA:	**28**	**31**
				Total:	**55.62**	**50.68**	**49.43**	**43.43**	**51.82**	**52.45**	55 dBA:	**61**	**68**

Road Name: Santa Rosa St (SR-1) **Segment: West of Highland Drive**

Average Daily Traffic: 36440 Vehicles Vehicle Speed: 55 MPH Vehicle Mix: 2 Roadway Classification: County Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 96.56 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	72.73	2.79	-4.39	-1.20	69.93	67.80	66.49	60.48	68.90	69.53	70 dBA:	**85**	**93**
Medium Trucks	79.85	-11.02	-4.39	-1.20	63.24	38.57	44.59	26.30	39.44	42.19	65 dBA:	**182**	**201**
Heavy Trucks	83.81	-18.40	-4.39	-1.20	59.82	34.47	31.07	35.72	41.92	42.02	60 dBA:	**393**	**433**
				Total:	**71.11**	**67.81**	**66.52**	**60.50**	**68.91**	**69.54**	55 dBA:	**846**	**932**

Road Name: Santa Rosa St (SR-1) **Segment: East of Highland Drive**

Average Daily Traffic: 39070 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: County Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 96.56 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	3.97	-4.39	-1.20	67.72	65.60	64.28	58.27	66.69	67.32	70 dBA:	**60**	**66**
Medium Trucks	77.62	-10.72	-4.39	-1.20	61.31	37.51	43.53	25.24	38.38	41.13	65 dBA:	**130**	**143**
Heavy Trucks	82.14	-17.23	-4.39	-1.20	59.32	33.97	30.57	35.22	41.42	41.52	60 dBA:	**280**	**309**
				Total:	**69.10**	**65.61**	**64.32**	**58.30**	**66.71**	**67.34**	55 dBA:	**604**	**665**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: Year 2030 CUMULATIVE WITH PROJECT **Project Name: CDCR - 50 bed MHCB Facility**

	Vehicle Mix (SR-1)				Vehicle Mix (Collector or local)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily
Automobiles	66.66%	13.66%	15.98%	96.30%	73.60%	13.60%	10.22%	97.40%
Medium Trucks	1.45%	0.26%	0.73%	2.44%	0.90%	0.90%	0.04%	1.84%
Heavy Trucks	0.69%	0.07%	0.50%	1.26%	0.35%	0.04%	0.35%	0.74%

Site Conditions: Soft

Road Name: Colony Drive **Segment: North of Santa Cruz Road**

Average Daily Traffic: 4900 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 2 Roadway Classification: Collector

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.72 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-2.50	-4.60	-1.20	51.14	49.02	47.71	41.69	50.11	50.74	70 dBA:	**5**	**5**
Medium Trucks	71.09	-19.73	-4.60	-1.20	45.55	24.30	30.32	12.03	25.17	27.93	65 dBA:	**10**	**11**
Heavy Trucks	78.74	-23.69	-4.60	-1.20	49.25	23.90	20.50	25.15	31.35	31.44	60 dBA:	**22**	**24**
				Total:	**53.98**	**49.05**	**47.79**	**41.79**	**50.19**	**50.81**	55 dBA:	**48**	**53**

Road Name: Colony Drive **Segment: North of State Route 1**

Average Daily Traffic: 5090 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 2 Roadway Classification: Collector

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.72 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-2.33	-4.60	-1.20	51.31	49.18	47.87	41.86	50.28	50.91	70 dBA:	**5**	**5**
Medium Trucks	71.09	-19.57	-4.60	-1.20	45.72	24.47	30.49	12.20	25.34	28.09	65 dBA:	**11**	**12**
Heavy Trucks	78.74	-23.53	-4.60	-1.20	49.41	24.06	20.66	25.31	31.51	31.61	60 dBA:	**23**	**25**
				Total:	**54.15**	**49.21**	**47.96**	**41.96**	**50.35**	**50.98**	55 dBA:	**49**	**54**

Road Name: Highland Drive **Segment: North of State Route 1**

Average Daily Traffic: 10620 Vehicles Vehicle Speed: 30 MPH Vehicle Mix: 2 Roadway Classification: County Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 96.56 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	62.51	0.07	-4.39	-1.20	56.99	54.87	53.56	47.54	55.96	56.59	70 dBA:	**12**	**13**
Medium Trucks	73.11	-16.38	-4.39	-1.20	51.15	29.11	35.13	16.83	29.98	32.73	65 dBA:	**25**	**28**
Heavy Trucks	80.26	-21.12	-4.39	-1.20	53.55	28.20	24.80	29.45	35.64	35.74	60 dBA:	**54**	**60**
				Total:	**59.33**	**54.89**	**53.62**	**47.61**	**56.01**	**56.64**	55 dBA:	**117**	**129**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: Year 2030 CUMULATIVE WITH PROJECT

Project Name: CDCR - 50 bed MHCB Facility

	Vehicle Mix (SR-1)				Vehicle Mix (Collector or local)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily
Automobiles	66.66%	13.66%	15.98%	96.30%	73.60%	13.60%	10.22%	97.40%
Medium Trucks	1.45%	0.26%	0.73%	2.44%	0.90%	0.90%	0.04%	1.84%
Heavy Trucks	0.69%	0.07%	0.50%	1.26%	0.35%	0.04%	0.35%	0.74%

Site Conditions: Soft

Road Name: Highland Drive **Segment: South of State Route 1**

Average Daily Traffic: 7180 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 2 Roadway Classification: Collector

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.72 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-0.84	-4.60	-1.20	52.80	50.68	49.37	43.35	51.77	52.40	70 dBA:	**6**	**7**
Medium Trucks	71.09	-18.08	-4.60	-1.20	47.21	25.96	31.98	13.69	26.83	29.59	65 dBA:	**13**	**15**
Heavy Trucks	78.74	-22.03	-4.60	-1.20	50.91	25.56	22.16	26.81	33.01	33.10	60 dBA:	**29**	**31**
				Total:	**55.64**	**50.71**	**49.45**	**43.45**	**51.84**	**52.47**	55 dBA:	**62**	**68**

Road Name: Santa Rosa St (SR-1) **Segment: West of Highland Drive**

Average Daily Traffic: 36720 Vehicles Vehicle Speed: 55 MPH Vehicle Mix: 2 Roadway Classification: County Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 96.56 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	72.73	2.83	-4.39	-1.20	69.96	67.84	66.52	60.51	68.93	69.56	70 dBA:	**85**	**94**
Medium Trucks	79.85	-10.99	-4.39	-1.20	63.27	38.60	44.62	26.33	39.47	42.22	65 dBA:	**183**	**202**
Heavy Trucks	83.81	-18.37	-4.39	-1.20	59.86	34.51	31.11	35.75	41.95	42.05	60 dBA:	**395**	**435**
				Total:	**71.14**	**67.84**	**66.55**	**60.53**	**68.95**	**69.58**	55 dBA:	**851**	**937**

Road Name: Santa Rosa St (SR-1) **Segment: East of Highland Drive**

Average Daily Traffic: 39300 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: County Arterial

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 96.56 ft)										**Centerline Distance to Noise Contour (in feet)**		
	Noise Adjustments				**Unmitigated Noise Levels**								
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	3.99	-4.39	-1.20	67.75	65.62	64.31	58.30	66.72	67.34	70 dBA:	**61**	**67**
Medium Trucks	77.62	-10.69	-4.39	-1.20	61.34	37.54	43.56	25.26	38.41	41.16	65 dBA:	**131**	**144**
Heavy Trucks	82.14	-17.20	-4.39	-1.20	59.35	34.00	30.60	35.25	41.45	41.54	60 dBA:	**281**	**310**
				Total:	**69.12**	**65.63**	**64.35**	**58.32**	**66.74**	**67.37**	55 dBA:	**606**	**667**