Noise Analysis for the Eastlake Behavioral Health Hospital Project Chula Vista, California

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Acronyms and Abbreviations

ADT	average daily traffic
CALGreen	California Green Building Standards
Caltrans	California Department of Transportation
City	City of Chula Vista
CNEL	community noise equivalent level
CVMC	Chula Vista Municipal Code
dB	decibel
dB(A)	A-weighted decibel
FHWA	Federal Highway Administration
HVAC	heating, ventilating, and air conditioning
L_{eq}	one-hour equivalent noise level
L_{max}	maximum noise level
LOS	Level of Service
L_{pw}	sound power level
project	Eastlake Behavioral Health Hospital Project

Executive Summary

The Eastlake Behavioral Health Hospital Project (project) is located at 830 and 831 Showroom Place in the city of Chula Vista, California. The approximately 10.4-acre previously graded project site is currently undeveloped. The project would construct a 120-bed behavioral health facility in a 92,349-square-foot building.

This report discusses potential noise impacts from the construction and operation of the project. As part of this assessment, noise levels due to vehicle traffic were calculated and evaluated against City of Chula Vista (City) noise and land use compatibility guidelines. In addition to compatibility, the potential for noise to impact adjacent uses from future on-site sources and construction activity was assessed. A summary of the findings is provided below.

Construction Noise

Construction activity is regulated by the Chula Vista Municipal Code (CVMC), which prohibits construction and building work in residential zones that would cause noises disturbing to the peace, comfort, and quiet enjoyment of property of any person residing or working in the vicinity between the hours of 10:00 p.m. and 7:00 a.m., Monday through Friday, and between the hours of 10:00 p.m. and 8:00 a.m., Saturday and Sunday. Noise associated with the grading, building, and paving for the project would potentially result in short-term impacts to surrounding residential properties. Construction noise levels would range from 56 to 68 A-weighted decibels equivalent noise level [dB(A) L_{eq}] at the adjacent properties. Although the existing adjacent residences would be exposed to construction noise levels that could be heard above ambient conditions, the exposure would be temporary. Additionally, construction activities would occur only during the hours specified in the CVMC. Because construction activities associated with the project would comply with the applicable regulation for construction, temporary increases in noise levels from construction activities would be less than significant.

Traffic Noise

On-site Traffic Noise

The main sources of vehicle traffic noise at the project site are Hunte Parkway, Fenton Street, Showroom Place, Yosemite Drive, and River Rock Road. Exterior noise levels were modeled at the project site to determine compatibility with City standards. The applicable standards for noise sensitive uses such as the project are an exterior noise level of 65 community noise equivalent level (CNEL) and an interior noise level of 50 CNEL. The project's exterior useable spaces include the six proposed exterior activity areas and the staff outdoor area. As calculated in this analysis, noise levels at the staff outdoor area and the exterior activity areas would range from 31 to 45 CNEL. Noise levels at the exterior use areas would be compatible with the City's standard of 65 CNEL.

Exterior noise levels at the building façade are projected to range from 38 to 51 CNEL. The interior noise level standard is 50 CNEL. According to the Federal Highway Administration (FHWA), when windows are open, standard construction techniques provide a 10 dB exterior-to-interior noise level reduction (FHWA 2011). Based on these standards, interior noise levels would be reduced to 41 CNEL or less. Therefore, impacts related to on-site traffic noise would be less than significant.

Off-site Traffic Noise

The additional vehicle trips associated with the project would increase noise levels on nearby roadways. A noise increase of 3 dB or more would be considered significant because 3 dB is the level at which an increase in noise is perceptible to a person. As calculated in this analysis, direct off-site noise level increases due to the project would be 1 dB or less. Therefore, direct off-site noise impacts associated with the project would be less than significant. The total horizon year traffic volumes (year 2035) plus project traffic would increase over the existing condition, ranging from less than 1 dB to 5 dB. However, the project's contribution to the increase over ambient noise levels would be 1 dB or less. Therefore, the project would result in a less than cumulatively considerable off-site noise level increase, and cumulative traffic noise impacts associated with the project would be less than significant.

On-site Generated Noise

The primary noise sources on-site would be rooftop heating, ventilating, and air conditioning (HVAC) equipment, an emergency generator, and truck deliveries and loading dock activities. For a worst-case analysis, property line noise levels due to all noise sources were modeled and compared to the most restrictive nighttime CVMC limits. Typical noise levels without the continuous operation of the emergency generator were also modeled.

As calculated in this analysis, on-site generated noise levels at the residential property lines would range from 35 to 45 dB(A) L_{eq} with the generator running and 34 to 43 dB(A) L_{eq} without the generator running. Noise levels would not exceed the single family residential CVMC limits. At the commercial property lines, noise levels would range from 40 to 54 dB(A) L_{eq} with the generator running and 39 to 51 dB(A) L_{eq} without the generator running. Noise levels would not exceed the commercial CVMC limits. Therefore, impacts related to on-site generated noise would be less than significant.

1.0 Introduction

1.1 Project Description

The Eastlake Behavioral Health Hospital Project (project) is located at 830 and 831 Showroom Place in the city of Chula Vista, California, north Fenton Street, west of Hunte Parkway, and east of Lane Avenue. The project site is a previously graded pad in the Eastlake Business Center and is bounded by single-family residential uses to the north and southeast, commercial uses to the west and south, and a boat and recreational vehicle storage lot to the south. The approximately 10.4-acre project site is currently undeveloped. Figure 1 shows the regional location of the project. Figure 2 shows an aerial photograph of the project and vicinity.

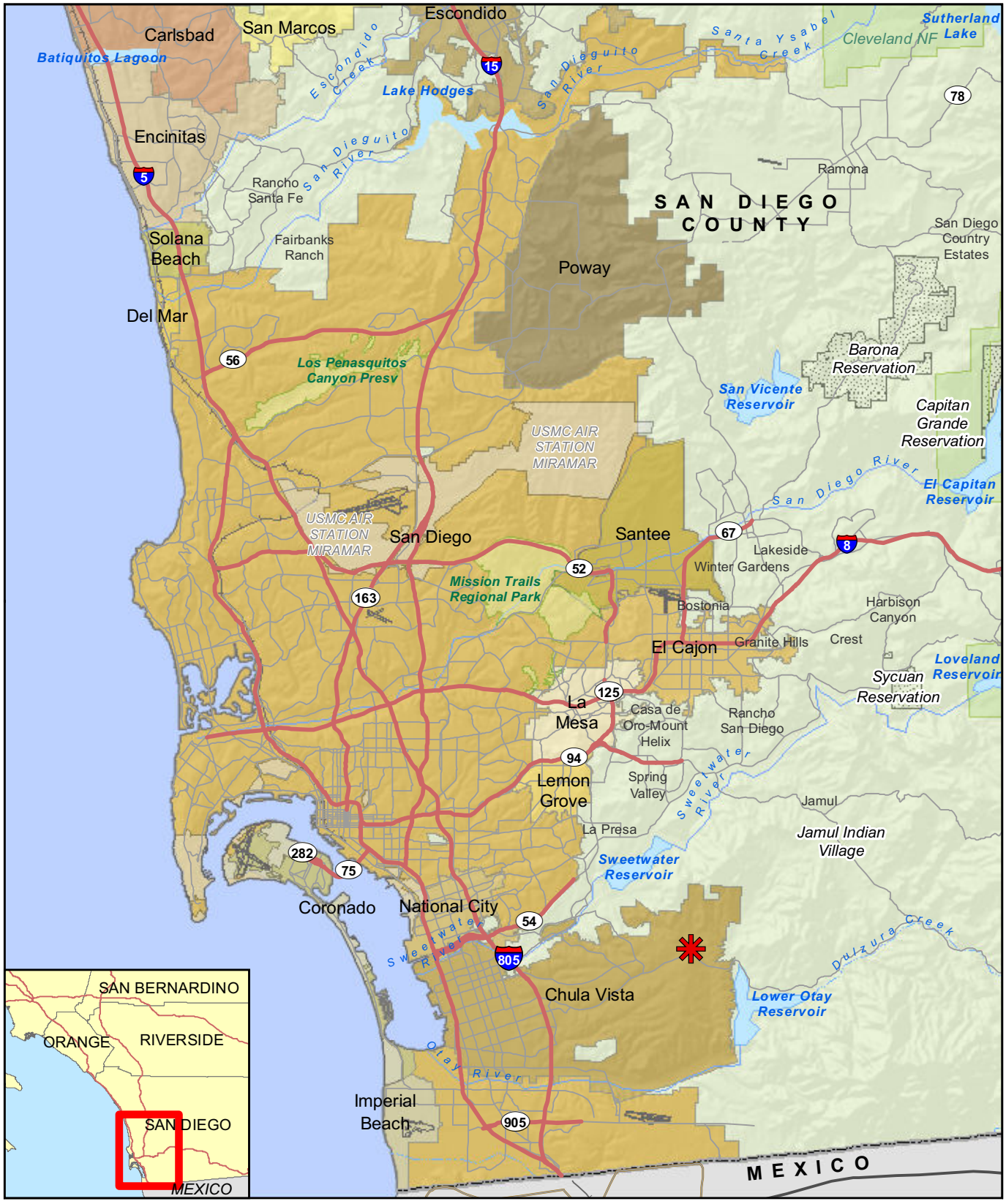
The project would construct a 120-bed behavioral health facility in a 92,349-square-foot building with exterior activity areas and a staff outdoor area. Figure 3 shows the proposed site plan.

1.2 Fundamentals of Noise

Sound levels are described in units called the decibel (dB). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3 dB decrease. However, human perception of noise has no simple correlation with acoustical energy. A change in noise levels is generally perceived as follows: 3 A-weighted dB [dB(A)] barely perceptible, 5 dB(A) readily perceptible, and 10 dB(A) perceived as a doubling or halving of noise (California Department of Transportation 2013).

In technical terms, sound levels are described as either a "sound power level" or a "sound pressure level," which while commonly confused, are two distinct characteristics of sound. Both share the same unit of measure, the dB. However, sound power, expressed as L_{pw}, is the energy converted into sound by the source. As sound energy travels through the air, it creates a sound wave that exerts pressure on receivers such as an eardrum or microphone, the sound pressure level. Sound measurement instruments only measure sound pressure, and limits used in standards are generally sound pressure levels.

The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-scale, which approximates the frequency response of the average young ear when listening to most ordinary everyday sounds, was devised. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Therefore, the "A-weighted" noise scale is used for measurements and standards involving the human perception of noise. Noise levels using A-weighted measurements are designated with the notation dB(A).



Project Location

FIGURE 1
Regional Location

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Image Source: Nearmap (Flown February 2019)

Project Boundary

FIGURE 2

Project Location on Aerial Photograph

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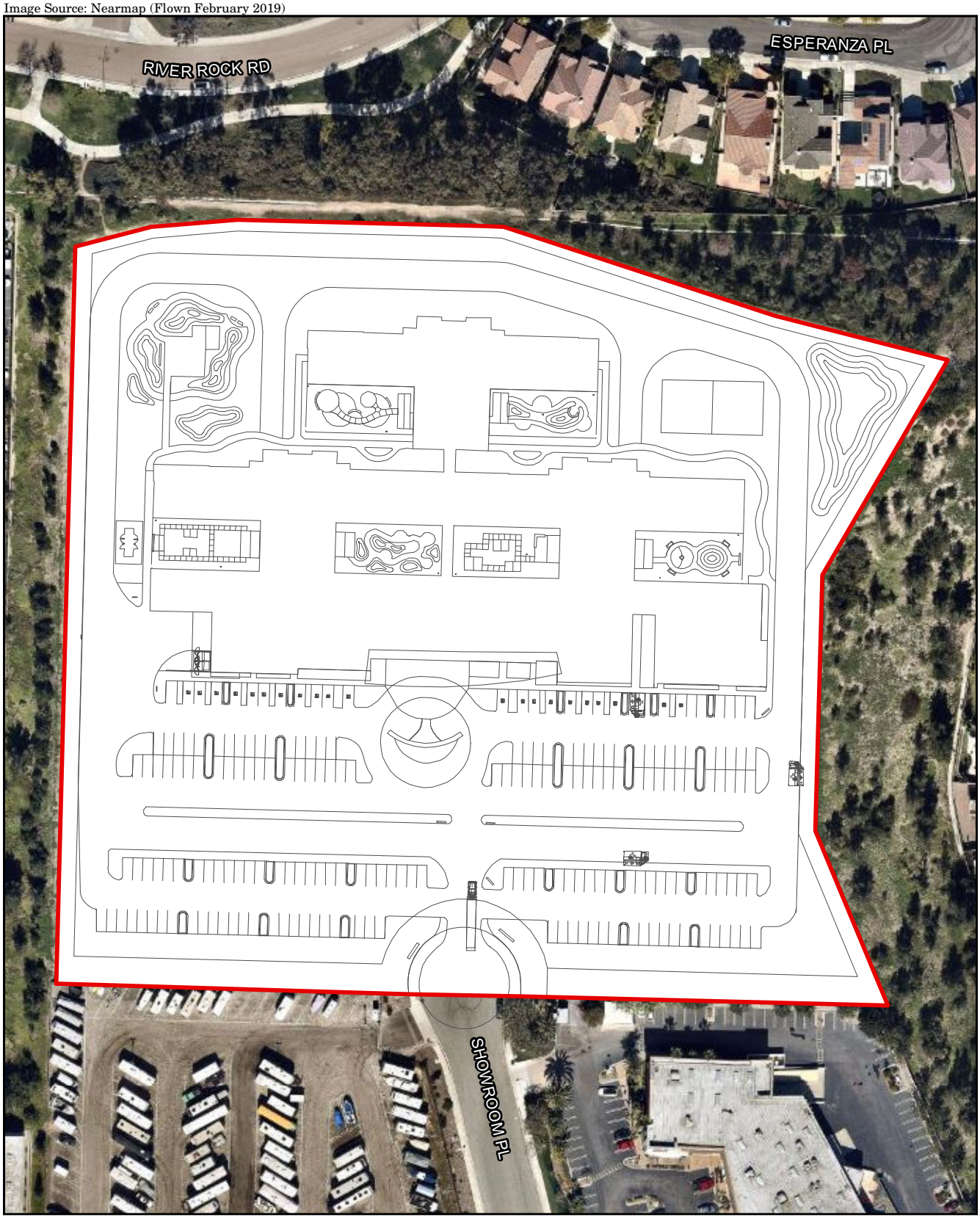
Image Source: Nearmap (Flown February 2019)



Site Plan Lines

Project Boundary

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FIGURE 3

Site Plan

1.2.1 Descriptors

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important. In addition, most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors has been developed. The noise descriptors used for this study are the equivalent noise level (L_{eq}) and the community noise equivalent level (CNEL).

The L_{eq} is the equivalent steady-state noise level in a stated period of time that is calculated by averaging the acoustic energy over a time period; when no period is specified, a 1-hour period is assumed.

The CNEL is a 24-hour equivalent sound level. The CNEL calculation applies an additional 5 dB(A) penalty to noise occurring during evening hours, between 7:00 p.m. and 10:00 p.m., and a 10 dB(A) penalty is added to noise occurring during the night, between 10:00 p.m. and 7:00 a.m. These increases for certain times are intended to account for the added sensitivity of humans to noise during the evening and night.

1.2.2 Propagation

Sound from a localized source (approximating a "point" source) radiates uniformly outward as it travels away from the source in a spherical pattern, known as geometric spreading. The sound level decreases or drops off at a rate of 6 dB(A) for each doubling of the distance.

Traffic noise is not a single, stationary point source of sound. The movement of vehicles makes the source of the sound appear to emanate from a line (line source) rather than a point when viewed over some time interval. The drop-off rate for a line source is 3 dB(A) for each doubling of distance.

The propagation of noise is also affected by the intervening ground, known as ground absorption. A hard site (such as parking lots or smooth bodies of water) receives no additional ground attenuation, and the changes in noise levels with distance (drop-off rate) are simply the geometric spreading of the source. A soft site (such as soft dirt, grass, or scattered bushes and trees) provides an additional ground attenuation value of 1.5 dB(A) per doubling of distance. Thus, a point source over a soft site would drop off at 7.5 dB(A) per doubling of distance.

2.0 Applicable Noise Standards

2.1 General Plan

2.1.1 Noise/Land Use Compatibility

The Environmental Element of the City of Chula Vista (City) General Plan contains applicable noise/land use compatibility guidelines, which are shown in Table 1. As shown,

noise sensitive uses such as the project are considered compatible when located in areas where exterior noise levels are 65 CNEL or less (City of Chula Vista 2005). For the project, the City applies this exterior noise level standard at the proposed exterior use areas which include the six proposed exterior activity areas and the staff outdoor area (see Figure 3).

Table 1
Exterior Land Use/Noise Compatibility Guidelines

Land Use	CNEL					
	50	55	60	65	70	75
Residential						
Schools, Libraries, Daycare Facilities, Convalescent Homes, Outdoor Use Areas, and Other Similar Uses Considered Noise Sensitive						
Neighborhood Parks, Playgrounds						
Offices and Professional						
Places of Worship (excluding outdoor use areas)						
Golf Courses						
Retail and Wholesale Commercial, Restaurants, Movie Theaters						
Industrial, Manufacturing						

2.1.2 Policies

The following policies from the City General Plan are relevant to this noise analysis:

EE 21.1 Apply the exterior land use-noise compatibility guidelines contained in Table 9-2 of this Environmental Element to new development where applicable and in light of project-specific considerations. (Note: Table 9-2 of the Environmental Element is Table 1 of this report.)

EE 21.2 Where applicable, the assessment and mitigation of interior noise levels shall adhere to the applicable requirements of the California Building Code with local amendments and other applicable established City standards.

EE 21.3 Promote the use of available technologies in building construction to improve noise attenuation capacities.

EE 22.5 Require projects to construct appropriate mitigation measures in order to attenuate existing and projected traffic noise levels in accordance with applicable standards, including the exterior land use/noise compatibility guidelines contained in Table 9-2 of this Environmental Element.

2.2 City of Chula Vista Noise Control Ordinance

2.2.1 On-site Generated Noise

The Noise Control Ordinance (Chula Vista Municipal Code [CVMC] Chapter 19.68) establishes noise criteria to prevent noise and vibration that may jeopardize the health or welfare of the City's citizens or degrade their quality of life. CVMC Section 19.68.030 defines exterior noise standards for various receiving land uses. The noise standards are not to be exceeded at the portion of a property used for a particular land use. For nuisance noise, the noise standards cannot be exceeded at any time. Examples of nuisance noise provided in the Noise Control Ordinance include pets in residential neighborhoods, private parties of limited duration, sound amplifiers and musical instruments, and any activities in commercial areas other than permitted uses. For environmental noise, the L_{eq} in any one hour cannot exceed the noise standards. These standards are shown in Table 2. The noise standards in Table 2 do not apply to construction activities.

Table 2
City of Chula Vista Exterior Noise Limits

Receiving Land Use Category	Noise Level [dB(A)][1,2,3]	
	10:00 p.m. to 7:00 a.m. (Weekdays)	7:00 a.m. to 10:00 p.m. (Weekdays)
	10:00 p.m. to 8:00 a.m. (Weekends)	8:00 a.m. to 10:00 p.m. (Weekends)
All residential (except multiple dwelling)	45	55
Multiple dwelling residential	50	60
Commercial	60	65
Light Industry – I-R and I-L zone	70	70
Heavy Industry – I zone	80	80

SOURCE: CVMC Section 19.68.030

[1] Environmental Noise – One-hour equivalent in any hour; Nuisance Noise – not to be exceeded any time

[2] According to CVMC Section 19,68,030(b)(2), if the alleged offensive noise contains a steady, audible sound such as a whine, screech or hum, or contains a repetitive impulsive noise such as hammering or riveting, the standard limits shall be reduced by 5 decibels.

[3] If the measured ambient level, measured when the alleged noise violation source is not operating, exceeds the standard noise limit, the allowable noise exposure standard shall be the ambient noise level.

Section 19.68.060(A) states that "Warning devices necessary for the protection of public safety, as, for example, police, fire and ambulance sirens, and train horns, are exempted from the provisions of this title."

2.2.2 Construction Noise

Construction noise is regulated by CVMC Section 17.24.040, which prohibits construction and building work in residential zones that would cause noises disturbing to the peace, comfort, and quiet enjoyment of property of any person residing or working in the vicinity between the hours of 10:00 p.m. and 7:00 a.m., Monday through Friday, and between the hours of 10:00 p.m. and 8:00 a.m., Saturday and Sunday.

2.3 California Green Building Standards Code – Environmental Comfort

For nonresidential structures, Title 24, Chapter 12, Section 1207.5 refers to 2016 California Green Building Standards, Chapter 5 – Nonresidential Mandatory Measures, Division 5.5 – Environmental Quality, Section 5.507 – Environmental Comfort, Subsection 5.507.4 – Acoustical Control. Pursuant to these standards, all nonresidential building construction shall employ building assemblies and components that achieve a composite sound transmission class rating of at least 50 or shall otherwise demonstrate that exterior noise shall not result in interior noise environment where noise levels exceed 50 A-weighted equivalent decibels [dB(A) L_{eq}] in occupied areas during any hour of operation (24 California Code of Regulations 1207.5 2016).

3.0 Existing Conditions

Existing noise levels in the vicinity of the project site were measured on March 14, 2019, using one Larson-Davis Model LxT, Type 1 Integrating Sound Level Meter, serial number 3827. The following parameters were used:

Filter:	A-weighted
Response:	Slow
Interval Period	1 minute
Time History Period:	5 seconds

The meter was calibrated before and after each measurement. The meter was set 5 feet above the ground level for each measurement.

Noise measurements were taken to obtain typical ambient noise levels at the project site and in the vicinity. The weather was sunny and warm with a slight breeze, zero to two miles per hour on average. Three 15-minute measurements were taken, as described below. The measurement locations are shown on Figure 4, and detailed data is contained in Attachment 1.

Measurement 1 was located at the northeast corner of the project site, approximately 400 feet west of Hunte Parkway and 200 feet northwest of Yosemite Drive. Noise levels were measured for 15 minutes. The main noise source at this location was vehicle traffic Yosemite Drive. Secondary sources of noise included activities at Eastlake Middle School, airplanes, and bird vocalizations. Vehicle traffic on Yosemite Drive was counted during the measurement period. The average measured noise level was 52.4 dB(A) L_{eq}.

Measurement 2 was located near the northern project boundary, approximately 130 feet south of River Rock Road. Noise levels were measured for 15 minutes. The main noise source at this location was vehicle traffic on River Rock Road and airplanes. Secondary sources of noise included activities at Eastlake Middle School and bird vocalizations.

Image Source: Nearmap (Flown February 2019)

0 Feet 100

Measurement Locations

Project Boundary

FIGURE 4

Noise Measurement Locations

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Vehicle traffic on River Rock Road was counted during the measurement period. The average measured noise level was 48.8 dB(A) L_{eq}.

Measurement 3 was located at the southern project boundary at the end of the Showroom Place cul-de-sac. Noise levels were measured for 15 minutes. The main noise source at this location was vehicle traffic on Showroom Place. Secondary sources of noise included a vacuum, an intercom at Eastlake Middle School, airplanes, and bird vocalizations. Vehicle traffic on Showroom Place was counted during the measurement period. The average measured noise level was 46.4 dB(A) L_{eq}.

Noise measurements are summarized in Table 3. Traffic counts are summarized in Table 4.

Table 3
Noise Measurements

Measurement	Location	Time	Noise Sources	L_{eq}	L_{90}
1	Northeast corner of project site	11:45 a.m.–12:00 p.m.	Yosemite Drive	52.4	44.2
2	Northern project boundary	12:19 p.m.–12:34 p.m.	River Rock Road	48.8	41.1
3	Southern project boundary at end of Showroom Place	12:53 p.m.–1:08 p.m.	Showroom Place	46.4	39.3

L_{90} = Noise level exceeded 90 percent of the time.
Note: Noise measurement data is contained in Attachment 1.

Table 4
15-minute Traffic Counts

Measurement	Roadway	Direction	Autos	Medium Trucks	Heavy Trucks	Buses	Motorcycles
1	Yosemite Drive	Southbound	32	0	0	0	0
		Northbound	28	0	0	0	0
2	River Rock Road	Eastbound	2	0	0	0	0
		Westbound	4	0	0	0	0
3	Showroom Place	Northbound	11	0	0	0	0
		Southbound	13	0	0	0	0

4.0 Analysis Methodology

4.1 Construction Noise Analysis

Project construction noise would be generated by diesel engine-driven construction equipment used for demolition, site preparation and grading, building construction, loading, unloading, and placing materials and paving. Diesel engine-driven trucks also would bring materials to the site and remove the soils from excavation.

Construction equipment with a diesel engine typically generates maximum noise levels from 70 and 95 dB(A) maximum sound level (L_{max}) at a distance of 50 feet (Federal Highway Administration [FHWA] 2006). Table 5 summarizes typical construction equipment noise levels.

Table 5 Typical Construction Equipment Noise Levels		
Equipment	Noise Level at 50 Feet [dB(A) L_{eq}]	Typical Duty Cycle
Auger Drill Rig	85	20%
Backhoe	80	40%
Blasting	94	1%
Chain Saw	85	20%
Clam Shovel	93	20%
Compactor (ground)	80	20%
Compressor (air)	80	40%
Concrete Mixer Truck	85	40%
Concrete Pump	82	20%
Concrete Saw	90	20%
Crane (mobile or stationary)	85	20%
Dozer	85	40%
Dump Truck	84	40%
Excavator	85	40%
Front End Loader	80	40%
Generator (25 kilovolt amps or less)	70	50%
Generator (more than 25 kilovolt amps)	82	50%
Grader	85	40%
Hydra Break Ram	90	10%
Impact Pile Driver (diesel or drop)	95	20%
In situ Soil Sampling Rig	84	20%
Jackhammer	85	20%
Mounted Impact Hammer (hoe ram)	90	20%
Paver	85	50%
Pneumatic Tools	85	50%
Pumps	77	50%
Rock Drill	85	20%
Roller	74	40%
Scraper	85	40%
Tractor	84	40%
Vacuum Excavator (vac-truck)	85	40%
Vibratory Concrete Mixer	80	20%
Vibratory Pile Driver	95	20%
SOURCE: FHWA 2006. dB(A) L_{eq} = A-weighted decibels average noise level		

Construction equipment would generate maximum noise levels between 70 and 95 dB(A) L_{max} at 50 feet from the source when in operation. During excavation, grading, and paving operations, equipment moves to different locations and goes through varying load cycles, and there are breaks for the operators and for non-equipment tasks, such as measurement. Average construction noise levels were calculated for the simultaneous operation of three common pieces of construction equipment: backhoe, excavator, and loader. The usage factors were applied to the maximum noise level at 50 feet for each piece of equipment, and then noise levels were added logarithmically. Hourly average noise levels would be approximately 85 dB(A) L_{eq} at 50 feet from the center of construction activity when assessing three pieces of common construction equipment working simultaneously.

4.2 Traffic Noise Analysis

4.2.1 On-Site Traffic Noise

Noise generated by future traffic was modeled using SoundPLAN Essential, version 4.1. The SoundPLAN program (Navcon Engineering 2015) uses the FHWA Traffic Noise Model algorithms and reference levels to calculate noise levels at selected receiver locations. The model uses various input parameters, such as projected hourly average traffic rates; vehicle mix, distribution, and speed; roadway lengths and gradients; distances between sources, barriers, and receivers; and shielding provided by intervening terrain, barriers, and structures. Receivers, roadways, and barriers were input into the model using three-dimensional coordinates. The locations of future buildings were obtained from project plans and drawings.

Noise levels due to vehicle traffic on the roadways nearest to the project site where modeled. For the purpose of traffic noise compatibility analysis, the noisiest condition is represented as the maximum level of service (LOS) C traffic volume. This condition represents a condition where the maximum number of vehicles are using the roadway at the maximum speed. LOS A and B categories allow full travel speed but do not have as many vehicles, while LOS E and F have a greater number of vehicles, but due to the traffic volume travel at reduced speeds, thus generating less noise. Hunte Parkway is a 4-lane major road with a maximum LOS C capacity of 33,800 average daily traffic (ADT), and Fenton Street is a Class I Collector with a maximum LOS C capacity of 24,800 ADT (City of Chula Vista 2005). Showroom Place, Yosemite Drive, and River Rock Road are not circulation element roadways. Showroom Place is a cul-de-sac that ends at the project site. The total project trip generation of 2,400 ADT was used to model vehicle traffic noise from Showroom Place (Linscott, Law & Greenspan, Engineers 2019). Yosemite Drive and River Rock Road are residential streets. The residential street design volume of 1,200 ADT was used to model vehicle traffic noise from these two roads (City of Chula Vista 2012). A standard vehicle classification mix of 95 percent automobiles, 2 percent medium trucks, 1 percent heavy trucks, 1 percent buses, and 1 percent motorcycles was modeled.

Table 6 summarizes the traffic volumes and vehicle classification mixes for the modeled roadways.

Table 6
Traffic Parameters

Roadway	Average Daily Traffic	Speed	Vehicle Mix (percent)				
			Autos	Medium Trucks	Heavy Trucks	Buses	Motorcycles
Hunte Parkway	22,800	45	95	2	1	1	1
Fenton Street	24,800	35	95	2	1	1	1
Showroom Place	2,400	25	95	2	1	1	1
Yosemite Drive	1,200	25	95	2	1	1	1
River Rock Road	1,200	25	95	2	1	1	1

4.2.2 Off-site Traffic Noise

Off-site traffic noise was modeled using the FHWA Traffic Noise Prediction Model algorithms and reference levels. Traffic noise levels were calculated at 50 feet from the centerline of the affected roadways to determine the noise level increase associated with the project. The model uses various input parameters, such as traffic volumes; vehicle mix, distribution, and speed.

The roadways included in the traffic impact analysis are Otay Lakes Road, Eastlake Parkway, Fenton Street, and Hunte Parkway. Traffic noise levels were calculated based on the total average daily traffic volumes on each roadway segment. For modeling purposes, "hard" ground conditions were used for the analysis of future conditions, since a majority of the project area is paved and the hard site provides the most conservative impact assessment.

Existing and future (year 2035) traffic volumes with and without the project were obtained from the project traffic impact analysis (Linscott, Law & Greenspan, Engineers 2019). Table 7 summarizes the future traffic volumes for the area roadway segments. Modeled noise levels do not account for shielding provided by intervening barriers and structures.

Table 7
Future Vehicle Traffic Parameters

Roadway Segment	Average Daily Traffic				Speed (mph)
	Existing	Existing + Project	Year 2035	Year 2035 + Project	
Otay Lakes Road					
State Route 125 Northbound Ramps to Eastlake Parkway	43,234	44,842	57,500	59,108	50
Eastlake Parkway to Lane Avenue	29,726	30,950	39,100	40,324	50
Lane Avenue to Fenton Street	19,207	20,431	29,200	30,424	50
Fenton Street to Hunte Parkway	18,747	19,131	29,200	29,584	50
East Hunte Parkway	10,674	10,722	29,300	29,348	50
Eastlake Parkway					
Fenton Street to Otay Lakes Road	23,249	23,825	27,500	28,076	40
Fenton Street					
Lane Avenue to Showroom Place	8,202	8,994	12,000	12,792	34
Showroom Place to Otay Lakes Road	6,256	7,864	10,200	11,808	34
Hunte Parkway					
Otay Lakes Road to Clubhouse Drive	14,911	15,079	19,400	19,568	45

SOURCE: Linscott, Law & Greenspan, Engineers 2019.

4.3 On-site Generated Noise Analysis

On-site noise sources on the project site after completion of construction would include rooftop heating, ventilation, and air conditioning (HVAC) equipment, an emergency generator, and truck deliveries and loading dock activities. These sources would have the potential to produce noise in excess of City limits (see Table 2).

Noise levels due to on-site sources were modeled using SoundPLAN. The SoundPLAN program models noise propagation following the International Organization for Standardization method *ISO 9613-2 – Acoustics, Attenuation of Sound during Propagation Outdoors*. The model calculates noise levels at selected receiver locations using input parameter estimates such as total noise generated by each noise source; distances between sources, barriers, and receivers; and shielding provided by intervening structures.

4.3.1 Heating, Ventilation, and Air Conditioning Equipment

The HVAC equipment would be located at various locations on the roof of the proposed building. It is not known at this time which manufacturer, brand, or model of unit or units will be selected for use in the project. Typically, a capacity of 1-ton per 340 square feet would be required for large office buildings. This ratio was used to determine the total HVAC capacity required for the project. Based on this ratio, the 92,349-square-foot building would require a capacity of approximately 272 tons. As a conservative analysis, thirty 10-ton units, for a total capacity of 300 tons, were modeled on the roof of the proposed building. Based on review of manufacturer specifications for a sample unit (Trane Model T/YSCE120ED), a representative noise level for a 10-ton unit would be a sound power level of 79 dB. Noise specifications are contained in Attachment 2. All units were modeled at full capacity during the daytime and nighttime hours.

4.3.2 Emergency Generator

The emergency generator would be located on the west side of the proposed building within a 16-foot concrete masonry unit wall. The specifications for the Cat C27 diesel generator set that would be used are contained in Attachment 3. Based on these noise specifications, the generator produces a noise level of 75 dB(A) at 23 feet. Continuous operation of the generator would only occur during emergency situations when the facility loses power from the main power grid. However, the generator would be operated periodically for routine testing and maintenance. Property line noise levels were modeled with and without operation of the generator. Modeled noise levels take into account to 16-foot wall that would surround the generator. The generator would also be equipped with a sound blanket, however, noise reduction due to this feature were not taken into account.

4.3.3 Delivery Trucks

Two loading docks would be located on the west side of the proposed building. In order to evaluate the truck delivery noise impacts, the analysis utilized reference noise level measurements taken at an Albertson's Shopping Center in San Diego, California in 2011. The measurements include truck drive-by noise, truck loading/unloading, and truck engine noise. The unmitigated exterior noise levels for truck drive-by noise and truck engine noise were measured at 66.5 dB(A) L_{eq} at a distance of 25 feet from the loading dock. This is equivalent to a sound power level of 92.1 dB(A).

The on-site maneuvering associated with the delivery trucks consists of the truck entering the site and backing into the loading dock, idling, loading and unloading, and leaving the site. It is anticipated that the project would receive three to five deliveries per day. Because there are two loading docks, the simultaneous operation of two delivery trucks was modeled. It was assumed that it would take 5 minutes for a truck to enter and leave the project site. During the loading/unloading of the truck, the engine can only idle for a maximum of 5 minutes in compliance with state regulations for air quality. To calculate property line noise levels, trucks were modeled as a line source while entering and leaving the site, and as a point source at each loading dock while idling.

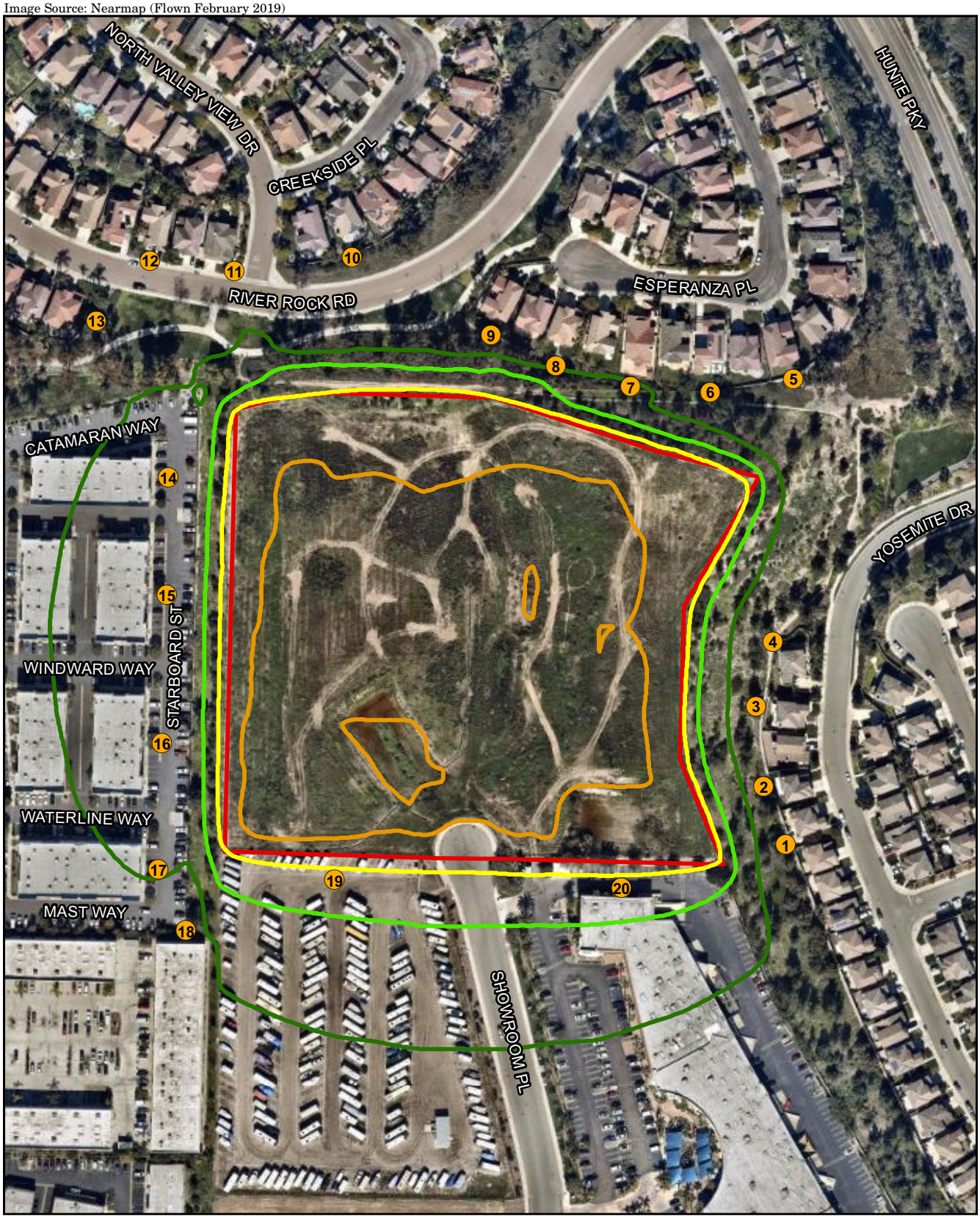
5.0 Future Acoustical Environment and Impacts

5.1 Construction Noise

Noise associated with the grading, building, and paving for the project would potentially result in short-term impacts to surrounding residential properties. There are residential uses located north and southeast of the project site. A variety of noise-generating equipment would be used during the construction phase of the project, such as excavators, backhoes, front-end loaders, and concrete saws, along with others. The exact number and pieces of construction equipment required are not known at this time. As discussed, average construction noise levels were calculated. Based on this analysis, hourly average noise levels would be approximately 83 dB(A) L_{eq} at 50 feet from the center of construction activity when assessing three pieces of common construction equipment working simultaneously. Construction noise is considered a point source and would attenuate at approximately 6 dB(A) for every doubling of distance. To reflect the nature of grading and construction activities, equipment was modeled as an area source distributed over the project footprint. Noise levels were modeled at a series of 20 receivers located at the adjacent uses. The results are summarized in Table 8. Modeled receiver locations and construction noise contours are shown in Figure 5. SoundPLAN data is contained in Attachment 4.

As shown, construction noise levels would range from 56 to 68 dB(A) L_{eq} at the adjacent uses. Although the existing adjacent residences would be exposed to construction noise levels that could be heard above ambient conditions, the exposure would be temporary. Additionally, construction activities would occur between the hours of 7:00 a.m. and 10:00 p.m. Monday through Friday, and between the hours of 8:00 a.m. and 10:00 p.m. Saturday and Sunday, as specified in the City Construction Noise Ordinance. Because construction activities associated with the project would comply with the applicable regulation for construction, temporary increases in noise levels from construction activities would be less than significant.

Image Source: Nearmap (Flown February 2019)



Construction Noise

- 60 dB(A) Leq
- 65 dB(A) Leq
- 70 dB(A) Leq
- 75 dB(A) Leq
- Construction Receivers
- Project Boundary

0 Feet 100

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FIGURE 5

Construction Noise Contours

Table 8 Construction Noise Levels		
Receiver	Land Use	Noise Level [dB(A) L_{eq}]
1	Residential	57
2	Residential	58
3	Residential	57
4	Residential	56
5	Residential	56
6	Residential	58
7	Residential	61
8	Residential	58
9	Residential	57
10	Residential	59
11	Residential	59
12	Residential	58
13	Residential	58
14	Commercial	62
15	Commercial	63
16	Commercial	63
17	Commercial	60
18	Commercial	57
19	Boat/RV Storage	68
20	Commercial	68

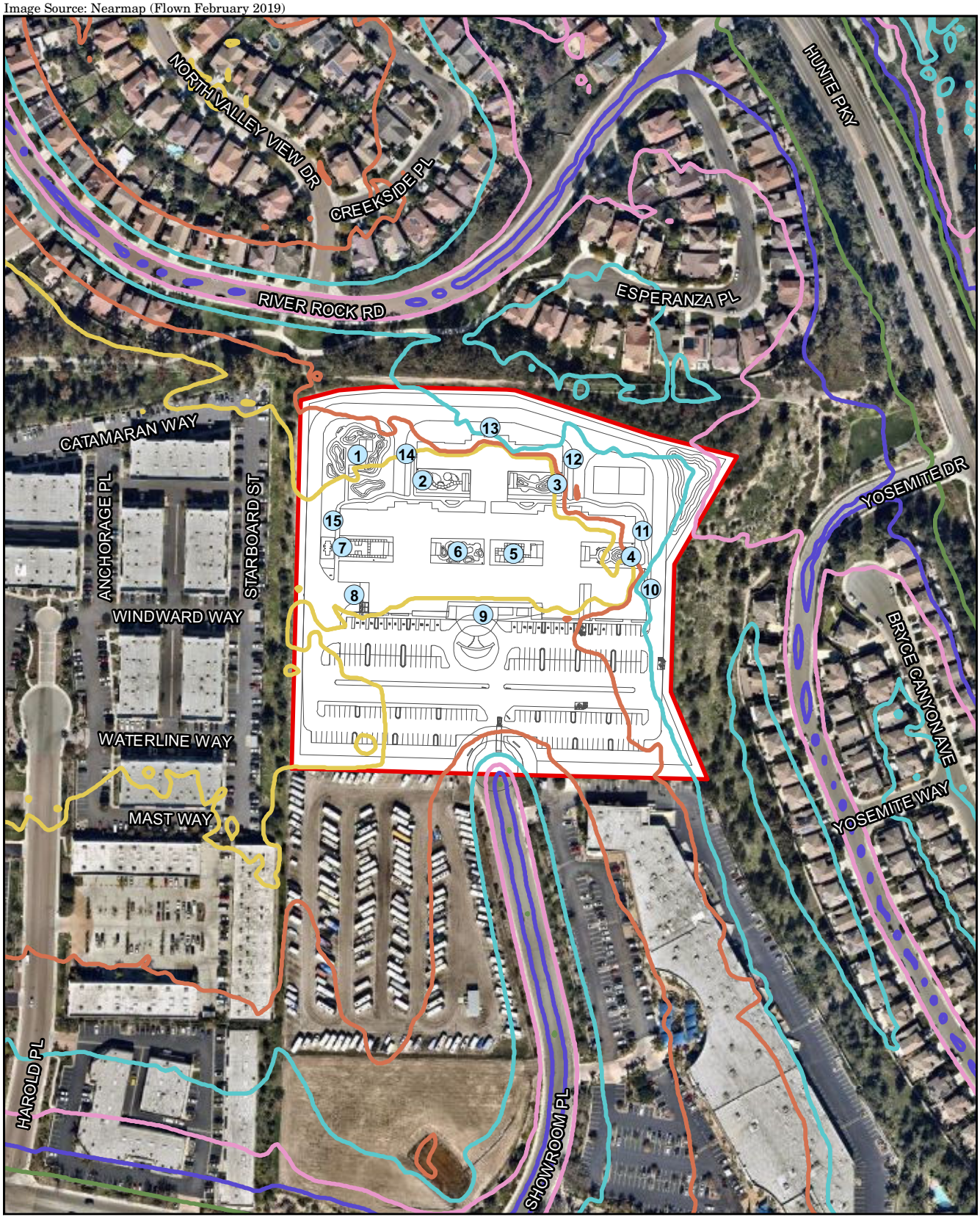
5.2 Traffic Noise

5.2.1 On-site Traffic Noise

On-site traffic noise contours were developed using the SoundPLAN program. Noise level contours were modeled at the first-floor level. These contours take into account shielding provided by the proposed building and grading, but do not taken in to account shielding due to adjacent buildings and are therefore conservative. Future vehicle traffic noise-level contours are shown in Figure 6. SoundPLAN data are contained in Attachment 5.

As discussed in Section 2.1, noise sensitive uses such as the project are considered compatible when located in areas where exterior noise levels are 65 CNEL or less. This standard is applicable at exterior use areas that include the six proposed exterior activity areas and the staff outdoor area. To refine the noise analysis and determine noise levels at exterior use areas and the building façade, exterior noise levels were calculated at a series of receiver locations at the staff outdoor area (Receiver 1), the exterior activity areas (Receivers 2 through 7), and around the proposed building (Receivers 8 through 15). Modeled receiver locations are shown in Figure 6. Table 9 summarizes the projected future noise levels at the 15 modeled receivers.

Image Source: Nearmap (Flown February 2019)



Vehicle Traffic Noise

- 40 CNEL
- 45 CNEL
- 50 CNEL
- 55 CNEL
- 60 CNEL
- 65 CNEL
- Receivers
- Site Plan Lines
- Project Boundary

0 Feet 200

FIGURE 6

Vehicle Traffic Noise Contours

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Table 9 Future Vehicle Traffic Noise Levels		
Receiver	Location	Exterior Noise Level (CNEL)
1	Staff Outdoor Area	41
2	Exterior Activity Area	34
3	Exterior Activity Area	40
4	Exterior Activity Area	45
5	Exterior Activity Area	32
6	Exterior Activity Area	31
7	Exterior Activity Area	36
8	Building Façade	39
9	Building Façade	41
10	Building Façade	50
11	Building Façade	50
12	Building Façade	48
13	Building Façade	51
14	Building Façade	40
15	Building Façade	38
CNEL = community noise equivalent level		

As shown, noise levels at the staff outdoor area and the exterior activity areas would range from 31 to 45 CNEL. Noise levels at the exterior use areas would be compatible with the City's standard of 65 CNEL.

Exterior noise levels at the building façade are projected to range from 38 to 51 CNEL. The interior noise level standard is 50 CNEL. When windows are open, standard construction techniques provide a 10 dB exterior-to-interior noise level reduction (FHWA 2011). Based on these standards, interior noise levels would be reduced to 41 CNEL or less. Therefore, impacts related to on-site traffic noise would be less than significant.

5.2.2 Off-site Traffic Noise

The project would increase traffic volumes on local roadways. However, the project would not substantially alter the vehicle classifications mix on local or regional roadways, nor would the project alter the speed on an existing roadway or create a new roadway. Thus, the primary factor affecting off-site noise levels would be increased traffic volumes. While changes in noise levels would occur along any roadway where project-related traffic occurs, for noise assessment purposes, noise level increases are assumed to be greatest nearest the project site, as this location would represent the greatest concentration of project-related traffic. Traffic noise increases attributable to the project were assessed against a significance threshold of 3 dB, which is the level at which an increase in noise is considered to be barely perceptible (Caltrans 2013).

Table 10 presents a conservative assessment of traffic noise levels based on the existing, existing plus project, horizon year (2035), and horizon year (2035) plus project noise levels generated by traffic. Table 10 also summarizes the direct and cumulative traffic noise level increases due to the project. Noise level calculations are contained in Attachment 6.

Table 10
Traffic Noise Level with and without Project and Ambient Noise Increases

Roadway Segment	Existing	Existing + Project	Direct Increase	Year 2035	Year 2035 + Project	Direct Increase	Cumulative Increase Over Existing
Otay Lakes Road							
State Route 125 Northbound Ramps to Eastlake Parkway	77	77	<1	78	78	<1	1
Eastlake Parkway to Lane Avenue	75	75	<1	75	76	1	1
Lane Avenue to Fenton Street	73	74	1	75	75	<1	2
Fenton Street to Hunte Parkway	73	74	1	75	75	<1	2
East Hunte Parkway	70	70	<1	75	75	<1	5
Eastlake Parkway							
Fenton Street to Otay Lakes Road	72	72	<1	72	73	1	1
Fenton Street							
Lane Avenue to Showroom Place	66	66	<1	68	68	<1	2
Showroom Place to Otay Lakes Road	65	66	1	67	68	1	3
Hunte Parkway							
Otay Lakes Road to Clubhouse Drive	71	71	<1	72	72	<1	1

As shown in Table 10, direct off-site noise level increases due to the project would be 1 dB or less. Therefore, direct off-site noise impacts associated with the project would be less than significant.

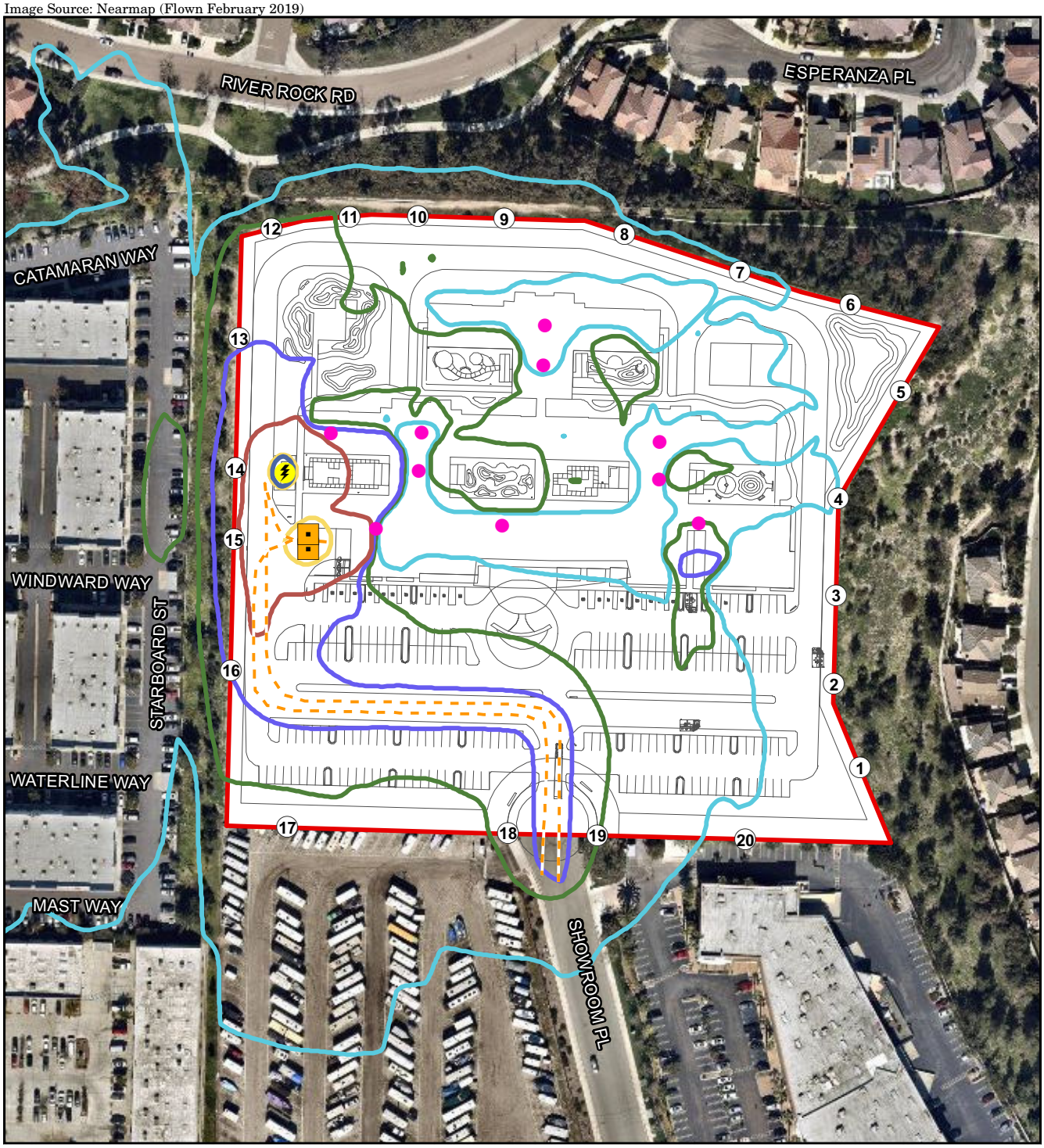
Similar to direct traffic noise impacts, a cumulative traffic noise impact occurs when the noise level would exceed the applicable standard and a substantial noise level increase compared to existing noise occurs. As shown, the total horizon year (year 2035) plus project increase over the existing condition would range from 1 dB to 5 dB. However, the project's contribution to the increase over ambient noise levels would be 1 dB or less. Therefore, the project would result in a less than cumulatively considerable off-site noise level increase, and cumulative traffic noise impacts associated with the project would be less than significant.

5.3 On-site Generated Noise

The primary noise sources on-site would be HVAC equipment, an emergency generator, and truck deliveries and loading dock activities. Using the on-site noise source parameters discussed in Section 4.3, noise levels were modeled at a series of 20 receivers located at the property line. For a worst-case analysis, noise levels due to all noise sources were modeled and compared to the most restrictive nighttime CVMC limits. Typical noise levels without the continuous operation of the emergency generator were also modeled.

Modeled receivers and the locations of the on-site noise sources are shown in Figures 7a and 7b. Figure 7a shows the on-site generated noise contours with operation of the emergency generator, and Figure 7b shows the noise contours without operation of the emergency generator. Modeled data is included in Attachment 7. Future projected noise levels are summarized in Table 11.

Image Source: Nearmap (Flown February 2019)



0 Feet 200

On-Site Noise

- 40 dB(A) Leq
- 45 dB(A) Leq
- 50 dB(A) Leq
- 55 dB(A) Leq
- 60 dB(A) Leq
- 65 dB(A) Leq

Noise Sources

- Emergency Generator
- HVAC
- Loading Docks
- Delivery Trucks

- Receivers
- Site Plan Lines
- Project Boundary

FIGURE 7a

On-Site Generated Noise Contours with Emergency Generator

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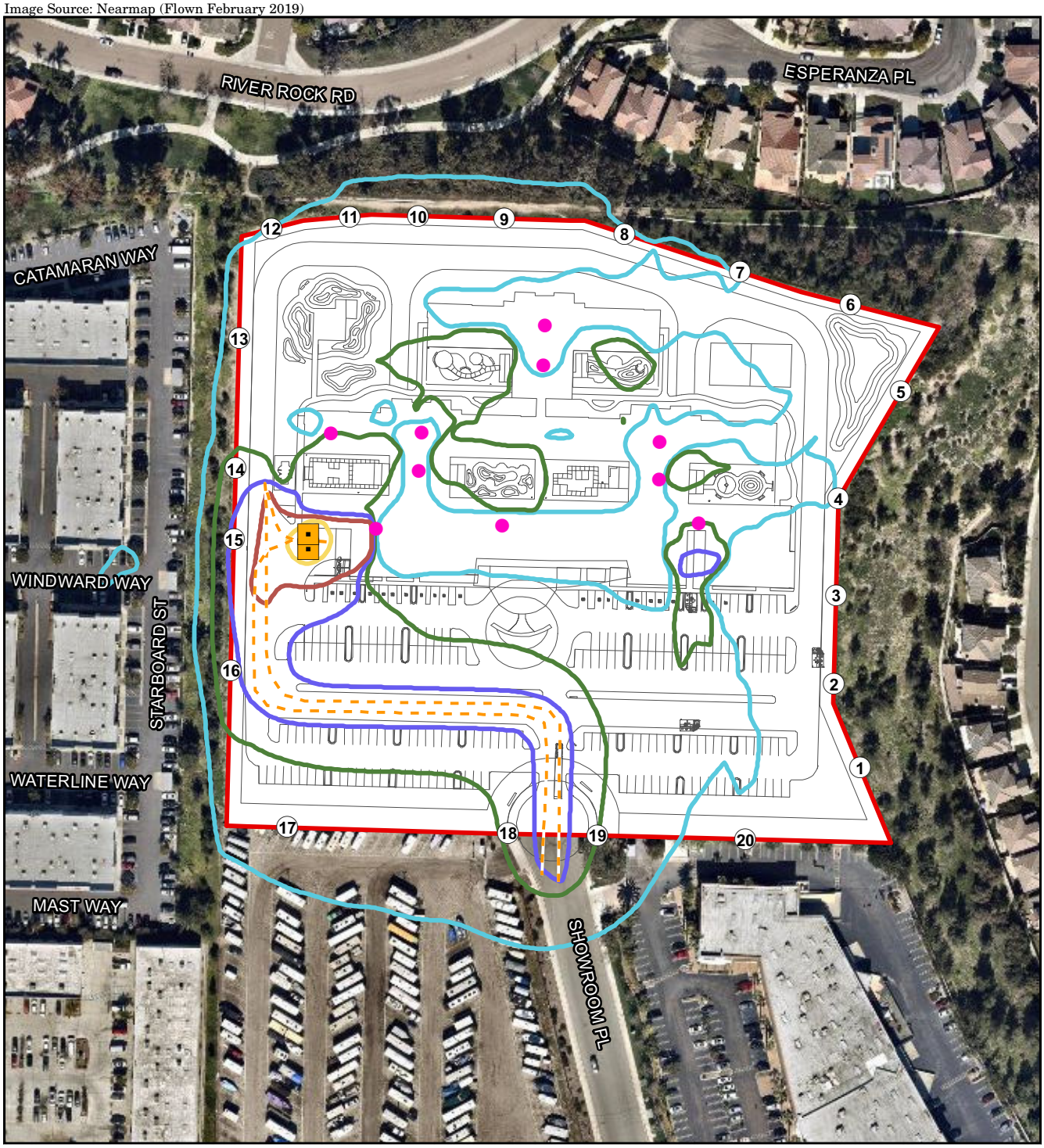
Image Source: Nearmap (Flown February 2019)



On-Site Noise

- 40 dB(A) Leq
- 45 dB(A) Leq
- 50 dB(A) Leq
- 55 dB(A) Leq
- 60 dB(A) Leq
- 65 dB(A) Leq

Noise Sources

- HVAC
- Loading Docks
- Delivery Trucks
- Receivers
- Site Plan Lines
- Project Boundary

0 Feet 200

FIGURE 7b

On-Site Generated Noise Contours
without Emergency Generator

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Table 11 Heating, Ventilation, and Air Conditioning Noise Levels at Adjacent Properties				
		Noise Level [dB(A) L_{eq}]		Noise Ordinance Limit Daytime/Nighttime [dB(A) L_{eq}]
Receiver	Land Use	With Generator	Without Generator	
1	Residential	38	37	55/45
2	Residential	38	37	55/45
3	Residential	35	34	55/45
4	Residential	40	40	55/45
5	Residential	39	39	55/45
6	Residential	39	38	55/45
7	Residential	40	40	55/45
8	Residential	41	40	55/45
9	Residential	43	43	55/45
10	Residential	43	42	55/45
11	Residential	44	41	55/45
12	Residential	45	40	55/45
13	Commercial	49	42	65/60
14	Commercial	54	47	65/60
15	Commercial	54	51	65/60
16	Commercial	50	48	65/60
17	Boat/RV Storage	44	42	--
18	Boat/RV Storage	46	46	--
19	Commercial	45	45	65/60
20	Commercial	40	39	65/60

As shown, on-site generated noise levels at the residential property lines would range from 35 to 45 dB(A) L_{eq} with the generator running and 34 to 43 dB(A) L_{eq} without the generator running. Noise levels would not exceed the single-family residential CVMC limits. At the commercial property lines, noise levels would range from 40 to 54 dB(A) L_{eq} with the generator running and 39 to 51 without the generator running. Noise levels would not exceed the commercial CVMC limits. Therefore, impacts related to on-site generated noise would be less than significant.

6.0 Conclusions

6.1 Construction Noise

As shown in Table 8, construction noise levels would range from 56 to 68 dB(A) L_{eq} at the adjacent property lines. Although the existing adjacent residences would be exposed to construction noise levels that could be heard above ambient conditions, the exposure would be temporary. Additionally, construction activities would occur between the hours of 7:00 a.m. and 10:00 p.m. Monday through Friday, and between the hours of 8:00 a.m. and 10:00 p.m. Saturday and Sunday, as specified in the CVMC. Because construction activities associated with the project would comply with the applicable regulation for construction, temporary increases in noise levels from construction activities would be less than significant.

6.2 Traffic Noise

6.2.1 On-site Traffic Noise

The main sources of vehicle traffic noise at the project site are Hunte Parkway, Fenton Street, Showroom Place, Yosemite Drive, and River Rock Road. The exterior noise level standard for noise sensitive uses such as the project is 65 CNEL. This standard is applicable at exterior use areas which include the six proposed exterior activity areas and the staff outdoor area. As shown in Table 9, noise levels at the staff outdoor area and the exterior activity areas would range from 31 to 45 CNEL. Noise levels at the exterior use areas would be compatible with the City's standard of 65 CNEL.

Exterior noise levels at the building façade are projected to range from 38 to 51 CNEL. The interior noise level standard is 50 CNEL. When windows are open, standard construction techniques provide a 10 dB exterior-to-interior noise level reduction (FHWA 2011). Based on these standards, interior noise levels would be reduced to 41 CNEL or less. Therefore, impacts related to on-site traffic noise would be less than significant.

6.2.2 Off-site Traffic Noise

The additional vehicle trips associated with the project would increase noise levels on nearby roadways. A noise increase of 3 dB or more would be considered significant because 3 dB is the level at which an increase in noise is perceptible to a person. As shown in Table 10, direct off-site noise level increases due to the project would be 1 dB or less. Therefore, direct off-site noise impacts associated with the project would be less than significant. The total horizon year (year 2035) plus project increase over the existing condition would range from less than 1 dB to 5 dB. However, the project's contribution to the increase over ambient noise levels would be 1 dB or less. Therefore, the project would result in a less than cumulatively considerable off-site noise level increase, and cumulative traffic noise impacts associated with the project would be less than significant.

6.3 On-site Generated Noise

The primary noise sources on-site would be HVAC equipment, an emergency generator, and truck deliveries and loading dock activities. For a worst-case analysis, property line noise levels due to all noise sources were modeled and compared to the most restrictive nighttime CVMC limits. Typical noise levels without the continuous operation of the emergency generator were also modeled. As shown in Table 11, property line noise levels with and without operation of the emergency generator are not projected to exceed the applicable residential and commercial CVMC limits. Therefore, impacts related to on-site generated noise would be less than significant.

7.0 References Cited

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2011 Highway Traffic Noise: Analysis and Abatement Guidance. FHWA-HEP-10-025. December 2011.

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ATTACHMENTS

ATTACHMENT 1

Noise Measurement Data

Summary					
Filename	LxT_Data.003				
Serial Number	3827				
Model	SoundExpert™ LxT				
Firmware Version	2.301				
User	Jesse				
Location	9434.0				
Job Description	Chula Vista Behavioral Health Project				
Note					
Measurement Description					
Start	2019/03/14 11:44:52				
Stop	2019/03/14 11:59:54				
Duration	0:15:02.6				
Run Time	0:15:02.6				
Pause	0:00:00.0				
Pre Calibration	2019/03/14 11:42:14				
Post Calibration	None				
Calibration Deviation	---				
Overall Settings					
RMS Weight	A Weighting				
Peak Weight	A Weighting				
Detector	Slow				
Preamp	PRMLxT1L				
Microphone Correction	Off				
Integration Method	Linear				
OBA Range	Normal				
OBA Bandwidth	1/1 and 1/3				
OBA Freq. Weighting	A Weighting				
OBA Max Spectrum	At Lmax				
Overload	121.8 dB				
	A	**C**	**Z**		
Under Range Peak	**78.1**	75.1	80.1 dB		
Under Range Limit	**26.0**	25.2	32.0 dB		
Noise Floor	16.3	16.1	22.0 dB		
Results					
LAeq	52.4 dB				
LAE	81.9 dB				
EA	17.261 µPa²h				
LApeak (max)	2019/03/14 11:47:05	92.8 dB			
LASmax	2019/03/14 11:53:50	60.9 dB			
LASmin	2019/03/14 11:59:24	41.3 dB			
SEA	-99.9 dB				
LAS > 85.0 dB (Exceedence Counts / Duration)	0	0.0 s			
LAS > 115.0 dB (Exceedence Counts / Duration)	0	0.0 s			
LApeak > 135.0 dB (Exceedence Counts / Duration)	0	0.0 s			
LApeak > 137.0 dB (Exceedence Counts / Duration)	0	0.0 s			
LApeak > 140.0 dB (Exceedence Counts / Duration)	0	0.0 s			

Community Noise	**Ldn**	**7:00-22:00**	**LNight 22:**	**Lden**	**LDay 07:0**	**LEvening**	**LNight 22:00-07:00**
	52.4	52.4	-99.9	52.4	52.4	-99.9	-99.9

LCeq	61.7 dB
LAeq	52.4 dB
LCeq - LAeq	9.4 dB
LAleq	54.9 dB
LAeq	52.4 dB
LAleq - LAeq	2.6 dB
# Overloads	0
Overload Duration	0.0 s
# OBA Overloads	0
OBA Overload Duration	0.0 s
Statistics	
LAS5.00	57.1 dB
LAS10.00	56.1 dB
LAS33.30	52.7 dB
LAS50.00	50.6 dB
LAS66.60	47.2 dB
LAS90.00	44.2 dB

Summary				
Filename	LxT_Data.004			
Serial Number	3827			
Model	SoundExpert™ LxT			
Firmware Version	2.301			
User	Jesse			
Location	9434.0			
Job Description	Chula Vista Behavioral Health Project			
Note				
Measurement Description				
Start	2019/03/14 12:18:46			
Stop	2019/03/14 12:33:49			
Duration	0:15:03.7			
Run Time	0:15:03.7			
Pause	0:00:00.0			
Pre Calibration	2019/03/14 12:17:26			
Post Calibration	None			
Calibration Deviation	---			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	A Weighting			
Detector	Slow			
Preamp	PRMLxT1L			
Microphone Correction	Off			
Integration Method	Linear			
OBA Range	Normal			
OBA Bandwidth	1/1 and 1/3			
OBA Freq. Weighting	A Weighting			
OBA Max Spectrum	At Lmax			
Overload	124.5 dB			
	A	**C**	**Z**	
Under Range Peak	**80.8**	77.8	82.8 dB	
Under Range Limit	**27.4**	26.0	33.4 dB	
Noise Floor	16.9	16.9	23.1 dB	
Results				
LAeq	48.8 dB			
LAE	78.4 dB			
EA	7.641 µPa²h			
LApeak (max)	2019/03/14 12:29:30	90.8 dB		
LASmax	2019/03/14 12:23:46	61.3 dB		
LASmin	2019/03/14 12:25:53	38.6 dB		
SEA	-99.9 dB			
LAS > 85.0 dB (Exceedence Counts / Duration)	0	0.0 s		
LAS > 115.0 dB (Exceedence Counts / Duration)	0	0.0 s		
LApeak > 135.0 dB (Exceedence Counts / Duration)	0	0.0 s		
LApeak > 137.0 dB (Exceedence Counts / Duration)	0	0.0 s		
LApeak > 140.0 dB (Exceedence Counts / Duration)	0	0.0 s		

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**
	48.8	48.8	-99.9	48.8	48.8
LCeq	61.5 dB				
LAeq	48.8 dB				
LCeq - LAeq	12.7 dB				
LAleq	54.1 dB				
LAeq	48.8 dB				
LAleq - LAeq	5.3 dB				
# Overloads	0				
Overload Duration	0.0 s				
# OBA Overloads	0				
OBA Overload Duration	0.0 s				
Statistics					
LAS5.00	54.5 dB				
LAS10.00	52.3 dB				
LAS33.30	47.0 dB				
LAS50.00	45.5 dB				
LAS66.60	43.8 dB				
LAS90.00	41.1 dB				

9434 Chula Vista Behavioral Health Project
Noise Measurement Data

Summary				
Filename	LxT_Data.005			
Serial Number	3827			
Model	SoundExpert™ LxT			
Firmware Version	2.301			
User	Jesse			
Location	9434.0			
Job Description	Chula Vista Behavioral Health Project			
Note				
Measurement Description				
Start	2019/03/14 12:52:52			
Stop	2019/03/14 13:08:00			
Duration	0:15:07.9			
Run Time	0:15:07.9			
Pause	0:00:00.0			
Pre Calibration	2019/03/14 12:50:35			
Post Calibration	None			
Calibration Deviation	---			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	A Weighting			
Detector	Slow			
Preamp	PRMLxT1L			
Microphone Correction	Off			
Integration Method	Linear			
OBA Range	Normal			
OBA Bandwidth	1/1 and 1/3			
OBA Freq. Weighting	A Weighting			
OBA Max Spectrum	At Lmax			
Overload	121.5 dB			
	A	**C**	**Z**	
Under Range Peak	**77.8**	74.8	79.8 dB	
Under Range Limit	**25.9**	25.2	31.9 dB	
Noise Floor	16.2	16.0	21.9 dB	
Results				
LAeq	46.4 dB			
LAE	76.0 dB			
EA	4.439 µPa²h			
LApeak (max)	2019/03/14 13:02:53	81.6 dB		
LASmax	2019/03/14 13:01:07	59.3 dB		
LASmin	2019/03/14 12:58:38	36.9 dB		
SEA	-99.9 dB			
LAS > 85.0 dB (Exceedence Counts / Duration)	0	0.0 s		
LAS > 115.0 dB (Exceedence Counts / Duration)	0	0.0 s		
LApeak > 135.0 dB (Exceedence Counts / Duration)	0	0.0 s		
LApeak > 137.0 dB (Exceedence Counts / Duration)	0	0.0 s		
LApeak > 140.0 dB (Exceedence Counts / Duration)	0	0.0 s		

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**
	46.4	46.4	-99.9	46.4
LCeq	60.2 dB			
LAeq	46.4 dB			
LCeq - LAeq	13.7 dB			
LAleq	49.8 dB			
LAeq	46.4 dB			
LAleq - LAeq	3.4 dB			
# Overloads	0			
Overload Duration	0.0 s			
# OBA Overloads	0			
OBA Overload Duration	0.0 s			
Statistics				
LAS5.00	52.3 dB			
LAS10.00	50.0 dB			
LAS33.30	45.3 dB			
LAS50.00	43.2 dB			
LAS66.60	41.4 dB			
LAS90.00	39.3 dB			

ATTACHMENT 2

Tran Model T/YSCE120ED Specifications

Fan Performance

Table 6. Standard motor & low static drive accessory sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
5	WSC060ED	AK44x3/4"	N/A	720	791	861	931	1002	1072
6	WSC072ED	AK56x1"	N/A	558	612	665	718	772	825
7½	WSC090ED	AK57x1"	N/A	688	737	787	837	887	N/A
10	WSC120ED	AK105X1"	N/A	724	776	828	880	932	984

Note: Factory set at 3 turns open.

Table 7. Standard motor & high static drive accessory sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
6	WSC072ED	AK56x1"	N/A	968	1018	1068	1118	1169	1219
7½	WSC090ED	AK57x1"	1053	1091	1129	1166	1204	1242	N/A
10	WSC120ED	AK105X1"	1110	1159	1209	1258	1308	1357	N/A

Note: Factory set at 3 turns open.

Table 8. Oversized motor & high static drive accessory sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
7½	WSC090ED	AK85x1"	1186	1249	1311	1373	1436	N/A	N/A

Note: Factory set at 3 turns open.

Table 9. Outdoor sound power level—dB (ref. 10—2 W)

Tons	Unit Model Number	Octave Center Frequency								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5	T/YSC060ED	84	91	79	77	74	71	68	63	80
6	T/YSC072ED	83	90	86	82	79	75	70	63	85
7½	T/YSC090ED	83	90	86	83	80	75	71	64	85
8.5	T/YSC102ED	83	89	84	81	77	72	69	62	83
10	T/YSC120ED	83	86	80	77	73	69	66	60	79

Note: Tests follow ARI270-95.

Table 10. Outdoor sound power level—dB (ref. 10—12 W)

Tons	Unit Model Number	Octave Center Frequency								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5	WSC060ED	84	91	79	77	74	71	68	63	80
6	WSC072ED	83	90	86	82	79	75	70	63	85
7½	WSC090ED	83	90	86	83	80	75	71	64	85
10	WSC120ED	83	86	80	77	73	69	66	60	79

Note: Tests follow ARI270-95.

ATTACHMENT 3

Cat C27 Diesel Genertor Specifications

Cat® C27
Diesel Generator Sets

Image shown may not reflect actual configuration

Bore – mm (in)	137.2 (5.4)
Stroke – mm (in)	152.4 (6.0)
Displacement – L (in^3)	27.03 (1649.47)
Compression Ratio	16.5:1
Aspiration	TA
Fuel System	MEUI
Governor Type	ADEM™ A4

Standby 60 Hz ekW (kVA)	Prime 60 Hz ekW (kVA)	Standby 60 Hz ekW (kVA)	Prime 60 Hz ekW (kVA)	Emissions Performance
750 (937)	680 (850)	800 (1000)	725 (906)	U.S. EPA Emergency Stationary Use Only (Tier 2)

Standard Features

Cat® Diesel Engine
- Meets U.S. EPA Emergency Stationary Use Only (Tier 2) emission standards
- Reliable performance proven in thousands of applications worldwide

Generator Set Package
- Accepts 100% block load in one step and meets other NFPA 110 loading requirements
- Conforms to ISO 8528-5 G3 load acceptance requirements
- Reliability verified through torsional vibration, fuel consumption, oil consumption, transient performance, and endurance testing

Alternators
- Superior motor starting capability minimizes need for oversizing generator
- Designed to match performance and output characteristics of Cat diesel engines

Cooling System
- Cooling systems available to operate in ambient temperatures up to 50°C (122°F)
- Tested to ensure proper generator set cooling

EMCP 4 Control Panels
- User-friendly interface and navigation
- Scalable system to meet a wide range of installation requirements
- Expansion modules and site specific programming for specific customer requirements

Warranty
- 24 months/1000-hour warranty for standby and mission critical ratings
- 12 months/unlimited hour warranty for prime and continuous ratings
- Extended service protection is available to provide extended coverage options

Worldwide Product Support
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- Your local Cat dealer provides extensive post-sale support, including maintenance and repair agreements

Financing
- Caterpillar offers an array of financial products to help you succeed through financial service excellence
- Options include loans, finance lease, operating lease, working capital, and revolving line of credit
- Contact your local Cat dealer for availability in your region

Optional Equipment

Engine

Air Cleaner
- ❑ Single element
- ❑ Dual element
- ❑ Heavy duty

Muffler
- ❑ Residential grade (25 dB)

Starting
- ❑ Standard batteries
- ❑ Oversized batteries
- ❑ Standard electric starter(s)
- ❑ Jacket water

Alternator

Output voltage
- ❑ 208V
- ❑ 240V
- ❑ 480V
- ❑ 600V

Temperature Rise (over 40°C ambient)
- ❑ 150°C
- ❑ 125°C
- ❑ 105°C
- ❑ 80°C

Winding type
- ❑ Random wound

Excitation
- ❑ Internal excitation (IE)

Attachments
- ❑ Anti-condensation heater
- ❑ Stator and bearing temperature monitoring and protection

Power Termination

Type
- ❑ Bus bar
- ❑ Circuit breaker
- ❑ 400A ❑ 800A
- ❑ 1200A ❑ 1600A
- ❑ 2000A ❑ 2500A
- ❑ 3000A
- ❑ UL ❑ IEC
- ❑ 3-pole ❑ 4-pole
- ❑ Manually operated
- ❑ Electrically operated

Trip Unit
- ❑ LSI ❑ LSI-G
- ❑ LSIG-P

Factory Enclosure

- ❑ Sound attenuated

Attachments
- ❑ Cold weather bundle
- ❑ DC lighting package
- ❑ Motorized louvers

Fuel Tank

- ❑ 1000 gal (3785 L)
- ❑ 2000 gal (7571 L)
- ❑ 3600 gal (13627 L)

Control System

Controller
- ❑ EMCP 4.2B
- ❑ EMCP 4.3
- ❑ EMCP 4.4

Attachments
- ❑ Local annunciator module
- ❑ Remote annunciator module
- ❑ Expansion I/O module
- ❑ Remote monitoring software

Charging

- ❑ Battery charger – 10A
- ❑ Battery charger – 20A
- ❑ Battery charger – 30A

Vibration Isolators

- ❑ Rubber
- ❑ Spring
- ❑ Seismic rated

Cat Connect

Connectivity
- ❑ Ethernet
- ❑ Cellular
- ❑ Satellite

Extended Service Options

Terms
- ❑ 2 year (prime)
- ❑ 3 year
- ❑ 5 year
- ❑ 10 year

Coverage
- ❑ Silver
- ❑ Gold
- ❑ Platinum
- ❑ Platinum Plus

Ancillary Equipment

- ❑ Automatic transfer switch (ATS)
- ❑ Uninterruptible power supply (UPS)
- ❑ Paralleling switchgear
- ❑ Paralleling controls

Certifications

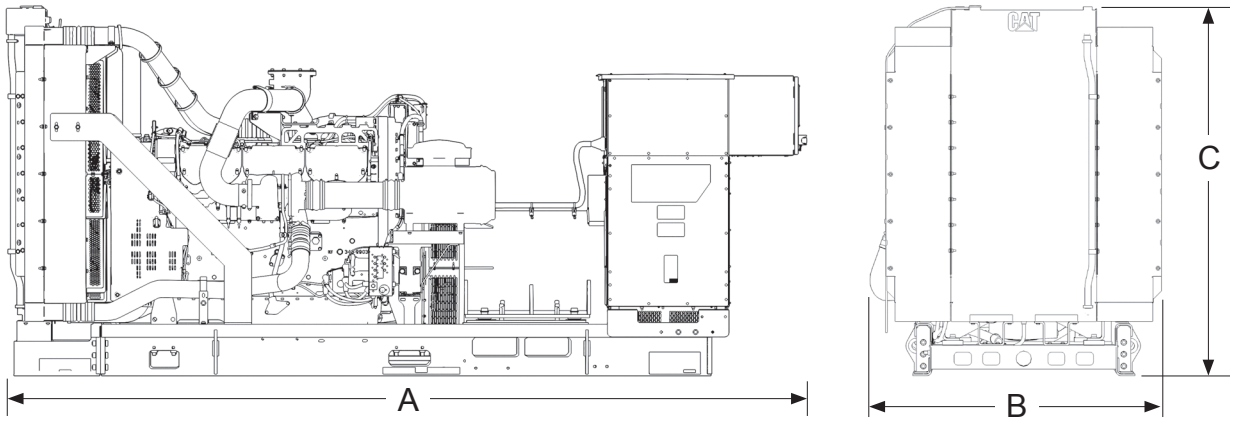
- ❑ UL2200
- ❑ IBC seismic certification
- ❑ OSHPD pre-approval
- ❑ EU Certification of Conformance (CE)
- ❑ EEC Declaration of Conformity

Note: *Some options may not be available on all models. Certifications may not be available with all model configurations. Consult factory for availability.*

Package Performance

Performance	Standby		Prime		Standby		Prime	
Frequency	60 Hz		60 Hz		60 Hz		60 Hz	
Gen set power rating with fan	750 ekW		680 ekW		800 ekW		725 ekW	
Gen set power rating with fan @ 0.8 power factor	937 kVA		850 kVA		1000 kVA		906 kVA	
Emissions	EPA ESE (Tier 2)		EPA ESE (Tier 2)		EPA ESE (Tier 2)		EPA ESE (Tier 2)	
Performance number	DM9071-03		DM9073-02		DM7696-02		DM9069-02	
Fuel Consumption								
100% load with fan – L/hr (gal/hr)	202.9	(53.6)	187.4	(49.5)	216.9	(57.3)	199.6	(52.7)
75% load with fan – L/hr (gal/hr)	162.4	(42.9)	149.6	(39.5)	171.7	(45.4)	157.8	(41.7)
50% load with fan – L/hr (gal/hr)	116.2	(30.7)	107.0	(28.3)	122.3	(32.3)	112.5	(29.7)
25% load with fan – L/hr (gal/hr)	70.6	(18.7)	66.0	(17.4)	73.9	(19.5)	69.0	(18.2)
Cooling System								
Radiator air flow restriction (system) – kPa (in. water)	0.12	(0.48)	0.12	(0.48)	0.12	(0.48)	0.12	(0.48)
Radiator air flow – m^3/min (cfm)	1200	(42377)	1200	(42377)	1200	(42377)	1200	(42377)
Engine coolant capacity – L (gal)	55.0	(14.5)	55.0	(14.5)	55.0	(14.5)	55.0	(14.5)
Radiator coolant capacity – L (gal)	41.0	(10.0)	41.0	(10.0)	41.0	(10.0)	41.0	(10.0)
Total coolant capacity – L (gal)	96	(24.5)	96	(24.5)	96	(24.5)	96	(24.5)
Inlet Air								
Combustion air inlet flow rate – m^3/min (cfm)	58.7	(2073.6)	56.0	(1977.7)	62.8	(2216.4)	60.3	(2129.4)
Exhaust System								
Exhaust stack gas temperature – °C (°F)	509.3	(948.7)	502.5	(936.5)	511.4	(952.5)	500.6	(933.0)
Exhaust gas flow rate – m^3/min (cfm)	158.9	(5610.2)	149.7	(5285.5)	170.3	(6011.7)	160.7	(5674.4)
Exhaust system backpressure (maximum allowable) – kPa (in. water)	6.7	(27.0)	6.7	(27.0)	6.7	(27.0)	6.7	(27.0)
Heat Rejection								
Heat rejection to jacket water – kW (Btu/min)	324	(18441)	307	(17433)	330	(18785)	320	(18191)
Heat rejection to exhaust (total) – kW (Btu/min)	738	(41994)	693	(39387)	796	(45257)	741	(42135)
Heat rejection to aftercooler – kW (Btu/min)	139	(7898)	123	(6970)	162	(9235)	146	(8320)
Heat rejection to atmosphere from engine – kW (Btu/min)	110	(6249)	92	(5238)	110	(6240)	89	(5074)
Heat rejection from alternator – kW (Btu/min)	53	(3014)	47	(2644)	40	(2292)	37	(2081)

Weights and Dimensions



Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
4674 (184.0)	1723 (67.8)	2162 (85.1)	6622 (14,600)

Note: *For reference only. Do not use for installation design. Contact your local Cat dealer for precise weights and dimensions.*

Ratings Definitions

Standby
Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Prime
Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. Typical peak demand is 100% of prime rated ekW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year.

Applicable Codes and Standards
AS1359, CSA C22.2 No100-04, UL142, UL489, UL869, UL2200, NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG1-22, NEMA MG1-33, 2014/35/EU, 2006/42/EC, 2014/30/EU.

Note: Codes may not be available in all model configurations. Please consult your local Cat dealer for availability.

Data Center Applications
Tier III/Tier IV compliant per Uptime Institute requirements. ANSI/TIA-942 compliant for Rated-1 through Rated-4 data centers.

Fuel Rates
Fuel rates are based on fuel oil of 35º API [16°C (60ºF)] gravity having an LHV of 42,780 kJ/kg (18,390 Btu/lb) when used at 29ºC (85ºF) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.)

Image shown may not reflect actual package

SOUND ATTENUATED ENCLOSURES FOR C27 and C32 GENERATOR SETS

These sound attenuated, factory installed enclosures are designed for safety and aesthetic value. Rugged construction provides weather protection and the ability to withstand exposure to the elements.

FEATURES

ROBUST/HIGHLY CORROSION RESISTANT CONSTRUCTION

- Environmentally friendly, polyester powder baked paint in Caterpillar yellow.
- Zinc plated or stainless steel fasteners
- 14 gauge steel construction
- Pitched roof for improved rain ingress protection
- Critical grade internally mounted muffler/exhaust system
- Vibration spring isolators
- 75 dBA at 7m (23 feet)

EXCELLENT ACCESS

- Control panel mounted on left side or right side of package
- Large cable entry area for ease of installation
- Left hand or right hand bottom entry access to power cable bus or circuit breaker
- Double doors on both sides
- Lube oil and coolant drains piped to exterior of enclosure and terminated drain valves

OPTIONS

- Interior AC lighting system and AC receptacles (interior and exterior)
- AC distribution box
- Interior DC lighting system with automatic shutoff timer
- Cold weather bundle, including motorized louvers (powered closed), back draft dampers and enclosure space heater
- Yellow (default), white, grey, or beige paint
- 1000 gal., 2000 gal., 3600 gal. fuel tanks
- 120 mph wind loading

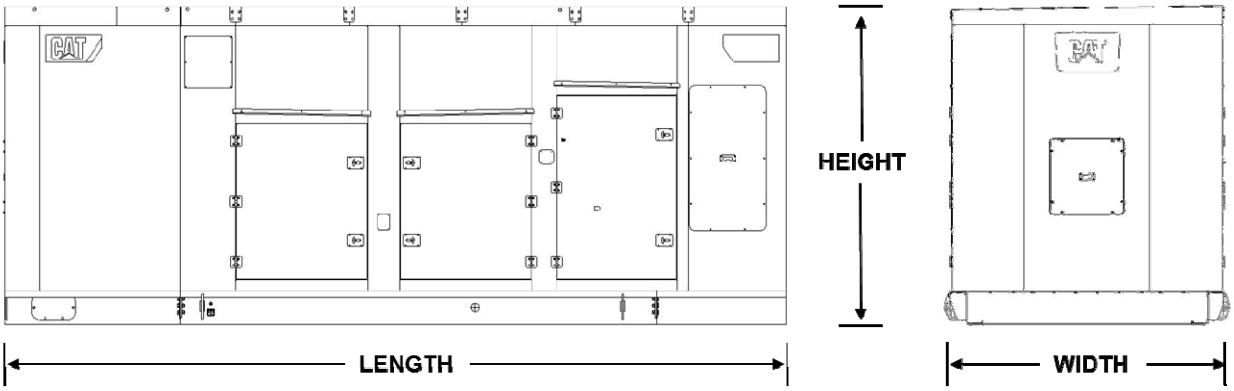
SECURITY AND SAFETY

- Lockable access doors with standard key utilization
- Cooling fan and battery charging alternator fully guarded
- Oil fill and battery can only be reached via lockable access
- External fuel connections.
- Externally mounted emergency stop button
- Designed for spreader-bar lifting to ensure safety

Certifications

- UL Listed
- Seismic certification per applicable building codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012 CBC 2007
- IBC certifiable for 120 mph wind loading
- Tested and analyzed in accordance with: ASCE 7-98, ASCE 7-02, ASCE 7-05, ICC-ES AC-156

ENCLOSURES



Note: For reference only – do not use for installation design. Please contact your dealer for exact weights and dimensions.

Fuel Tank Bases extend past the enclosure by two (2) feet in length

ENCLOSURE WEIGHTS AND DIMENSIONS

	Length		Width		Height		Weight*	
	mm	in	mm	in	mm	in	kg	lbs.
Enclosure with sub base	7,010.4	276.0	2,554.1	100.6	2,844.4	112.0	3,500.0	7,716.2
Enclosure with 1000 gal tank base	7,645.4	301.0	2,554.1	100.6	3,213.1	126.5	5,920.0	13,051.4
Enclosure with 2000 gal tank base	7,645.4	301.0	2,554.1	100.6	3,454.4	136.0	6,050.0	13,338.0
Enclosure with 3600 gal tank	9,750.0	383.9	2,554.1	100.6	3,758.8	148.0	7,000.0	15,432.4

*Weight does not include package generator set weight.

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions.

Image shown may not reflect actual package

SUB BASE FUEL TANK for C27 and C32 ENCLOSURE

Diesel Generator Set

Dual Wall sub base fuel tanks offer an integrated fuel solution for your Cat® diesel generator set.

FEATURES

- UL 142 (US) and ULC S601 (Canada) Listed
- NFPA 30, 37 and 110 installation compliant
- CSA C282-09 and B139-04 installation compliant
- Dual wall, secondary containment (minimum of 110% of primary tank capacity)
- Tank design provides capacity for thermal expansion of fuel
- Direct reading fuel level gauge
- Fuel supply dip tube is positioned so as not to pick up fuel sediment
- Fuel return and supply dip tubes are separated by an internal baffle to prevent recirculation of heated return fuel
- Fuel fill – 101.6 mm (4 in), lockable flip top cap
- Primary tank level detection switch in containment basin
- Primary and secondary tanks are leak tested at 20.7 kPa (3 psi) minimum
- Interior tank surfaces coated with a solvent-based thin-film rust preventative
- Heavy gauge steel gussets suitable for lifting package
- Gloss black polyester alkyd acrylic enamel exterior paint over epoxy based primer
- Primary tanks are equipped with customer connections for remote fuel transfer, return, and vent. Additional ports provided for customer use.
- 2” Atmospheric screened vent cap
- Lockable 2" raised fuel fill with optional seven gallon spill containment
- Leak detection switch
- Port for access to containment tank
- Removable engine supply and return dip tubes
- Fittings for opt fuel levels or auxiliary fuel pump
- Excellent stub-up access beneath circuit breaker (within fuel tank)
- Emergency vents on primary and secondary tanks are sized in accordance with NFPA 30, external to enclosure.
- Compatible with factory enclosures only
- Optional installed fuel level indication at the generator set control panel.
- Seismic certification per applicable building codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007
- Tested and analyzed in accordance with: ASCE 7-98, ASCE 7-02, ASCE 7-05, ICC-ES AC-156
- Anchoring details are site specific, and are dependant on many factors such as generator set size, weight, and concrete strength. IBC Certification requires that the anchoring system used is reviewed and approved by a Professional Engineer.

Rating			Engine	Strategy	Run Time @ 100% Load (Hrs)		
ekW	kVA	SB/PP/CN			1000 gal	2000 gal	3600 gal
1000	1250	SB	C32	Low BSFC	14.4	28.8	51.9
910	1138	PP	C32	Low BSFC	15.9	31.7	57.1
830	1038	CN	C32	Low BSFC	17.4	34.7	62.5
800	1000	SB	C27	Low BSFC	17.8	35.5	63.9
725	906	PP	C27	Low BSFC	19.3	38.6	69.5
750	938	SB	C27	Low BSFC	18.9	37.8	68.1
680	850	PP	C27	Low BSFC	20.7	41.3	74.4

Rating			Engine	Strategy	Run Time @ 100% Load (Hrs)		
ekW	kVA	SB/PP/CN			1000 gal	2000 gal	3600 gal
1000	1250	SB	C32	ESE (Tier 2)	13.9	27.8	50.1
910	1138	PP	C32	ESE (Tier 2)	15.2	30.4	54.8
830	1038	CN	C32	ESE (Tier 2)	16.3	32.6	58.7
800	1000	SB	C27	ESE (Tier 2)	17.5	34.9	62.8
725	906	PP	C27	ESE (Tier 2)	19.0	38.0	68.3
750	938	SB	C27	ESE (Tier 2)	18.7	37.3	67.2
680	850	PP	C27	ESE (Tier 2)	20.2	40.4	72.7

SB = Standby
PP = Prime Power
CN = Continuous

NOTE: Capacities shown are at 100% fill. Actual capacity and run time will be reduced by approx. 7% to allow for sump and 95% maximum fill.

LEHE0408-00 (01/13)

ATTACHMENT 4

SoundPLAN Data – Construction Noise

9434 Chula Vista Behavioral Health Project
SoundPLAN Data - Construction

Source name	Reference	Level	Corrections		
		Leq1	Cwall	CI	CT
		dB(A)	dB(A)	dB(A)	dB(A)
Construction	Lw/unit	117	-	-	-

9434 Chula Vista Behavioral Health Project
SoundPLAN Data - Construction

No.	Coordinates X	Coordinates Y	Floor	Height	Limit Leq1	Level w/o NP Leq1	Level w NP Leq1	Difference Leq1	Conflict Leq1
	in meter			m	dB(A)	dB(A)	dB(A)	dB	dB
1	504334.51	3612987.37	1.Fl	201.45	-	56.8	0	-56.8	-
2	504324.77	3613013.62	1.Fl	201.45	-	57.7	0	-57.7	-
3	504320.96	3613049.60	1.Fl	200.58	-	57.4	0	-57.4	-
4	504328.16	3613078.81	1.Fl	197.64	-	56.1	0	-56.1	-
5	504336.63	3613197.35	1.Fl	205.72	-	56.4	0	-56.4	-
6	504299.37	3613191.00	1.Fl	207.15	-	58.1	0	-58.1	-
7	504263.39	3613193.11	1.Fl	210.70	-	60.8	0	-60.8	-
8	504229.52	3613202.43	1.Fl	210.68	-	57.9	0	-57.9	-
9	504200.31	3613215.97	1.Fl	210.59	-	56.8	0	-56.8	-
10	504137.66	3613250.69	1.Fl	215.47	-	59.4	0	-59.4	-
11	504084.74	3613243.91	1.Fl	213.64	-	58.9	0	-58.9	-
12	504046.64	3613248.57	1.Fl	212.13	-	57.7	0	-57.7	-
13	504022.51	3613221.05	1.Fl	211.20	-	57.9	0	-57.9	-
14	504055.53	3613150.78	1.Fl	211.08	-	61.9	0	-61.9	-
15	504055.11	3613097.86	1.Fl	210.59	-	62.6	0	-62.6	-
16	504053.41	3613030.98	1.Fl	209.98	-	62.5	0	-62.5	-
17	504052.14	3612974.25	1.Fl	209.37	-	60.3	0	-60.3	-
18	504064.84	3612946.73	1.Fl	209.11	-	57.0	0	-57.0	-
19	504131.73	3612970.02	1.Fl	215.64	-	68.4	0	-68.4	-
20	504260.85	3612967.48	1.Fl	213.98	-	68.3	0	-68.3	-

Receivers

ATTACHMENT 5

SoundPLAN Data – On-site Traffic Noise

Station km	ADT Veh/24h	Traffic values Vehicles type	Vehicle name	day Veh/h	evening Veh/h	night Veh/h	Speed km/h	Control device	Constr. Speed km/h	Affect. veh. %	Road surface	Gradient Min / Max %
Hunte Parkway		Traffic direction:	In entry direction									
0+000	33801	Total	-	2169	1127	488	-	none	-	-	Average (of DGAC and PCC)	-0.992753623
0+000	33801	Automobiles	-	2061	1071	464	72	none	-	-	Average (of DGAC and PCC)	-0.992753623
0+000	33801	Medium trucks	-	43	23	10	72	none	-	-	Average (of DGAC and PCC)	-0.992753623
0+000	33801	Heavy trucks	-	22	11	5	72	none	-	-	Average (of DGAC and PCC)	-0.992753623
0+000	33801	Buses	-	22	11	5	72	none	-	-	Average (of DGAC and PCC)	-0.992753623
0+000	33801	Motorcycles	-	22	11	5	72	none	-	-	Average (of DGAC and PCC)	-0.992753623
0+000	33801	Auxiliary vehicle	-	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-0.992753623
1+922	-	-	-	-	-	-						
Fenton Street		Traffic direction:	In entry direction									
0+000	24795	Total	-	1591	827	358	-	none	-	-	Average (of DGAC and PCC)	-0.461538462
0+000	24795	Automobiles	-	1511	786	340	56	none	-	-	Average (of DGAC and PCC)	-0.461538462
0+000	24795	Medium trucks	-	32	17	7	56	none	-	-	Average (of DGAC and PCC)	-0.461538462
0+000	24795	Heavy trucks	-	16	8	4	56	none	-	-	Average (of DGAC and PCC)	-0.461538462
0+000	24795	Buses	-	16	8	4	56	none	-	-	Average (of DGAC and PCC)	-0.461538462
0+000	24795	Motorcycles	-	16	8	4	56	none	-	-	Average (of DGAC and PCC)	-0.461538462
0+000	24795	Auxiliary vehicle	-	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-0.461538462
0+865	-	-	-	-	-	-						
Showroom Place		Traffic direction:	In entry direction									
0+000	2403	Total	-	154	80	35	-	none	-	-	Average (of DGAC and PCC)	-1.370967742
0+000	2403	Automobiles	-	146	76	33	40	none	-	-	Average (of DGAC and PCC)	-1.370967742
0+000	2403	Medium trucks	-	3	2	1	40	none	-	-	Average (of DGAC and PCC)	-1.370967742
0+000	2403	Heavy trucks	-	2	1	0	40	none	-	-	Average (of DGAC and PCC)	-1.370967742
0+000	2403	Buses	-	2	1	0	40	none	-	-	Average (of DGAC and PCC)	-1.370967742
0+000	2403	Motorcycles	-	2	1	0	40	none	-	-	Average (of DGAC and PCC)	-1.370967742
0+000	2403	Auxiliary vehicle	-	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-1.370967742
0+317	-	-	-	-	-	-						
Yosemite Drive		Traffic direction:	In entry direction									
0+000	1197	Total	-	77	40	17	-	none	-	-	Average (of DGAC and PCC)	-0.763157895
0+000	1197	Automobiles	-	73	38	16	40	none	-	-	Average (of DGAC and PCC)	-0.763157895
0+000	1197	Medium trucks	-	2	1	0	40	none	-	-	Average (of DGAC and PCC)	-0.763157895
0+000	1197	Heavy trucks	-	1	0	0	40	none	-	-	Average (of DGAC and PCC)	-0.763157895
0+000	1197	Buses	-	1	0	0	40	none	-	-	Average (of DGAC and PCC)	-0.763157895
0+000	1197	Motorcycles	-	1	0	0	40	none	-	-	Average (of DGAC and PCC)	-0.763157895
0+000	1197	Auxiliary vehicle	-	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-0.763157895
0+646	-	-	-	-	-	-						
River Rock Road		Traffic direction:	In entry direction									
0+000	1197	Total	-	77	40	17	-	none	-	-	Average (of DGAC and PCC)	-0.555555556
0+000	1197	Automobiles	-	73	38	16	40	none	-	-	Average (of DGAC and PCC)	-0.555555556
0+000	1197	Medium trucks	-	2	1	0	40	none	-	-	Average (of DGAC and PCC)	-0.555555556
0+000	1197	Heavy trucks	-	1	0	0	40	none	-	-	Average (of DGAC and PCC)	-0.555555556
0+000	1197	Buses	-	1	0	0	40	none	-	-	Average (of DGAC and PCC)	-0.555555556
0+000	1197	Motorcycles	-	1	0	0	40	none	-	-	Average (of DGAC and PCC)	-0.555555556
0+000	1197	Auxiliary vehicle	-	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-0.555555556
0+806	-	-	-	-	-	-						

9434 Chula Vista Behavioral Health Project
SoundPLAN Data - Vehicle Traffic

No.	Coordinates X	Y	Floor	Height	Limit Lden	Noise Level without NP Lden
	in meter			m		
1	504116.48	3613152.17	1.Fl	219.96	65	41.0
2	504151.67	3613138.70	1.Fl	219.96	65	33.5
3	504224.51	3613137.33	1.Fl	218.34	65	40.0
4	504264.91	3613098.57	1.Fl	217.91	65	44.8
5	504201.14	3613099.67	1.Fl	218.60	65	31.5
6	504171.18	3613100.50	1.Fl	218.95	65	31.2
7	504108.51	3613102.15	1.Fl	218.42	65	35.5
8	504115.38	3613076.58	1.Fl	217.91	-	39.1
9	504185.20	3613066.14	1.Fl	218.01	-	41.3
10	504275.63	3613080.98	1.Fl	217.49	-	50.2
11	504270.96	3613112.32	1.Fl	217.91	-	49.5
12	504233.30	3613150.80	1.Fl	218.41	-	47.8
13	504188.22	3613167.57	1.Fl	220.37	-	50.9
14	504142.87	3613153.00	1.Fl	220.29	-	40.2
15	504103.56	3613116.71	1.Fl	218.70	-	37.8

Source name			Traffic lane	Noise Level without NP Lden
1	1.Fl	41.0	0.0	
Fenton Street			-	33.3
Hunte Parkway			-	39.8
River Rock Road			-	30.0
Showroom Place			-	13.9
Yosemite Drive			-	9.7
2	1.Fl	33.5	0.0	
Fenton Street			-	27.6
Hunte Parkway			-	31.1
River Rock Road			-	25.4
Showroom Place			-	15.2
Yosemite Drive			-	10.5
3	1.Fl	40.0	0.0	
Fenton Street			-	26.6
Hunte Parkway			-	39.7
River Rock Road			-	17.7
Showroom Place			-	13.6
Yosemite Drive			-	14.6
4	1.Fl	44.8	0.0	
Fenton Street			-	26.3
Hunte Parkway			-	44.7
River Rock Road			-	14.2
Showroom Place			-	15.3
Yosemite Drive			-	23.6
5	1.Fl	31.5	0.0	
Fenton Street			-	26.6
Hunte Parkway			-	29.4
River Rock Road			-	14.0
Showroom Place			-	16.7
Yosemite Drive			-	11.1
6	1.Fl	31.2	0.0	
Fenton Street			-	27.1
Hunte Parkway			-	28.6
River Rock Road			-	15.7
Showroom Place			-	16.8
Yosemite Drive			-	11.1
7	1.Fl	35.5	0.0	
Fenton Street			-	34.1
Hunte Parkway			-	28.4
River Rock Road			-	24.7
Showroom Place			-	15.2
Yosemite Drive			-	9.5
8	1.Fl	39.1	0.0	
Fenton Street			-	38.0
Hunte Parkway			-	24.9
River Rock Road			-	12.1
Showroom Place			-	31.4
Yosemite Drive			-	6.5
9	1.Fl	41.3	0.0	
Fenton Street			-	36.5
Hunte Parkway			-	36.4
River Rock Road			-	9.2

Showroom Place		-		36.6
Yosemite Drive		-		20.3
10	1.Fl	50.2	0.0	
Fenton Street		-		27.8
Hunte Parkway		-		50.1
River Rock Road		-		12.4
Showroom Place		-		12.7
Yosemite Drive		-		34.1
11	1.Fl	49.5	0.0	
Fenton Street		-		22.5
Hunte Parkway		-		49.5
River Rock Road		-		18.6
Showroom Place		-		13.5
Yosemite Drive		-		29.0
12	1.Fl	47.8	0.0	
Fenton Street		-		22.4
Hunte Parkway		-		47.8
River Rock Road		-		27.4
Showroom Place		-		12.2
Yosemite Drive		-		17.7
13	1.Fl	50.9	0.0	
Fenton Street		-		22.1
Hunte Parkway		-		50.7
River Rock Road		-		34.5
Showroom Place		-		9.7
Yosemite Drive		-		9.4
14	1.Fl	40.2	0.0	
Fenton Street		-		30.5
Hunte Parkway		-		39.3
River Rock Road		-		29.7
Showroom Place		-		13.7
Yosemite Drive		-		3.1
15	1.Fl	37.8	0.0	
Fenton Street		-		36.1
Hunte Parkway		-		30.6
River Rock Road		-		28.7
Showroom Place		-		11.2
Yosemite Drive		-		3.2

ATTACHMENT 6

FHWA RD-77-108 – Off-site Traffic Noise

9434 Chula Vista Behavioral Health Project
FHWA RD-77-108 Off-Site Traffic Noise

	Roadway	Segment	Existing	Existing + Project	Difference	Near-Term	Near-Term + Project	Difference	Increase Over Existing	Horizon	Horizon + Project	Difference	Increase Over Existing
1	Otay Lakes Road	SR-125 Northbound Ramps to Eastlake Parkway	77	77	0	77	78	0	1	78	78	0	1
2	Otay Lakes Road	Eastlake Parkway to Lane Avenue	75	75	0	75	75	0	1	75	76	1	1
3	Otay Lakes Road	Lane Avenue to Fenton Street	73	73	0	74	75	0	2	75	75	0	2
4	Otay Lakes Road	Fenton Street to Hunte Parkway	73	73	0	74	75	0	2	75	75	0	2
5	Otay Lakes Road	East of Hunte Parkway	70	70	0	74	74	0	4	75	75	0	4
6	Eastlake Parkway	Fenton Street to Otay Lakes Road	72	72	0	72	72	0	0	72	73	0	1
7	Fenton Street	Lane Avenue to Showroom Place	66	66	0	67	67	0	1	68	68	0	2
8	Fenton Street	Showroom Place to Otay Lakes Road	65	66	1	66	67	1	2	67	68	1	3
9	Hunte Parkway	Otay Lakes Road to Clubhouse Drive	71	71	0	71	71	0	1	72	72	0	1

FHWA RD-77-108

Traffic Noise Prediction Model

Data Input Sheet

Project Name : Chula Vista Behavioral Health Project
Project Number : 9434
Modeled Condition : Existing, Existing + Project

Surface Refelction: CNEL
Assessment Metric: Hard
Peak ratio to ADT: 10.00
Traffic Desc. (Peak or ADT) : ADT

Segment	Roadway	Segment	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	K-Factor
EXISTING												
1	Otay Lakes Road	SR-125 Northbound Ramps to Eastlake Parkway	43,234	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
2	Otay Lakes Road	Eastlake Parkway to Lane Avenue	29,726	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
3	Otay Lakes Road	Lane Avenue to Fenton Street	19,207	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
4	Otay Lakes Road	Fenton Street to Hunte Parkway	18,747	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
5	Otay Lakes Road	East of Hunte Parkway	10,674	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
6	Eastlake Parkway	Fenton Street to Otay Lakes Road	23,249	40	50	95.00	3.00	2.00	80.00	10.00	10.00	
7	Fenton Street	Lane Avenue to Showroom Place	8,202	35	50	95.00	3.00	2.00	80.00	10.00	10.00	
8	Fenton Street	Showroom Place to Otay Lakes Road	6,256	35	50	95.00	3.00	2.00	80.00	10.00	10.00	
9	Hunte Parkway	Otay Lakes Road to Clubhouse Drive	14,911	45	50	95.00	3.00	2.00	80.00	10.00	10.00	
EXISTING + PROJECT												
1	Otay Lakes Road	SR-125 Northbound Ramps to Eastlake Parkway	44,842	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
2	Otay Lakes Road	Eastlake Parkway to Lane Avenue	30,950	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
3	Otay Lakes Road	Lane Avenue to Fenton Street	20,431	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
4	Otay Lakes Road	Fenton Street to Hunte Parkway	19,131	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
5	Otay Lakes Road	East of Hunte Parkway	10,722	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
6	Eastlake Parkway	Fenton Street to Otay Lakes Road	23,825	40	50	95.00	3.00	2.00	80.00	10.00	10.00	
7	Fenton Street	Lane Avenue to Showroom Place	8,994	35	50	95.00	3.00	2.00	80.00	10.00	10.00	
8	Fenton Street	Showroom Place to Otay Lakes Road	7,864	35	50	95.00	3.00	2.00	80.00	10.00	10.00	
9	Hunte Parkway	Otay Lakes Road to Clubhouse Drive	15,079	45	50	95.00	3.00	2.00	80.00	10.00	10.00	

FHWA RD-77-108

Traffic Noise Prediction Model

Predicted Noise Levels

Project Name : Chula Vista Behavioral Health Project
Project Number : 9434
Modeled Condition : Existing, Existing + Project
Assessment Metric: Hard

Segment	Roadway	Segment	Noise Levels, dBA Hard				Distance to Traffic Noise Level Contours, Feet					
			Auto	MT	HT	Total	75 dB	70 dB	65 dB	60 dB	55 dB	50 dB
EXISTING												
1	Otay Lakes Road	SR-125 Northbound Ramps to Eastlake Parkway	74.7	67.3	69.8	76.5	71	223	706	2,233	7,063	22,334
2	Otay Lakes Road	Eastlake Parkway to Lane Avenue	73.1	65.7	68.2	74.9	49	155	489	1,545	4,886	15,451
3	Otay Lakes Road	Lane Avenue to Fenton Street	71.2	63.8	66.3	73.0	32	100	315	998	3,155	9,976
4	Otay Lakes Road	Fenton Street to Hunte Parkway	71.1	63.7	66.2	72.9	31	97	308	975	3,083	9,749
5	Otay Lakes Road	East of Hunte Parkway	68.6	61.3	63.7	70.4	17	55	173	548	1,734	5,482
6	Eastlake Parkway	Fenton Street to Otay Lakes Road	69.2	63.1	66.2	71.6	23	72	229	723	2,285	7,227
7	Fenton Street	Lane Avenue to Showroom Place	63.0	57.7	61.1	65.9	6	19	62	195	615	1,945
8	Fenton Street	Showroom Place to Otay Lakes Road	61.8	56.5	60.0	64.7	5	15	47	148	467	1,476
9	Hunte Parkway	Otay Lakes Road to Clubhouse Drive	68.8	62.0	64.7	70.8	19	60	190	601	1,901	6,011
EXISTING + PROJECT												
1	Otay Lakes Road	SR-125 Northbound Ramps to Eastlake Parkway	74.9	67.5	69.9	76.6	72	229	723	2,285	7,227	22,854
2	Otay Lakes Road	Eastlake Parkway to Lane Avenue	73.3	65.9	68.3	75.0	50	158	500	1,581	5,000	15,811
3	Otay Lakes Road	Lane Avenue to Fenton Street	71.4	64.1	66.5	73.2	33	104	330	1,045	3,303	10,446
4	Otay Lakes Road	Fenton Street to Hunte Parkway	71.2	63.8	66.2	72.9	31	97	308	975	3,083	9,749
5	Otay Lakes Road	East of Hunte Parkway	68.6	61.3	63.7	70.4	17	55	173	548	1,734	5,482
6	Eastlake Parkway	Fenton Street to Otay Lakes Road	69.3	63.2	66.3	71.7	23	74	234	740	2,339	7,396
7	Fenton Street	Lane Avenue to Showroom Place	63.4	58.1	61.5	66.3	7	21	67	213	674	2,133
8	Fenton Street	Showroom Place to Otay Lakes Road	62.8	57.5	61.0	65.7	6	19	59	186	587	1,858
9	Hunte Parkway	Otay Lakes Road to Clubhouse Drive	68.8	62.1	64.8	70.9	19	62	195	615	1,945	6,151

FHWA RD-77-108

Traffic Noise Prediction Model

Data Input Sheet

Project Name : Chula Vista Behavioral Health Project
Project Number : 9434
Modeled Condition : Near-Term, Near-Term + Project (2025)

Surface Refelction: CNEL
Assessment Metric: Hard
Peak ratio to ADT: 10.00
Traffic Desc. (Peak or ADT) : ADT

Segment	Roadway	Segment	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	K-Factor
NEAR-TERM												
1	Otay Lakes Road	SR-125 Northbound Ramps to Eastlake Parkway	53,100	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
2	Otay Lakes Road	Eastlake Parkway to Lane Avenue	32,700	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
3	Otay Lakes Road	Lane Avenue to Fenton Street	26,900	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
4	Otay Lakes Road	Fenton Street to Hunte Parkway	26,900	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
5	Otay Lakes Road	East of Hunte Parkway	25,800	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
6	Eastlake Parkway	Fenton Street to Otay Lakes Road	24,900	40	50	95.00	3.00	2.00	80.00	10.00	10.00	
7	Fenton Street	Lane Avenue to Showroom Place	10,100	35	50	95.00	3.00	2.00	80.00	10.00	10.00	
8	Fenton Street	Showroom Place to Otay Lakes Road	7,700	35	50	95.00	3.00	2.00	80.00	10.00	10.00	
9	Hunte Parkway	Otay Lakes Road to Clubhouse Drive	16,800	45	50	95.00	3.00	2.00	80.00	10.00	10.00	
NEAR-TERM + PROJECT												
1	Otay Lakes Road	SR-125 Northbound Ramps to Eastlake Parkway	54,708	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
2	Otay Lakes Road	Eastlake Parkway to Lane Avenue	33,924	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
3	Otay Lakes Road	Lane Avenue to Fenton Street	28,124	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
4	Otay Lakes Road	Fenton Street to Hunte Parkway	27,284	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
5	Otay Lakes Road	East of Hunte Parkway	25,848	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
6	Eastlake Parkway	Fenton Street to Otay Lakes Road	25,476	40	50	95.00	3.00	2.00	80.00	10.00	10.00	
7	Fenton Street	Lane Avenue to Showroom Place	10,892	35	50	95.00	3.00	2.00	80.00	10.00	10.00	
8	Fenton Street	Showroom Place to Otay Lakes Road	9,308	35	50	95.00	3.00	2.00	80.00	10.00	10.00	
9	Hunte Parkway	Otay Lakes Road to Clubhouse Drive	16,968	45	50	95.00	3.00	2.00	80.00	10.00	10.00	

FHWA RD-77-108

Traffic Noise Prediction Model

Predicted Noise Levels

Project Name : Chula Vista Behavioral Health Project
Project Number : 9434
Modeled Condition : Near-Term, Near-Term + Project (2025)
Assessment Metric: Hard

Segment	Roadway	Segment	Noise Levels, dBA Hard				Distance to Traffic Noise Level Contours, Feet					
			Auto	MT	HT	Total	75 dB	70 dB	65 dB	60 dB	55 dB	50 dB
NEAR-TERM												
1	Otay Lakes Road	SR-125 Northbound Ramps to Eastlake Parkway	75.6	68.2	70.7	77.4	87	275	869	2,748	8,689	27,477
2	Otay Lakes Road	Eastlake Parkway to Lane Avenue	73.5	66.1	68.6	75.3	54	169	536	1,694	5,358	16,942
3	Otay Lakes Road	Lane Avenue to Fenton Street	72.6	65.3	67.7	74.4	44	138	435	1,377	4,355	13,771
4	Otay Lakes Road	Fenton Street to Hunte Parkway	72.6	65.3	67.7	74.4	44	138	435	1,377	4,355	13,771
5	Otay Lakes Road	East of Hunte Parkway	72.5	65.1	67.5	74.2	42	132	416	1,315	4,159	13,151
6	Eastlake Parkway	Fenton Street to Otay Lakes Road	69.5	63.4	66.5	71.9	24	77	245	774	2,449	7,744
7	Fenton Street	Lane Avenue to Showroom Place	63.9	58.6	62.0	66.8	8	24	76	239	757	2,393
8	Fenton Street	Showroom Place to Otay Lakes Road	62.7	57.4	60.9	65.6	6	18	57	182	574	1,815
9	Hunte Parkway	Otay Lakes Road to Clubhouse Drive	69.3	62.5	65.3	71.3	21	67	213	674	2,133	6,745
NEAR-TERM + PROJECT												
1	Otay Lakes Road	SR-125 Northbound Ramps to Eastlake Parkway	75.7	68.4	70.8	77.5	89	281	889	2,812	8,891	28,117
2	Otay Lakes Road	Eastlake Parkway to Lane Avenue	73.6	66.3	68.7	75.4	55	173	548	1,734	5,482	17,337
3	Otay Lakes Road	Lane Avenue to Fenton Street	72.8	65.5	67.9	74.6	46	144	456	1,442	4,560	14,420
4	Otay Lakes Road	Fenton Street to Hunte Parkway	72.7	65.3	67.8	74.5	45	141	446	1,409	4,456	14,092
5	Otay Lakes Road	East of Hunte Parkway	72.5	65.1	67.6	74.2	42	132	416	1,315	4,159	13,151
6	Eastlake Parkway	Fenton Street to Otay Lakes Road	69.6	63.5	66.6	72.0	25	79	251	792	2,506	7,924
7	Fenton Street	Lane Avenue to Showroom Place	64.3	58.9	62.4	67.1	8	26	81	256	811	2,564
8	Fenton Street	Showroom Place to Otay Lakes Road	63.6	58.3	61.7	66.5	7	22	71	223	706	2,233
9	Hunte Parkway	Otay Lakes Road to Clubhouse Drive	69.3	62.6	65.3	71.4	22	69	218	690	2,183	6,902

FHWA RD-77-108

Traffic Noise Prediction Model

Data Input Sheet

Project Name : Chula Vista Behavioral Health Project
Project Number : 9434
Modeled Condition : Horizon, Horizon + Project (2035)

Surface Refelction: CNEL
Assessment Metric: Hard
Peak ratio to ADT: 10.00
Traffic Desc. (Peak or ADT) : ADT

Segment	Roadway	Segment	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	K-Factor
HORIZON												
1	Otay Lakes Road	SR-125 Northbound Ramps to Eastlake Parkway	57,500	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
2	Otay Lakes Road	Eastlake Parkway to Lane Avenue	29,100	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
3	Otay Lakes Road	Lane Avenue to Fenton Street	29,200	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
4	Otay Lakes Road	Fenton Street to Hunte Parkway	29,200	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
5	Otay Lakes Road	East of Hunte Parkway	29,300	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
6	Eastlake Parkway	Fenton Street to Otay Lakes Road	27,500	40	50	95.00	3.00	2.00	80.00	10.00	10.00	
7	Fenton Street	Lane Avenue to Showroom Place	12,000	35	50	95.00	3.00	2.00	80.00	10.00	10.00	
8	Fenton Street	Showroom Place to Otay Lakes Road	10,200	35	50	95.00	3.00	2.00	80.00	10.00	10.00	
9	Hunte Parkway	Otay Lakes Road to Clubhouse Drive	19,400	45	50	95.00	3.00	2.00	80.00	10.00	10.00	
HORIZON + PROJECT												
1	Otay Lakes Road	SR-125 Northbound Ramps to Eastlake Parkway	59,108	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
2	Otay Lakes Road	Eastlake Parkway to Lane Avenue	40,324	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
3	Otay Lakes Road	Lane Avenue to Fenton Street	30,424	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
4	Otay Lakes Road	Fenton Street to Hunte Parkway	29,584	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
5	Otay Lakes Road	East of Hunte Parkway	29,348	50	50	95.00	3.00	2.00	80.00	10.00	10.00	
6	Eastlake Parkway	Fenton Street to Otay Lakes Road	28,076	40	50	95.00	3.00	2.00	80.00	10.00	10.00	
7	Fenton Street	Lane Avenue to Showroom Place	12,792	35	50	95.00	3.00	2.00	80.00	10.00	10.00	
8	Fenton Street	Showroom Place to Otay Lakes Road	11,808	35	50	95.00	3.00	2.00	80.00	10.00	10.00	
9	Hunte Parkway	Otay Lakes Road to Clubhouse Drive	19,568	45	50	95.00	3.00	2.00	80.00	10.00	10.00	

FHWA RD-77-108

Traffic Noise Prediction Model

Predicted Noise Levels

Project Name : Chula Vista Behavioral Health Project
Project Number : 9434
Modeled Condition : Horizon, Horizon + Project (2035)
Assessment Metric: Hard

Segment	Roadway	Segment	Noise Levels, dBA Hard				Distance to Traffic Noise Level Contours, Feet					
			Auto	MT	HT	Total	75 dB	70 dB	65 dB	60 dB	55 dB	50 dB
HORIZON												
1	Otay Lakes Road	SR-125 Northbound Ramps to Eastlake Parkway	75.9	68.6	71.0	77.7	93	294	931	2,944	9,310	29,442
2	Otay Lakes Road	Eastlake Parkway to Lane Avenue	73.0	65.6	68.1	74.8	48	151	477	1,510	4,775	15,100
3	Otay Lakes Road	Lane Avenue to Fenton Street	73.0	65.6	68.1	74.8	48	151	477	1,510	4,775	15,100
4	Otay Lakes Road	Fenton Street to Hunte Parkway	73.0	65.6	68.1	74.8	48	151	477	1,510	4,775	15,100
5	Otay Lakes Road	East of Hunte Parkway	73.0	65.7	68.1	74.8	48	151	477	1,510	4,775	15,100
6	Eastlake Parkway	Fenton Street to Otay Lakes Road	69.9	63.9	66.9	72.4	27	87	275	869	2,748	8,689
7	Fenton Street	Lane Avenue to Showroom Place	64.7	59.4	62.8	67.6	9	29	91	288	910	2,877
8	Fenton Street	Showroom Place to Otay Lakes Road	64.0	58.7	62.1	66.9	8	24	77	245	774	2,449
9	Hunte Parkway	Otay Lakes Road to Clubhouse Drive	69.9	63.1	65.9	72.0	25	79	251	792	2,506	7,924
HORIZON + PROJECT												
1	Otay Lakes Road	SR-125 Northbound Ramps to Eastlake Parkway	76.1	68.7	71.1	77.8	95	301	953	3,013	9,527	30,128
2	Otay Lakes Road	Eastlake Parkway to Lane Avenue	74.4	67.0	69.5	76.2	66	208	659	2,084	6,591	20,843
3	Otay Lakes Road	Lane Avenue to Fenton Street	73.2	65.8	68.3	75.0	50	158	500	1,581	5,000	15,811
4	Otay Lakes Road	Fenton Street to Hunte Parkway	73.1	65.7	68.1	74.8	48	151	477	1,510	4,775	15,100
5	Otay Lakes Road	East of Hunte Parkway	73.0	65.7	68.1	74.8	48	151	477	1,510	4,775	15,100
6	Eastlake Parkway	Fenton Street to Otay Lakes Road	70.0	64.0	67.0	72.5	28	89	281	889	2,812	8,891
7	Fenton Street	Lane Avenue to Showroom Place	65.0	59.6	63.1	67.8	10	30	95	301	953	3,013
8	Fenton Street	Showroom Place to Otay Lakes Road	64.6	59.3	62.7	67.5	9	28	89	281	889	2,812
9	Hunte Parkway	Otay Lakes Road to Clubhouse Drive	69.9	63.2	65.9	72.0	25	79	251	792	2,506	7,924

ATTACHMENT 7

SoundPLAN Data – On-site Generated Noise

9434 Chula Vista Behavioral Health Project
SoundPLAN Data - On-Site Generated Noise

Source name	Reference	Level With Generator dB(A)	Level Without Generator dB(A)	Corrections Cwall dB(A)	Corrections CI dB(A)	Corrections CT dB(A)
HVAC1	Lw/unit	83.8	83.8	-	-	-
HVAC2	Lw/unit	83.8	83.8	-	-	-
HVAC3	Lw/unit	83.8	83.8	-	-	-
HVAC4	Lw/unit	83.8	83.8	-	-	-
HVAC5	Lw/unit	83.8	83.8	-	-	-
HVAC6	Lw/unit	83.8	83.8	-	-	-
HVAC7	Lw/unit	83.8	83.8	-	-	-
HVAC8	Lw/unit	83.8	83.8	-	-	-
HVAC9	Lw/unit	83.8	83.8	-	-	-
HVAC10	Lw/unit	83.8	83.8	-	-	-
Loading Dock 1	Lw/unit	81.3	81.3	-	-	-
Loading Dock 2	Lw/unit	81.3	81.3	-	-	-
Emergency Generator	Lw/unit	100.0	-	-	-	-
Truck Entering	Lw/unit	81.3	81.3	-	-	-
Truck Exiting	Lw/unit	81.3	81.3	-	-	-

9434 Chula Vista Behavioral Health Project
SoundPLAN Data - On-Site Generated Noise

No.	Coordinates X	Coordinates Y	Floor	Height	Limit With Generator	Limit Without Generator	Level w/o NP With Generator	Level w/o NP Without Generator	Level w NP With Generator	Level w NP Without Generator	Difference With Generator	Difference Without Generator	Conflict With Generator	Conflict Without Generator
	in meter			m	dB(A)		dB(A)		dB(A)		dB		dB	
1	504295.94	3613003.58	1.Fl	215.52	45	45	38.0	37.3	0	0	-38.0	-37.3	-	-
2	504286.78	3613031.93	1.Fl	216.08	45	45	37.9	37.0	0	0	-37.9	-37.0	-	-
3	504287.38	3613061.95	1.Fl	216.82	45	45	34.5	33.6	0	0	-34.5	-33.6	-	-
4	504288.03	3613094.59	1.Fl	217.33	45	45	39.8	39.5	0	0	-39.8	-39.5	-	-
5	504308.88	3613130.90	1.Fl	218.20	45	45	38.9	38.5	0	0	-38.9	-38.5	-	-
6	504291.68	3613160.26	1.Fl	218.65	45	45	39.0	38.4	0	0	-39.0	-38.4	-	-
7	504254.08	3613171.07	1.Fl	218.58	45	45	40.4	40.1	0	0	-40.4	-40.1	-	-
8	504215.02	3613183.58	1.Fl	218.59	45	45	40.6	40.1	0	0	-40.6	-40.1	-	-
9	504174.25	3613188.48	1.Fl	221.16	45	45	43.2	42.7	0	0	-43.2	-42.7	-	-
10	504145.15	3613189.06	1.Fl	221.33	45	45	43.1	42.3	0	0	-43.1	-42.3	-	-
11	504121.95	3613188.72	1.Fl	219.74	45	45	44.0	40.8	0	0	-44.0	-40.8	-	-
12	504095.57	3613184.47	1.Fl	219.74	45	45	45.3	40.1	0	0	-45.3	-40.1	-	-
13	504084.97	3613147.28	1.Fl	219.13	60	60	49.4	41.9	0	0	-49.4	-41.9	-	-
14	504084.15	3613103.28	1.Fl	218.35	60	60	54.1	47.0	0	0	-54.1	-47.0	-	-
15	504083.70	3613079.44	1.Fl	217.87	60	60	54.4	51.1	0	0	-54.4	-51.1	-	-
16	504082.88	3613035.12	1.Fl	217.30	60	60	50.4	48.4	0	0	-50.4	-48.4	-	-
17	504102.46	3612982.11	1.Fl	216.08	-	-	44.2	41.8	0	0	-44.2	-41.8	-	-
18	504177.10	3612980.71	1.Fl	214.85	-	-	46.2	45.7	0	0	-46.2	-45.7	-	-
19	504207.41	3612980.14	1.Fl	214.80	60	60	45.1	45.0	0	0	-45.1	-45.0	-	-
20	504257.27	3612979.16	1.Fl	214.27	60	60	39.7	39.1	0	0	-39.7	-39.1	-	-

Source name			Level w/o NP		Level w NP	
			With Generator	Without Generator	With Generator	Without Generator
			dB(A)		dB(A)	
1	1.Fl	38.0	37.3	0.0	0.0	
Emergency Generator			29.8	-	-	-
HVAC1			23.6	23.6	-	-
HVAC2			28.4	28.4	-	-
HVAC3			25.6	25.6	-	-
HVAC4			25.2	25.2	-	-
HVAC5			28.2	28.2	-	-
HVAC6			31.4	31.4	-	-
HVAC7			25.1	25.1	-	-
HVAC8			23.5	23.5	-	-
HVAC9			23.0	23.0	-	-
HVAC10			22.1	22.1	-	-
Loading Dock 1			14.7	14.7	-	-
Loading Dock 2			13.1	13.1	-	-
Truck Entering			25.4	25.4	-	-
Truck Exiting			25.5	25.5	-	-
2	1.Fl	37.9	37.0	0.0	0.0	
Emergency Generator			30.6	-	-	-
HVAC1			20.8	20.8	-	-
HVAC2			26.6	26.6	-	-
HVAC3			25.5	25.5	-	-
HVAC4			24.6	24.6	-	-
HVAC5			29.1	29.1	-	-
HVAC6			31.8	31.8	-	-
HVAC7			23.6	23.6	-	-
HVAC8			21.7	21.7	-	-
HVAC9			19.9	19.9	-	-
HVAC10			18.9	18.9	-	-
Loading Dock 1			13.8	13.8	-	-
Loading Dock 2			13.8	13.8	-	-
Truck Entering			26.5	26.5	-	-
Truck Exiting			26.6	26.6	-	-
3	1.Fl	34.5	33.6	0.0	0.0	
Emergency Generator			27.3	-	-	-
HVAC1			11.1	11.1	-	-
HVAC2			17.7	17.7	-	-
HVAC3			17.6	17.6	-	-
HVAC4			17.6	17.6	-	-
HVAC5			19.8	19.8	-	-
HVAC6			30.0	30.0	-	-
HVAC7			20.3	20.3	-	-
HVAC8			20.5	20.5	-	-
HVAC9			15.9	15.9	-	-
HVAC10			20.0	20.0	-	-
Loading Dock 1			9.8	9.8	-	-
Loading Dock 2			8.1	8.1	-	-
Truck Entering			24.8	24.8	-	-
Truck Exiting			25.0	25.0	-	-
4	1.Fl	39.8	39.5	0.0	0.0	
Emergency Generator			28.2	-	-	-
HVAC1			21.8	21.8	-	-
HVAC2			21.8	21.8	-	-
HVAC3			23.5	23.5	-	-
HVAC4			26.3	26.3	-	-
HVAC5			27.1	27.1	-	-
HVAC6			30.7	30.7	-	-
HVAC7			36.8	36.8	-	-
HVAC8			30.0	30.0	-	-
HVAC9			22.9	22.9	-	-
HVAC10			21.7	21.7	-	-
Loading Dock 1			10.4	10.4	-	-
Loading Dock 2			8.2	8.2	-	-
Truck Entering			11.2	11.2	-	-
Truck Exiting			11.2	11.2	-	-
5	1.Fl	38.9	38.5	0.0	0.0	
Emergency Generator			28.1	-	-	-
HVAC1			23.4	23.4	-	-
HVAC2			16.6	16.6	-	-
HVAC3			24.0	24.0	-	-
HVAC4			25.1	25.1	-	-
HVAC5			23.5	23.5	-	-
HVAC6			32.8	32.8	-	-
HVAC7			24.2	24.2	-	-
HVAC8			32.3	32.3	-	-
HVAC9			30.8	30.8	-	-
HVAC10			29.5	29.5	-	-
Loading Dock 1			7.3	7.3	-	-
Loading Dock 2			6.0	6.0	-	-

Truck Entering				11.9		11.9	-	-
Truck Exiting				12.1		12.1	-	-
6	1.Fl	39.0	38.4	0.0	0.0			
Emergency Generator				30.0		-	-	-
HVAC1				24.0		24.0	-	-
HVAC2				21.2		21.2	-	-
HVAC3				26.7		26.7	-	-
HVAC4				27.0		27.0	-	-
HVAC5				25.9		25.9	-	-
HVAC6				25.3		25.3	-	-
HVAC7				29.9		29.9	-	-
HVAC8				31.7		31.7	-	-
HVAC9				30.7		30.7	-	-
HVAC10				30.8		30.8	-	-
Loading Dock 1				9.2		9.2	-	-
Loading Dock 2				5.7		5.7	-	-
Truck Entering				10.6		10.6	-	-
Truck Exiting				10.8		10.8	-	-
7	1.Fl	40.4	40.1	0.0	0.0			
Emergency Generator				29.7		-	-	-
HVAC1				22.4		22.4	-	-
HVAC2				16.9		16.9	-	-
HVAC3				23.2		23.2	-	-
HVAC4				23.6		23.6	-	-
HVAC5				27.8		27.8	-	-
HVAC6				26.2		26.2	-	-
HVAC7				30.5		30.5	-	-
HVAC8				33.0		33.0	-	-
HVAC9				29.5		29.5	-	-
HVAC10				36.4		36.4	-	-
Loading Dock 1				8.0		8.0	-	-
Loading Dock 2				5.4		5.4	-	-
Truck Entering				10.2		10.2	-	-
Truck Exiting				10.4		10.4	-	-
8	1.Fl	40.6	40.1	0.0	0.0			
Emergency Generator				31.3		-	-	-
HVAC1				24.7		24.7	-	-
HVAC2				16.9		16.9	-	-
HVAC3				24.0		24.0	-	-
HVAC4				25.6		25.6	-	-
HVAC5				23.8		23.8	-	-
HVAC6				19.4		19.4	-	-
HVAC7				21.4		21.4	-	-
HVAC8				27.3		27.3	-	-
HVAC9				33.4		33.4	-	-
HVAC10				37.8		37.8	-	-
Loading Dock 1				8.4		8.4	-	-
Loading Dock 2				5.9		5.9	-	-
Truck Entering				9.0		9.0	-	-
Truck Exiting				8.8		8.8	-	-
9	1.Fl	43.2	42.7	0.0	0.0			
Emergency Generator				33.2		-	-	-
HVAC1				31.5		31.5	-	-
HVAC2				23.8		23.8	-	-
HVAC3				29.9		29.9	-	-
HVAC4				31.7		31.7	-	-
HVAC5				28.2		28.2	-	-
HVAC6				22.8		22.8	-	-
HVAC7				24.9		24.9	-	-
HVAC8				29.2		29.2	-	-
HVAC9				36.1		36.1	-	-
HVAC10				39.3		39.3	-	-
Loading Dock 1				10.8		10.8	-	-
Loading Dock 2				8.0		8.0	-	-
Truck Entering				12.5		12.5	-	-
Truck Exiting				12.4		12.4	-	-
10	1.Fl	43.1	42.3	0.0	0.0			
Emergency Generator				35.2		-	-	-
HVAC1				33.3		33.3	-	-
HVAC2				28.8		28.8	-	-
HVAC3				32.1		32.1	-	-
HVAC4				34.1		34.1	-	-
HVAC5				28.1		28.1	-	-
HVAC6				23.2		23.2	-	-
HVAC7				25.4		25.4	-	-
HVAC8				28.7		28.7	-	-
HVAC9				34.7		34.7	-	-
HVAC10				36.9		36.9	-	-
Loading Dock 1				12.0		12.0	-	-
Loading Dock 2				9.3		9.3	-	-
Truck Entering				14.6		14.6	-	-

Truck Exiting				14.2		14.2	-	-
11	1.Fl	44.0	40.8	0.0	0.0			
Emergency Generator				41.2		-	-	-
HVAC1				33.6		33.6	-	-
HVAC2				27.5		27.5	-	-
HVAC3				31.5		31.5	-	-
HVAC4				33.2		33.2	-	-
HVAC5				28.7		28.7	-	-
HVAC6				19.7		19.7	-	-
HVAC7				21.8		21.8	-	-
HVAC8				26.4		26.4	-	-
HVAC9				32.3		32.3	-	-
HVAC10				33.7		33.7	-	-
Loading Dock 1				12.8		12.8	-	-
Loading Dock 2				10.5		10.5	-	-
Truck Entering				17.8		17.8	-	-
Truck Exiting				16.6		16.6	-	-
12	1.Fl	45.3	40.1	0.0	0.0			
Emergency Generator				43.8		-	-	-
HVAC1				33.7		33.7	-	-
HVAC2				27.3		27.3	-	-
HVAC3				31.0		31.0	-	-
HVAC4				32.2		32.2	-	-
HVAC5				28.0		28.0	-	-
HVAC6				20.7		20.7	-	-
HVAC7				22.8		22.8	-	-
HVAC8				25.8		25.8	-	-
HVAC9				30.5		30.5	-	-
HVAC10				31.3		31.3	-	-
Loading Dock 1				20.2		20.2	-	-
Loading Dock 2				15.9		15.9	-	-
Truck Entering				23.8		23.8	-	-
Truck Exiting				21.9		21.9	-	-
13	1.Fl	49.4	41.9	0.0	0.0			
Emergency Generator				48.5		-	-	-
HVAC1				37.2		37.2	-	-
HVAC2				26.3		26.3	-	-
HVAC3				30.9		30.9	-	-
HVAC4				34.0		34.0	-	-
HVAC5				26.7		26.7	-	-
HVAC6				19.7		19.7	-	-
HVAC7				22.0		22.0	-	-
HVAC8				27.1		27.1	-	-
HVAC9				32.2		32.2	-	-
HVAC10				32.4		32.4	-	-
Loading Dock 1				25.0		25.0	-	-
Loading Dock 2				17.4		17.4	-	-
Truck Entering				29.3		29.3	-	-
Truck Exiting				25.7		25.7	-	-
14	1.Fl	54.1	47.0	0.0	0.0			
Emergency Generator				53.1		-	-	-
HVAC1				37.7		37.7	-	-
HVAC2				30.1		30.1	-	-
HVAC3				31.5		31.5	-	-
HVAC4				25.8		25.8	-	-
HVAC5				23.1		23.1	-	-
HVAC6				16.7		16.7	-	-
HVAC7				17.0		17.0	-	-
HVAC8				17.7		17.7	-	-
HVAC9				23.6		23.6	-	-
HVAC10				23.1		23.1	-	-
Loading Dock 1				40.0		40.0	-	-
Loading Dock 2				41.1		41.1	-	-
Truck Entering				41.8		41.8	-	-
Truck Exiting				35.0		35.0	-	-
15	1.Fl	54.4	51.1	0.0	0.0			
Emergency Generator				51.6		-	-	-
HVAC1				36.1		36.1	-	-
HVAC2				38.0		38.0	-	-
HVAC3				30.5		30.5	-	-
HVAC4				29.8		29.8	-	-
HVAC5				31.0		31.0	-	-
HVAC6				23.5		23.5	-	-
HVAC7				17.2		17.2	-	-
HVAC8				16.9		16.9	-	-
HVAC9				20.8		20.8	-	-
HVAC10				25.9		25.9	-	-
Loading Dock 1				45.4		45.4	-	-
Loading Dock 2				45.5		45.5	-	-
Truck Entering				44.2		44.2	-	-
Truck Exiting				42.3		42.3	-	-

16	1.Fl	50.4	48.4	0.0	0.0			
Emergency Generator				46.0		-	-	
HVAC1				32.2		32.2	-	
HVAC2				34.9		34.9	-	
HVAC3				30.5		30.5	-	
HVAC4				30.4		30.4	-	
HVAC5				30.3		30.3	-	
HVAC6				28.6		28.6	-	
HVAC7				25.1		25.1	-	
HVAC8				21.4		21.4	-	
HVAC9				24.2		24.2	-	
HVAC10				24.0		24.0	-	
Loading Dock 1				36.8		36.8	-	
Loading Dock 2				38.9		38.9	-	
Truck Entering				41.8		41.8	-	
Truck Exiting				45.0		45.0	-	
17	1.Fl	44.2	41.8	0.0	0.0			
Emergency Generator				40.5		-	-	
HVAC1				28.4		28.4	-	
HVAC2				32.2		32.2	-	
HVAC3				28.6		28.6	-	
HVAC4				27.7		27.7	-	
HVAC5				30.3		30.3	-	
HVAC6				28.4		28.4	-	
HVAC7				25.3		25.3	-	
HVAC8				24.5		24.5	-	
HVAC9				25.6		25.6	-	
HVAC10				24.9		24.9	-	
Loading Dock 1				31.9		31.9	-	
Loading Dock 2				31.8		31.8	-	
Truck Entering				33.7		33.7	-	
Truck Exiting				35.0		35.0	-	
18	1.Fl	46.2	45.7	0.0	0.0			
Emergency Generator				36.3		-	-	
HVAC1				27.0		27.0	-	
HVAC2				31.6		31.6	-	
HVAC3				28.6		28.6	-	
HVAC4				26.7		26.7	-	
HVAC5				31.7		31.7	-	
HVAC6				29.0		29.0	-	
HVAC7				26.4		26.4	-	
HVAC8				24.9		24.9	-	
HVAC9				25.3		25.3	-	
HVAC10				25.5		25.5	-	
Loading Dock 1				28.0		28.0	-	
Loading Dock 2				29.6		29.6	-	
Truck Entering				40.2		40.2	-	
Truck Exiting				42.6		42.6	-	
19	1.Fl	45.1	45.0	0.0	0.0			
Emergency Generator				30.8		-	-	
HVAC1				26.3		26.3	-	
HVAC2				30.7		30.7	-	
HVAC3				27.9		27.9	-	
HVAC4				26.7		26.7	-	
HVAC5				31.3		31.3	-	
HVAC6				30.5		30.5	-	
HVAC7				25.8		25.8	-	
HVAC8				28.1		28.1	-	
HVAC9				26.3		26.3	-	
HVAC10				25.4		25.4	-	
Loading Dock 1				26.2		26.2	-	
Loading Dock 2				26.0		26.0	-	
Truck Entering				41.4		41.4	-	
Truck Exiting				39.9		39.9	-	
20	1.Fl	39.7	39.1	0.0	0.0			
Emergency Generator				30.5		-	-	
HVAC1				24.0		24.0	-	
HVAC2				28.8		28.8	-	
HVAC3				26.3		26.3	-	
HVAC4				25.7		25.7	-	
HVAC5				28.3		28.3	-	
HVAC6				34.2		34.2	-	
HVAC7				25.3		25.3	-	
HVAC8				24.7		24.7	-	
HVAC9				25.2		25.2	-	
HVAC10				24.5		24.5	-	
Loading Dock 1				23.7		23.7	-	
Loading Dock 2				16.3		16.3	-	
Truck Entering				28.8		28.8	-	
Truck Exiting				28.8		28.8	-	