



**Noise Technical Report for the
County Animal Shelter
San Diego County, California**

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List of Acronyms

ADT	average daily traffic
Caltrans	California Department of Transportation
City	City of Santee
CNEL	community noise equivalent level
County	County of San Diego
DAS	Department of Animal Services
dB	decibel
dB(A)	A-weighted decibel
FHWA	Federal Highway Administration
HVAC	heating, ventilation, and air conditioning
in/sec	inch per second
L_{eq}	average noise level
L_{max}	maximum sound level
LOS	level of service
L_{pw}	sound power level
NSLU	noise sensitive land uses
PPV	peak particle velocity
project	County Animal Shelter
RMS	root mean square
VdB	vibration decibels

Executive Summary

The County Animal Shelter project (project) site is located north of Riverview Parkway and west of North Magnolia Avenue on County of San Diego (County)-owned land that lies within the boundaries of the city of Santee (City). The project site is currently undeveloped. The project includes the construction of an approximately 24,000-square-foot animal shelter, which would replace operations at the existing shelter in Bonita. The project would consist of four separate buildings with an internal, secure, and open courtyard, an outdoor livestock area, an activity yard, a staff parking lot, and a public parking lot.

This report analyzes the noise impacts from both construction and operation of the project. As a part of this assessment, noise levels due to vehicle traffic were calculated and evaluated against County and City noise and land use compatibility guidelines. In addition to compatibility, the potential for noise and vibration to impacts adjacent receivers from future on-site sources and construction activity was assessed. This report was prepared in accordance with the County's Guidelines for Determining Significance and Report Format and Content Requirements, Noise (County's Noise Guidelines). A summary of the findings is provided below.

Noise-sensitive Lands Uses Affected by Airborne Noise

On-site Noise Sensitive Land Uses

The County's and the City's noise compatibility level for commercial uses 70 community noise equivalent level (CNEL). The main source of traffic noise at the project site is vehicle traffic on North Magnolia Avenue and Riverview Parkway. Traffic-generated noise would be less than 65 CNEL across the entire project site, and less than 60 CNEL at the proposed development area. The project would be compatible with the County's and the City's normally acceptable standard of 70 CNEL for commercial uses. Impacts associated with noise compatibility would be less than significant.

Off-site Vehicle Traffic Noise

The project would increase traffic volumes on local roadways. A traffic noise impact would occur when the resulting vehicle traffic noise level with the project would exceed the applicable noise compatibility standard and a substantial noise level increase over existing noise occurs. The project would increase noise levels by less than 3 decibels (dB) over existing noise levels project, which is the threshold used to determine off-site impacts. Therefore, it is concluded that direct and cumulative noise impacts to off-site noise sensitive land uses would be less than significant.

Project-generated Airborne Noise

Operation

The noise sources on the project site after completion of construction are anticipated to be barking dogs and rooftop heating, ventilation, and air conditioning (HVAC) units. The project includes 72 indoor dog kennels. Since these kennels are within the building, it is not anticipated that exterior noise levels due to barking dogs within the interior kennels would be a concern. However, there are two exterior areas where dogs could be located: a dog run area between the western parking lot and buildings and an activity yard within a secured/fenced area between the four buildings.

The adjacent residential properties are located within the City and are not subject to County standards. However, the City Municipal Code does not provide property line noise level limits for operational sources. For informational purposes, the noise sensitive (single-family residential) property line noise levels were compared to County Noise Ordinance standards. The daytime and nighttime Noise Ordinance limits for single-family residential uses are 50 and 45 dB(A) L_{eq} (average equivalent noise level A-weighted decibels), respectively. Daytime noise levels would range from 38 to 50 dB(A) L_{eq} at the adjacent residential uses, and nighttime noise levels would range from 28 to 30 dB(A) L_{eq} . Noise levels would not exceed the County's property line noise level limits for single-family residential uses. Therefore, impacts would be less than significant.

Construction

Project construction noise would be generated by diesel engine-driven construction equipment used for site preparation and grading, building construction, loading, unloading, and placing materials and paving. Construction noise would potentially result in short-term impacts to surrounding properties. Construction noise levels are not anticipated to exceed a maximum noise level of 85 dB(A) L_{max} (maximum sound level) or an average hourly noise level of 75 dB(A) L_{eq} at any of the adjacent properties, including the adjacent residential uses, Las Colinas Detention Center, and open space. 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, no construction activities would occur between 7:00 p.m. and 7:00 a.m. on Mondays through Saturdays or at any time on Sundays or holidays. As construction activities associated with the project would comply with noise level limits and time restrictions from County's Noise Ordinance and the time restriction of the City's Municipal Code, temporary increases in noise levels from construction activities would be less than significant.

Impulsive Noise

No operational impulsive noise sources are proposed as part of the project. Additionally, it is not anticipated that any impact hammering or pile driving would be required for project construction. Therefore, impulsive noise impacts would be less than significant.

Groundborne Vibration and Noise

No operational components of the project include significant groundborne noise or vibration sources and no significant vibration sources currently exist, or are planned, in the project area. Thus, no significant groundborne noise or vibration impacts would occur with the operation of the proposed project, and operational impacts would be less than significant.

On-site construction equipment that would cause the most noise and vibration would be associated with site grading. Vibration levels would exceed County-recommended California Department of Transportation thresholds within 120 feet of large bulldozers and 80 feet of loaded trucks but would be below the threshold for a small bulldozer as close as 17 feet from the equipment. The closest structures to the project site are the residences east of North Magnolia Avenue. These residences are located at least 150 feet from the project boundary and separated from the project site by North Magnolia Avenue. There is also an historic polo barn located 155 feet south of the project site. At this distance, vibration levels would be well less than 0.056 inch per second root mean square. Given the distance between proposed construction activities and the closest structures, groundborne vibration impacts would be less than significant.

1.0 Introduction

This report analyzes the noise impacts from both construction and operation of the County Animal Shelter (project). The purpose of this analysis is to characterize the existing noise conditions, identify applicable regulations (i.e., County of San Diego (County) General Plan Noise Element [County of San Diego 2011], County Noise Ordinance [County of San Diego 2009a], City of Santee (City) General Plan Noise Element (City of Santee 2003), and City of Santee Municipal Code [City of Santee 2020]), assess noise impacts from construction and operation of the project, and identify mitigation measures and/or design considerations to reduce potential impacts. This report was prepared in accordance with the County's Guidelines for Determining Significance and Report Format and Content Requirements, Noise (County's Noise Guidelines; County of San Diego 2009b).

1.1 Project Description

The project is located north of Riverview Parkway and west of North Magnolia Avenue on County-owned land that lies within the boundaries of the city of Santee (assessor parcel number [APN] 381-050-69-00). Specifically, the project site is located within and is surrounded by land uses within, the City's Town Center Specific Plan Amendment area. The Specific Plan Amendment area established the physical and design framework for the development of approximately 154 acres of County-owned land within the City's 706-acre Town Center Specific Plan area. Figure 1 shows the regional location of the project, Figure 2 shows the project location on an aerial photograph.

The County Department of Animal Services (DAS) provides animal-related law enforcement, sheltering, medical and pet adoption services to the unincorporated areas of San Diego County. Currently, the County DAS owns and operates two animal shelter facilities in the San Diego region: one located in the community of Bonita (Bonita Shelter) and the other in the city of Carlsbad (Carlsbad Shelter). The proposed project would replace the existing Bonita Shelter facility located at 5821 Sweetwater Road, Bonita, California. The proposed project would be constructed to meet the County DAS current and projected needs for the County. The proposed project would provide animal services in a modern facility and would have the capacity for the transfer of all of the Bonita Shelter facility animals and services, including all livestock. The Carlsbad Shelter facility, which was redeveloped and expanded in 2005, would remain open and all other services and functions would remain unchanged.

The County proposes the construction of an approximately 24,000-square-foot animal shelter. As shown in Figure 3, the project would consist of four separate buildings with an internal, secure and open courtyard, an outdoor livestock area, an activity yard, a staff parking lot, and a public parking lot. The two parking lots would have separate driveways for ingress and egress from Riverview Parkway. The four buildings would contain medical facilities, administration areas, and boarding areas for dogs, cats, rabbits, and other small animals. Off-site improvements would include sidewalk, curb and gutter improvements along Riverview Parkway. Construction is anticipated to begin in November 2021 and end in January 2023.

Access to the project site would be from Interstate 8, State Route 52, State Route 67, and State Route 125, as well as major arterial roadways and public transportation services. The nearest trolley station (Santee Town Center) is located approximately 1.5 miles southwest of the project site and the nearest bus stop is located at the intersection of Riverview Parkway and North Magnolia Avenue, approximately 528 feet southeast of the project site.

Two unsignalized vehicular driveways would be constructed along Riverview Parkway to provide access to the proposed facility and two proposed parking lots. One driveway would be accessible to the general public, while the other driveway would be accessible to staff, contractors, deliveries, and livestock drop-off. Parking would consist of 28 staff spaces and 58 public spaces.

The proposed buildings would achieve a minimum in Leadership in Energy and Environmental Design (LEED) Silver designation, while also reaching a higher level of sustainability with a zero-net energy performance. The proposed project would include “green” building elements constructed in accordance with California’s Title 24 Building Energy Efficiency Standards. Other environmental design features would include, but are not limited to, photovoltaic solar panels and electric vehicle charging stations.

Development of the proposed project would include the provision of utility infrastructure, specifically storm water drains, sewer, water, electricity, natural gas, and telecommunications. The infrastructure for the proposed project would tie into the existing utility lines and would be upgraded as necessary to accommodate the proposed development.

Landscaping would consist of a mix of trees, shrubs, and ground cover and comply with County of San Diego’s Landscape Ordinance and Water Efficient Landscape Design Manual. The proposed project would include bio-retention swales to reduce runoff into drainage facilities.

All current County DAS shelter hours of operation are from 9:30 a.m. to 5:30 p.m. Tuesday through Sunday and adoption hours close at 4:00 p.m. All County DAS Animal Shelters are closed to the public on Mondays and County holidays. The shelter hours for the proposed project would remain unchanged from the current shelter hours at the Carlsbad Shelter and Bonita Shelter.

1.2 Environmental Settings and Existing Conditions

1.2.1 Noise Terminology

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs. Noise is generally defined as unwanted or objectionable sound. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and in the extreme, hearing impairment.

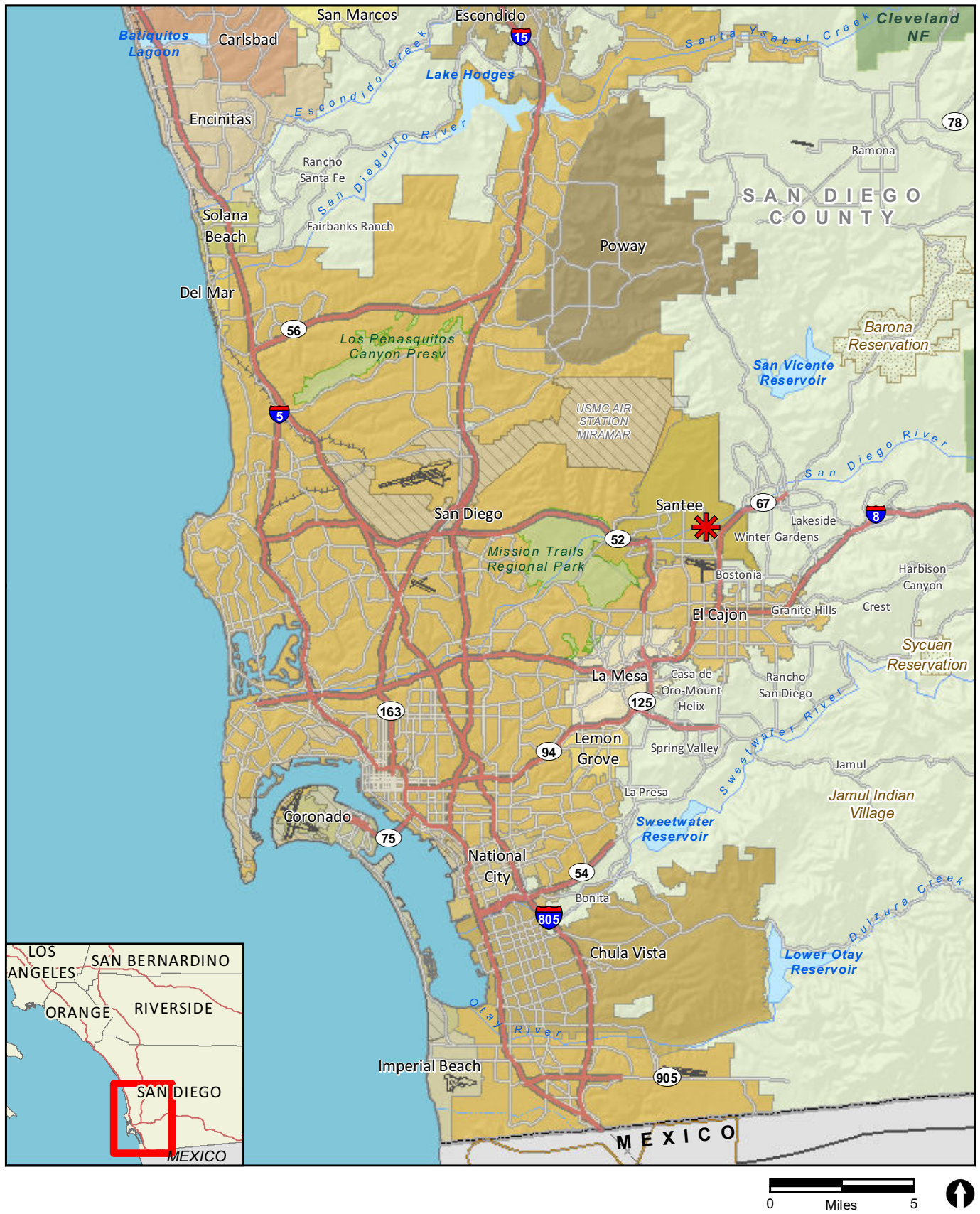


FIGURE 1
Regional Location




 Project Boundary

FIGURE 2
Project Location on Aerial Photograph



 Project Boundary
 Site Plan

FIGURE 3
Site Plan

The unit of measurement used to describe a sound, or noise, level is 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. A 10 dB increase represents a 10-fold increase in sound intensity, a 20 dB change is a 100-fold difference, 30 dB is a 1,000-fold increase, etc. 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.

Additionally, 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 is the energy converted into sound by the source. The sound power level of the source is expressed as L_{pw} . Equipment sound power ratings are determined in an acoustics laboratory, usually by the manufacturer or an independent test lab. Testing facilities utilize specific standards and methods to promote data uniformity and allow objective comparisons across industries. The L_{pw} is used to estimate how far a noise will travel and to predict the sound levels at various distances from the source. As sound energy travels through the air, it creates a sound wave that exerts pressure on receivers such as an ear drum or microphone and is the sound pressure level. Noise measurement instruments only measure sound pressure.

The human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, a method called “A-weighting” is used to filter noise frequencies that are not audible to the human ear. A-weighting approximates the frequency response of the average young ear when listening to most ordinary everyday sounds. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the “A-weighted” levels of those sounds. Therefore, the A-weighted noise scale is used for measurements and standards involving the human perception of noise. In this report, all noise levels are A-weighted and dB(A) is understood to identify the A-weighted decibel.

In addition to noise levels, the duration or exceedance of noise over time is also important for the assessment of potential noise disturbance. Average noise levels over a period of minutes or hours are usually expressed as dB(A) L_{eq} , or the equivalent noise level for that period. The period of time averaged may be specified; $L_{eq(3)}$ would be a 3-hour average; when no period is specified, a 1-hour average is assumed.

The timing of noise is also an important factor to consider in assessing potential noise impacts as noise levels that may be acceptable during the day may create disturbance during evening or nighttime hours. Community noise equivalent level (CNEL) is the energy average of the A-weighted sound levels occurring during a 24-hour period, with a 5 dB(A) penalty added to the sound levels occurring between 7:00 p.m. and 10:00 p.m. and 10 dB(A) added to the sound levels occurring between 10:00 p.m. and 7:00 a.m.

Human perception of noise has no simple correlation with acoustical energy. A sound power is the energy converted into sound by the source. The sound power level of a source is expressed as L_{pw} . The L_{pw} is used to estimate how far a noise will travel and to predict the sound pressure levels at various distances from the source. As sound energy travels through the air, it creates a sound wave that exerts pressure on receivers such as an ear drum or microphone.

The perception of noise is not linear in terms of dB(A) or in terms of acoustical energy. Two equivalent noise sources do not sound twice as loud as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dB(A), increase or decrease; that a change of 5 dB(A) is readily perceptible; and that an increase (decrease) of 10 dB(A) sounds twice (half) as loud (California Department of Transportation [Caltrans] 2013a). Table 1 provides examples of common activities and the sound pressure levels associated with those activities.

From the source to the receiver, noise changes both in level and frequency spectrum. The most obvious change is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on the following important factors: ground absorption, atmospheric effects and refraction, shielding by natural and man-made features, noise barriers, diffraction, and reflection. For a point or stationary noise source, such as construction equipment, the attenuation or drop-off in noise level would be at least -6 dB(A) for each doubling of unobstructed distance between source and the receiver and could increase to -7.5 dB(A) depending on the acoustic characteristics of the intervening ground. For a linear noise source, such as vehicles traveling on a roadway, the attenuation or drop-off in noise level would be approximately -3 dB(A) for each doubling of unobstructed distance between source and the receiver and could increase to -4.5 dB(A) depending on the acoustic characteristics of the intervening ground.

A large object in the path between a noise source and a receiver can significantly attenuate noise levels at that receiver. The amount of attenuation provided by this “shielding” depends on the size of the object and the frequencies of the noise levels. Natural terrain features, such as hills and dense woods, as well as man-made features, such as buildings and walls, can significantly alter noise levels. Walls or berms are often specifically used to reduce or attenuate noise.

Noise-sensitive receptors are generally considered humans engaged in activities, or occupying land uses, that may be subject to the stress of significant interference from noise. Human activities usually associated with sensitive receptors include, but are not limited to, talking, reading, and sleeping. Land uses associated with noise sensitive human receptors include residential dwellings including mobile homes, hotels/motels, hospitals, nursing homes, educational facilities, and libraries. In addition to human receptors, protected animal species and their habitats may be considered sensitive noise receptors, especially during their breeding season.

Table 1 Typical Noise Levels		
Common Outdoor Activities	Noise Level dB(A)	Common Indoor Activities
	110	Rock Band
Jet Fly-over at 300 meters (1,000 feet)	100	
Gas Lawn Mower at 1 meter (3 feet)	90	
Diesel Truck at 15 meters (50 feet), at 80 kilometer per hour (50 mph)	80	Food Blender at 1 meter (3 feet) Garbage Disposal at 1 meter (3 feet)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 meters (100 feet)	70	Vacuum Cleaner at 3 meters (10 feet)
Commercial Area Heavy Traffic at 90 meters (300 feet)	60	Normal Speech at 1 meter (3 feet)
Quiet Urban Daytime	50	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	30	Library
Quiet Rural Nighttime	20	Bedroom at Night, Concert Hall (Background)
	10	Broadcast/Recording Studio
	0	Lowest Threshold of Human Hearing
SOURCE: Caltrans 2013a. mph = miles per hour		

1.2.2 Settings and Location

The project site currently consists of an undeveloped lot with an elevated building pad. Based on reconnaissance and review of site topography, the proposed structural improvement area is generally flat at an approximate elevation of 351 feet above mean sea level.

Land uses surrounding the project site include: residential subdivisions to the southeast of North Magnolia Avenue; residential mobile homes to the east of North Magnolia Avenue; Las Colinas Detention and Reentry Facility to the immediate south; and undeveloped land and the San Diego River to the west and north. The nearest trolley station (Santee Town Center) is located approximately 1.5 miles southwest of the project site and the nearest bus stop is located at the intersection of Riverview Parkway and North Magnolia Avenue, approximately 528 feet southeast of the project site.

In a regional context, the project site is located within the city of Santee and east of the unincorporated community of Lakeside. The project site is located approximately 14 miles northeast of downtown San Diego, 16 miles east of the Pacific Ocean, and just north of the city of El Cajon. The project site is located within the San Diego River watershed, which is a long triangular-shaped area of about 440 square miles draining to the San Diego River, which flows to the Pacific Ocean.

1.2.3 Existing Noise Conditions

1.2.3.1 Noise Measurements

Noise measurements were taken to obtain typical ambient noise levels at the project site and in the vicinity. Two 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 southeast corner of the project site, approximately 85 feet west of North Magnolia Avenue and 50 feet north of Riverview Parkway. The main source of noise at this location was vehicle traffic on North Magnolia Avenue. Other sources of noise included helicopters and occasional vehicles on Riverview Parkway. Noise levels were measured for 15-minutes. The average measured noise level was 65.9 dB(A) L_{eq} .

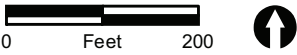
Measurement 2 was located at the northern project boundary along Cottonwood Avenue/Chubb Lane, approximately 330 feet west of North Magnolia Avenue. The main source of noise at the measurement location was helicopters. Vehicle traffic on North Magnolia Avenue was also audible in the distance. Noise levels were measured for 15-minutes. The average measured noise level was 63.8 dB(A) L_{eq} .

Noise measurements are summarized in Table 2.

Table 2 Noise Measurements				
Measurement	Location	Time	Main Noise Source	L_{eq}
1	Southeastern project boundary	10:01 a.m. – 10:16 a.m.	Vehicle traffic on North Magnolia Avenue	65.9
2	Northern project boundary	10:23 a.m. – 10:38 a.m.	Helicopters	63.8
NOTE: Noise measurement data is contained in Attachment 1.				

1.2.3.2 Existing Vehicle Traffic Noise Contours

The noise measurements obtained on March 24, 2020, were taken during a period when Governor Gavin Newsom issued Executive Order N-33-20 for Californians to stay at home. Therefore, the traffic observed in the vicinity of the project was likely less than what would be anticipated under normal conditions. However, existing vehicle traffic counts were taken prior to the stay-at-home order. Based on the Traffic Impact Analysis prepared for the project, North Magnolia Avenue has an existing traffic volume of 22,440 average daily traffic (ADT) north of Riverview Parkway and 25,830 ADT south of Riverview Parkway, and Riverview Parkway has an existing traffic volume of 1,090 ADT (Linscott, Law & Greenspan [LLG] 2020). These existing traffic volumes were used to model existing vehicle traffic noise contours. Existing contours are shown in Figure 5. SoundPLAN data is provided in Attachment 2.





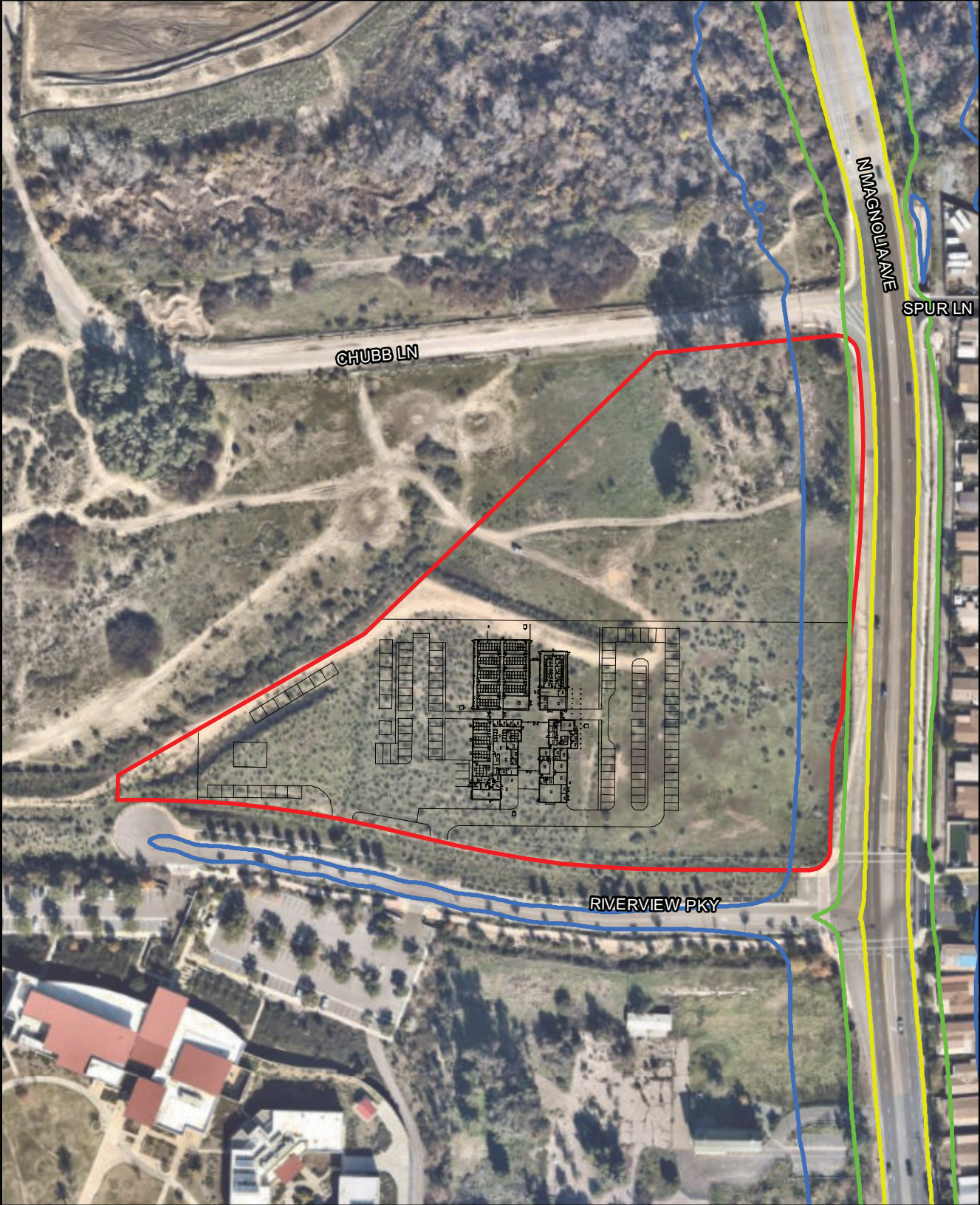



-  Project Boundary
-  Measurement Locations

FIGURE 4
Noise Measurement Locations



 Project Boundary
 Site Plan

Existing Vehicle Traffic Noise Contours

 60 CNEL
 65 CNEL
 70 CNEL

0 Feet 200



FIGURE 5
Existing Vehicle Traffic Noise Contours

1.3 Methodology and Equipment

1.3.1 Noise Measuring Methodology and Procedures

Existing noise levels at the project site were measured on March 24, 2020, using one Larson-Davis LxT Sound Expert Sound Level Meter, serial number 3827. The following parameters were used:

Filter:	A-weighted
Response:	Slow
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.

1.3.2 Noise Modeling Software

Noise level predictions and contour mapping for construction, vehicle traffic, and on-site noise sources were developed using noise modeling software, SoundPlan Essential, version 4.1 (Navcon Engineering 2018). SoundPLAN calculates noise propagation based on 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 terrain, barriers, and structures. The model outputs can be developed as noise level contour maps or noise levels at specific receivers. In all cases, receivers were modeled at 5 feet above ground elevation, which represents the average height of the human ear.

1.3.3 Noise Formulas and Calculations

1.3.3.1 Construction

Construction is anticipated to begin in November 2021 and end in January 2023. Project construction noise would be generated by diesel engine-driven construction equipment used for 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 to 95 dB(A) L_{eq} at a distance of 50 feet (Federal Highway Administration [FHWA] 2006 and 2008, Federal Transit Authority 2006). Table 3 summarizes typical construction equipment noise levels.

Table 3
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: Federal Highway Administration 2006, Federal Transit Authority 2006. dB(A) L_{eq} = A-weighted decibels average noise level		

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. Although maximum noise levels may be 70 to 95 dB(A) at a distance of 50 feet during most construction activities, hourly average noise levels from the grading phase of construction would be 85 dB(A) L_{eq} at 50 feet from the center of construction activity when assessing the loudest pieces of equipment working simultaneously.

1.3.3.2 Vehicle Traffic

a. On-site Noise Compatibility

The SoundPLAN program uses the FHWA Traffic Noise Model algorithms and reference levels to calculate traffic 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. The model also takes into account ground conditions such as pavement, field grass, vegetation, etc. Receivers, roadways, and barriers were input into the model using three-dimensional coordinates. The locations of future buildings were obtained from project drawings.

The main source of traffic noise at the project site is vehicle traffic on North Magnolia Avenue. For the purpose of the future traffic noise compatibility analysis, the noisiest condition occurs when traffic is heavy but remains free-flowing. Level of service (LOS) C volumes were modeled to ensure the absolute worst-case scenario traffic noise for the future year. 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. North Magnolia Avenue is a 4-lane Major Arterial with a maximum LOS C volume of 35,000 and a speed limit of 45 miles per hour.

Vehicle traffic on Riverview Parkway was also modeled. Based on the Traffic Impact Analysis prepared for the project, Riverview Parkway would have a future (near-term plus project) traffic volume of 2,020 ADT. The speed limit on Riverview Parkway is 35 miles per hour. A standard vehicle classification mix of 95 percent automobiles, 2 percent medium trucks, 1 percent heavy trucks, 1 percent motorcycles, and 1 percent buses was modeled.

b. Off-site Vehicle 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 project would contribute traffic to North Magnolia Avenue and Riverview Parkway. Traffic noise levels were calculated based on the total average daily traffic volume on each roadway segment. For modeling purposes, “hard” ground conditions were used since a majority of the project area is paved and the hard site provides the most conservative impact assessment. Modeled noise levels do not account for shielding provided by intervening barriers and structures. Existing, existing + project, existing + cumulative projects, and existing + cumulative projects + proposed project traffic volumes are summarized in Table 4.

Table 4
Roadway Traffic Volumes

Roadway Segment	Existing Volume	Existing + Project Volume	Near-Term Volume	Near-Term + Project Volume
North Magnolia Avenue				
Mast Boulevard to Riverview Parkway	22,440	22,610	24,380	24,550
Riverview Parkway to Mission Gorge Road	25,830	26,180	28,590	28,940
Riverview Parkway				
North Magnolia Avenue to Town Center Parkway	1,090	1,610	1,190	1,710

1.3.3.3 On-site Generated Noise

The noise sources on the project site after completion of construction are anticipated to be barking dogs and rooftop heating, ventilation, and air conditioning (HVAC) units.

HVAC units would be located on the building rooftops. 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. Based on this ratio, the 24,000-square-foot building would require seven 10-ton HVAC units. To be conservative, two 10-tons units were modeled on the rooftop of each of the four proposed buildings, for a total cooling capacity of 80 tons. Based on review of manufacturer specifications for a sample unit (Trane Model T/YSC120ED), a representative noise level for a 10-ton unit would be a sound power level of 79 dB. Noise specifications are contained in Attachment 3. All units were modeled at full capacity during the daytime and nighttime hours.

The project includes 72 indoor dog kennels. Since these kennels are within the building, it is not anticipated that exterior noise levels due to barking dogs within the interior kennels would be a concern. Additionally, there are two exterior areas where dogs could be located: a dog run area between the western parking lot and buildings, and an activity yard within a secured/fenced area between the four buildings. The primary noise source associated with outdoor activity areas would be periodic dog barking. Usually barking occurs in response to some stimuli, such as persons or other dogs entering the activity areas. The degree of barking depends largely on the experience of the staff, the number of dogs outside at a time, and the amount of stimuli. Maximum dog bark noise levels for various breeds are provided in Table 5. The highest reported dog bark noise level was of a German shepard with a maximum bark of 101 dB(A) at 4 feet. The average maximum noise level associated with individual dog barking was calculated to be 90 dB(A). However, in order to provide a worst-case assessment of dog barking noise levels, the German shepard bark noise level of 101 dB(A) was utilized for this assessment. This maximum noise level would not occur consistently over a 1-hour period, since there are breaks between individual barks and DAS staff would not allow for consistent and continuous barking. As a worst-case analysis, maximum dog bark noise levels were modeled for 50 percent of a 1-hour period. Barking dogs were modeled during the daytime hours only, since dogs would be located inside during the nighttime hours.

Table 5		
Maximum Dog Bark Noise Levels		
Dog Breed	Maximum Bark Noise Level [dB(A) L_{max}]	Distance
German Shepard (Police Dog)	101	4 feet
Great Dane	91	4 feet
Golden Retriever	93	4 feet
Labrador Retriever	91	4 feet
Boston Terrier	88	4 feet
Mixed Breed	87	4 feet
Cocker Spaniel	87	4 feet
Jack Russel Terrier	81	4 feet
SOURCE: County of Santa Clara 2018.		

2.0 Noise Sensitive Land Uses Affected By Airborne Noise

2.1 Guidelines for the Determination of Significance

2.1.1 County of San Diego

Guidelines for the determination of significance of environmental noise impacts for this and other impact sections were promulgated by the County in January 2009 in the County's Noise Guidelines (County of San Diego 2009a).

A project would result in a significant impact if the implementation would result in the exposure of any on-site or off-site existing or reasonably foreseeable future noise sensitive land uses (NSLUs) to exterior or interior noise (including noise generated from a project, together with noise from roads, railroads, airports, heliports, and all other noise sources) in excess of any of the following:

A. Exterior Locations:

- i. 60 dB (CNEL); or
- ii. An increase of 10 dB CNEL over preexisting noise.

In the case of single-family residential detached NSLUs, exterior noise shall be measured at an outdoor living area that adjoins and is on the same lot as the dwelling, and that contains at least the following minimum area:

- (1) Net lot area up to 4,000 square feet: 400 square feet
- (2) Net lot area 4,000 square feet to 10 acres: 10% of net lot area
- (3) Net lot area over 10 acres: 1 acre

For all projects, exterior noise shall be measured at all exterior areas provided for group or private usable open space.

B. Interior Locations:

45 dB (CNEL) except for the following cases:

- i. Rooms which are usually occupied only a part of the day (schools, libraries, or similar facilities), the interior 1 hour average sound level due to noise outside should not exceed 50 decibels (A).
- ii. Corridors, hallways, stairwells, closets, bathrooms, or any room with a volume less than 490 cubic feet.

County General Plan

The General Plan Update was adopted by the County on August 3, 2011. Table 6 provides the County's current noise compatibility guidelines and Table 7 provides the County's noise standards.

2.1.2 City of Santee

The City of Santee (City) General Plan Noise Element, Section 8.1 states the following:

The California Environmental Quality Act encourages jurisdictions to establish local thresholds for determining whether a particular impact is significant. Impacts exceeding these thresholds would require that measures be identified to avoid or reduce the severity of the impact. Noise Impacts shall be considered significant if any of the following occur as a result of the proposed development:

1. If, as a direct result of the proposed development, noise levels for any existing or planned development will exceed the noise levels considered compatible for that use as identified in Figure 7-3, Noise / Compatibility Guide.
2. If, as a direct result of the proposed development, noise levels which already exceed the levels considered compatible for that use are increased by 3 or more decibels.

Figure 7-3 of the City's General Plan is summarized in Table 8 below.

Table 6
County Noise Compatibility Guidelines

Land Use Category		Exterior Noise Levels (CNEL)					
		55	60	65	70	75	80
A	Residential—single-family residences, mobile homes, senior housing, convalescent homes						
B	Residential—multi-family residences, mixed-use (commercial/residential)						
C	Transient lodging—motels, hotels, resorts						
D	Schools*, churches*, hospitals, nursing homes, child care facilities*						
E	Passive recreational parks, nature preserves, contemplative spaces, cemeteries						
F	Active parks, golf courses, athletic fields, outdoor spectator sports, water recreation						
G	Office/professional, government, medical/dental, commercial, retail, laboratories						
H	Industrial, manufacturing, utilities, agriculture, mining, stables, ranching, warehouse, maintenance/repair						
	ACCEPTABLE—Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal construction, without any special noise insulation requirements.						
	CONDITIONALLY ACCEPTABLE—New construction or development should be undertaken only after a detailed noise analysis is conducted to determine if noise reduction measures are necessary to achieve acceptable levels for land use. Criteria for determining exterior and interior noise levels are listed in Table 7, Noise Standards. If a project cannot mitigate noise to a level deemed Acceptable, the appropriate county decision-maker must determine that mitigation has been provided to the greatest extent practicable or that extraordinary circumstances exist.						
	UNACCEPTABLE—New construction or development shall not be undertaken.						

*Denotes facilities used for part of the day; therefore, an hourly standard would be used rather than CNEL, refer to Table 7.

Table 7
County Noise Standards

1.	The exterior noise level (as defined in Item 3) standard for Category A shall be 60 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
2.	The exterior noise level standard for Categories B and C shall be 65 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
3.	The exterior noise level standard for Categories D and G shall be 65 CNEL and the interior noise level standard shall be 50 dB(A) L_{eq} (one hour average).
4.	For single-family detached dwelling units, "exterior noise level" is defined as the noise level measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum net lot area: <ul style="list-style-type: none"> (i) for lots less than 4,000 square feet in area, the exterior area shall include 400 square feet, (ii) for lots between 4,000 square feet to 10 acres in area, the exterior area shall include 10 percent of the lot area; (iii) for lots over 10 acres in area, the exterior area shall include 1 acre.
5.	For all other residential land uses, "exterior noise level" is defined as noise measured at exterior areas which are provided for private or group usable open space purposes. "Private Usable Open Space" is defined as usable open space intended for use of occupants of one dwelling unit, normally including yards, decks, and balconies. When the noise limit for Private Usable Open Space cannot be met, then a Group Usable Open Space that meets the exterior noise level standard shall be provided. "Group Usable Open Space" is defined as usable open space intended for common use by occupants of a development, either privately owned and maintained or dedicated to a public agency, normally including swimming pools, recreation courts, patios, open landscaped areas, and greenbelts with pedestrian walkways and equestrian and bicycle trails, but not including off-street parking and loading areas or driveways.
6.	For non-residential noise sensitive land uses, exterior noise level is defined as noise measured at the exterior area provided for public use.
7.	For noise sensitive land uses where people normally do not sleep at night, the exterior and interior noise standard may be measured using either CNEL or the one-hour average noise level determined at the loudest hour during the period when the facility is normally occupied.
8.	The exterior noise standard does not apply for land uses where no exterior use area is proposed or necessary, such as a library.
9.	For Categories E and F the exterior noise level standard shall not exceed the limit defined as "Acceptable" in Table 6 or an equivalent one-hour noise standard.
NOTE: Exterior Noise Level compatibility guidelines for Land Use Categories A-H are identified in Table 6, Noise Compatibility Guidelines.	

Table 8
City Noise Compatibility Standards

Land Use Category		Community Noise Exposure						
		L _{dn} , dB						
		55	60	65	70	75	80	
Residential – Low Density Single Family, Duplex, Mobile Homes								
Residential – Multi-family								
Transient Lodging – Motels, Hotels								
Schools, Libraries, Churches, Hospitals, Nursing Homes (See Note #1)								
Auditoriums Concert Halls, Amphitheaters								
Sports Arena, Outdoor Spectator Sports								
Playgrounds, Neighborhood Parks								
Golf Courses, Riding Stables, Water Recreation, Cemeteries								
Office Buildings, Business Commercial and Professional								
Industrial, Manufacturing, Utilities, Agriculture								
Notes:								
1. Applies to noise sensitive areas which serve a significant function for the use which could be adversely affected by noise such as, outside areas used primarily for instruction, meditation areas, rest and relaxation areas, and other areas where general peace and quiet are important.								
00000	Normally Acceptable	Specified land use is satisfactory, based upon the assumption that any building involved are of normal conventional construction, without any special noise insulation requirements.						
00000	Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.						
00000	Normally Unacceptable	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.						
00000	Clearly Unacceptable	New construction or development should generally not be undertaken.						
L _{dn} = day-night average noise level; dB = decibels								
SOURCE: City of Santee General Plan Noise Element Figure 7-3 (2003).								

2.2 Potential Noise Impacts

2.2.1 Potential Build-out Noise Conditions and Impacts

Vehicle traffic noise level contours across the project site were calculated using SoundPLAN and the methodology summarized in Section 1.3.3.2. These contours take into account shielding provided by proposed buildings, topography, and proposed grading. These noise contours are shown in Figure 6. SoundPLAN data is provided in Attachment 4.

As shown, noise levels would be less than 65 CNEL across the entire project site, and less than 60 CNEL at the proposed development area. The project would be compatible with the County's and the City's normally acceptable standard of 70 CNEL for commercial uses. Impacts associated with noise compatibility would be less than significant.

2.2.2 Design Considerations and Mitigation Measures

Noise compatibility impacts would be less than significant; therefore, no mitigation would be required.

2.3 Off-site Direct and Cumulative Noise Impacts

The project would increase traffic volumes on local roadways. Noise level increases would be greatest nearest the project site, which would represent the greatest concentration of project-related traffic. Traffic noise is primarily a function of volume, vehicle mix, speed, and proximity. For purposes of this evaluation, the vehicle mix, speed, and proximity are assumed to remain constant in the future. Thus, the primary factor affecting noise levels would be increased traffic volumes.

Direct impacts were determined by comparing existing average daily traffic volumes and noise levels with the existing condition plus the project at full build-out. Cumulative impacts were determined by comparing the future with project and no project conditions and determining the project's contribution to the future cumulative noise levels.




2.3.1 Direct Noise Impacts

Table 4 summarizes the existing and near-term traffic volumes with and without the project in the project vicinity. Off-site traffic noise impacts have been evaluated based on the calculated change in noise levels due to the increase or decrease in traffic volumes from the existing condition. Table 9 presents a conservative assessment of traffic noise levels based on the existing, existing plus project, near-term, and near-term plus project noise levels, and associated noise increase. Noise level calculations are contained in Attachment 5.



 Project Boundary
 Site Plan

Future Vehicle Traffic Noise Contours

-  60 CNEL
-  65 CNEL
-  70 CNEL

0 Feet 200



FIGURE 6
Future Vehicle Traffic Noise Contours

Table 9
Off-site Noise Level Increases (CNEL)

Roadway Segment	Existing			Near-Term			
	Without Project	With Project	Increase	Without Project	With Project	Increase	Total Increase Over Existing
North Magnolia Avenue							
Mast Blvd to Riverview Pkwy	72.6	72.6	0.0	73.0	73.0	0.0	0.4
Riverview Pkwy to Mission Gorge Rd	73.2	73.3	0.1	73.6	73.7	0.1	0.5
Riverview Parkway							
Magnolia Ave to Town Center Pkwy	57.1	58.8	1.7	57.5	59.1	1.6	2.0

A substantial noise increase is defined as an increase of 10 dB(A) CNEL above existing conditions as stated in the County of San Diego Noise Report Guidelines Section 4.1-A (ii). However, the Report Format and Content Requirements include a statement that a “doubling of sound energy” is considered a significant impact at a “documented noisy site.” A doubling of sound energy is equivalent to a 3 dB(A) increase. A documented noisy site is to be a location with NSLU that currently exceeds 60 CNEL. Thus, a substantial increase is defined as a 10 dB(A) increase, or greater over existing noise levels when existing and future noise levels are below the County’s 60 CNEL standard, or a 3 dB(A) increase when existing or future noise levels equal or exceed the County’s 60 CNEL standard.

As shown in Table 9, the project would increase noise levels by less than 3 dB over existing noise levels, and impacts would be less than significant.

2.3.2 Cumulatively Significant Noise Impacts

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 over existing noise occurs. The difference between direct and cumulative traffic noise impacts is that the cumulative impacts are caused by project traffic in combination with traffic from other closely related past, present, and reasonably foreseeable probably future projects rather than only traffic. The project’s contribution to the future noise level is determined by comparing the future with project and no project conditions, and a determination made whether the project’s contribution is “cumulatively considerable.”

The Traffic Impact Analysis prepared for the project included cumulative projects in the near-term traffic scenarios. A cumulatively considerable contribution to off-site traffic noise impacts would occur if a project contributes more than 3 dB to the cumulative noise increase. As the project would not increase noise levels by more than 3 dB, cumulative traffic-related impacts due to the project would be less than cumulatively considerable.

2.3.3 Design Considerations and Mitigation Measure Calculations

Direct and cumulative off-site noise impacts would be less than significant; therefore, no mitigation would be required.

3.0 Project-generated Airborne Noise

3.1 Guidelines for the Determination of Significance

3.1.1 County of San Diego

The County Noise Ordinance, Section 36.404, sets limits on the noise levels generated from one property to another, such as from mechanical equipment. Unless a variance has been applied for by an applicant and granted by the County, it is unlawful for a person to cause or allow noise generated on a particular property to exceed the 1-hour average sound level, at any point on or beyond the boundaries of the property, as shown in Table 10.

Table 10 County of San Diego Noise Ordinance Sound Level Limits		
Zone	Applicable Hours	Sound Level Limit dB(A) L_{eq}
(1) RS, RD, RR, RMH, A70, A72, S80, S81, S90, S92, RV, and RU with a General Plan Land Use Designation density of less than 10.9 dwelling units per acre.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	50 45
(2) RRO, RC, RM, S86, V5, RV and RU with a General Plan Land Use Designation density of 10.9 or more dwelling units per acre.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	55 50
(3) S-94, V4 and all other commercial zones.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	60 55
(4) V1	7 a.m. to 10 p.m.	55
V2	10 p.m. to 7 a.m.	55
V1	10 p.m. to 7 a.m.	50
V2	7 a.m. to 10 p.m.	70
V3	10 p.m. to 7 a.m.	65
(5) M-50, M-52, and M-54	Anytime	70
(6) S82, M56 and M58	Anytime	75
(7) S88 (see subsection (c) below)		

SOURCE: County Noise Ordinance, Section 36.404.

dB(A) L_{eq} = A-weighted decibels average sound level.

Notes:

(a) Except as provided in section 36.409, it shall be unlawful for any person to cause or allow the creation of any noise, which exceeds the one-hour average sound level limits in Table 36.404, when the one-hour average sound level is measured at the property line of the property on which the noise is produced or at any location on a property that is receiving the noise

(b) Where a noise study has been conducted and the noise mitigation measures recommended by that study have been made conditions of approval of a Major Use Permit, which authorizes the noise-generating use or activity and the decision making body approving the Major Use Permit determined that those mitigation measures reduce potential noise impacts to a level below significance, implementation and compliance with those noise mitigation measures shall constitute compliance with subsection (a) above.

(c) S88 zones are Specific Planning Areas which allow for different uses. The sound level limits in this table that apply in an S88 zone depend on the use being made of the property. The limits in subsection (1) apply to property with a residential, agricultural, or civic use. The limits in subsection (3) apply to property with a commercial use. The limits in subsection (5) apply to property with an industrial use that would only be allowed in an M50, M52, or M54 zone. The limits in subsection (6) apply to all property with an extractive use or a use that would only be allowed in an M56 or M58 zone.

(d) If the measured ambient noise level exceeds the applicable limit in Table 36.404, the allowable one-hour average sound level shall be the one-hour average ambient noise level, plus three decibels. The ambient noise level shall be measured when the alleged noise violation source is not operating.

(e) The sound level limit at a location on a boundary between two zones is the arithmetic mean of the respective limits for the two zones. The one-hour average sound level limit applicable to extractive industries, however, including but not limited to borrow pits and mines, shall be 75 decibels at the property line regardless of the zone in which the extractive industry is located.

(f) A fixed-location public utility distribution or transmission facility located on or adjacent to a property line shall be subject to the sound level limits of this section, measured at or beyond 6 feet from the boundary of the easement upon which the facility is located.

Section 36.409 states:

Except for emergency work, it shall be unlawful for any person to operate construction equipment or cause the construction equipment to be operated, exceeding an average sound level of 75 dB(A) for an 8-hour period, between 7 a.m. and 7 p.m., when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

Section 36.410 states:

In addition to the general limitations on sound levels in Section 36.404 and the limitations on construction equipment in Section 36.409, the following additional sound level limitations shall apply:

- (a) Except for emergency work or work on a public road project, no person shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in Table 11, when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period, as described in subsection (c) below. The maximum sound level depends on the use being made of the occupied property. The uses in Table 11 are as described in the County Zoning Ordinance.

Table 11 [County Noise Ordinance Table 3.6410A] Maximum Sound Level (Impulsive) Measured at Occupied Properties for Public Road Projects	
Occupied Property Use	Noise Level (dB[A])
Residential, village zoning or civic use	82
Agricultural, commercial or industrial use	85

- (b) Except for emergency work, no person working on a public road project shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in Table 12, when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period, as described in subsection (c) below. The maximum sound level depends on the use being made of the occupied property. The uses in Table 12 are as described in the County Zoning Ordinance.

Table 12 [County Noise Ordinance Table 3.6410B] Maximum Sound Level (Impulsive) Measured at Occupied Properties	
Occupied Property Use	Noise Level (dB[A])
Residential, village zoning or civic use	85
Agricultural, commercial or industrial use	90

- (c) The minimum measurement period for any measurements conducted under this section shall be 1 hour. During the measurement period a measurement shall be conducted every minute from a fixed location on an occupied property. The measurements shall measure the maximum sound level during each minute of the measurement period. If the sound level caused by construction equipment or the producer of the impulsive noise exceeds the maximum sound level for any portion of any minute, it will be deemed that the maximum sound level was exceeded during that minute.

The project would result in a significant impact if it would result in a substantial permanent increase in ambient noise levels in the vicinity. A substantial noise increase is defined as an increase of 10 dB(A) CNEL above existing conditions as stated in the County of San Diego Noise Report Guidelines Section 4.1-A (ii).

3.1.2 City of Santee

On-site generated noise is regulated by the City's Municipal Code, Title 5 Health and Safety, Chapter 5.04 Noise Abatement and Control. Section 5.04.040 of the City's Municipal Code states that "it is unlawful for any person to make, continue, or cause to be made or continued, within the limits of the City, any disturbing, excessive or offensive noise which causes discomfort or annoyance to reasonable persons of normal sensitivity residing in the area."

Section 5.04.040 also provides the following requirements for heating, ventilation, and air conditioning (HVAC) units:

- 4. Heating and Air Conditioning Equipment and Generators.
 - a. It is unlawful for any person to operate or allow the operation of any generator, air conditioning, refrigeration or heating equipment in such manner as to create a noise disturbance on the premises of any other occupied property, or if a condominium, apartment house, duplex, or attached business, within any adjoining unit.

Noise level limits for construction activities are established in Section 5.04.090 of the City's Municipal Code. These limits state that a notice must be provided to all owners and occupants within 300 feet of the project site if the construction equipment has a manufacturer's noise rating of 85 dB and operates at a specific location for 10 consecutive workdays.

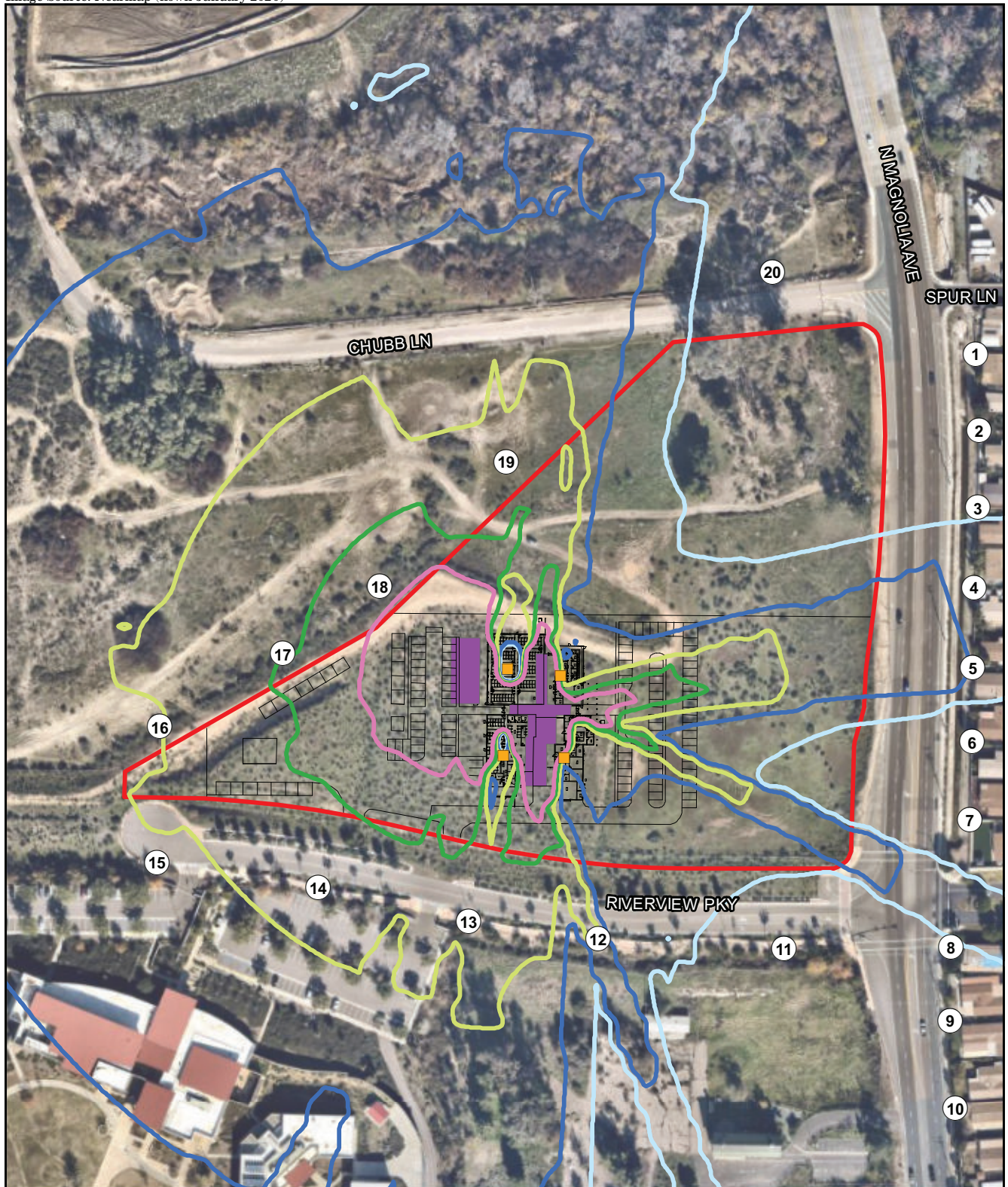
In addition, Section 5.04.090 of the City's Municipal Code states that no construction equipment is permitted before 7:00 a.m. or after 7:00 p.m. on Mondays through Saturdays and all times on Sundays and holidays.

3.2 Potential Operational Noise Impacts (Non-construction Noise)

3.2.1 Potential Build-out Noise Conditions without Mitigation

The primary noise sources on-site would be barking dogs and HVAC equipment. Using the on-site noise source parameters discussed in Section 1.3.3.3, noise levels were modeled at a series of 20 receivers located at the property line. Modeled receivers and the locations of the exterior dog activity areas and rooftop HVAC units as well as the daytime on-site generated noise contours are shown on Figure 7. Nighttime noise contours are shown in Figure 8. Modeled data is included in Attachment 6. Future projected noise levels are summarized in Table 13.

Table 13 On-Site Generated Noise Levels at Adjacent Property Lines [dB(A) L_{eq}]			
Receiver	Land Use	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
1	Single-Family Residential	38	28
2	Single-Family Residential	40	28
3	Single-Family Residential	44	29
4	Single-Family Residential	50	30
5	Single-Family Residential	50	30
6	Single-Family Residential	42	30
7	Single-Family Residential	40	30
8	Single-Family Residential	43	29
9	Single-Family Residential	41	29
10	Single-Family Residential	39	28
11	Las Colinas Detention Center	43	33
12	Las Colinas Detention Center	55	36
13	Las Colinas Detention Center	56	37
14	Las Colinas Detention Center	57	34
15	Las Colinas Detention Center	54	31
16	Open Space	55	31
17	Open Space	59	34
18	Open Space	63	36
19	Open Space	58	35
20	Open Space	41	29



- Project Boundary
- Site Plan
- Receivers
- HVAC Units
- Dog Activity Areas

Daytime On-Site Generated Noise Contours

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

0 Feet 200



FIGURE 7
Daytime On-Site
Generated Noise Contours



- Project Boundary
- Site Plan
- Receivers
- HVAC Units
- Dog Activity Areas

Nighttime On-Site Generated Noise Contours

- 35 dB(A) Leq
- 40 dB(A) Leq
- 45 dB(A) Leq

0 Feet 200



FIGURE 8
Nighttime On-Site
Generated Noise Contours

The adjacent residential properties are located within the City and are not subject to County standards. However, the City Municipal Code does not provide property line noise level limits for operational sources. The City's Municipal Code does not specify property line noise level limits. Section 5.04.040 prohibits "any disturbing, excessive or offensive noise which causes discomfort or annoyance to reasonable persons of normal sensitivity residing in the area." For informational purposes, the noise sensitive (single-family residential) property line noise levels shown in Table 13 were compared to County standards. The daytime and nighttime Noise Ordinance limits for single-family residential uses are 50 and 45 d(A) L_{eq} , respectively (see Table 10). Daytime noise levels would range from 38 to 50 dB(A) L_{eq} at the adjacent residential uses, and nighttime noise levels would range from 28 to 30 dB(A) L_{eq} . Noise levels would not exceed the County's property line noise level limits for single-family residential uses. On-site generated noise impacts would be less than significant.

3.2.2 Design Considerations and Mitigation Measures

On-site generated noise impacts would be less than significant; therefore, no mitigation would be required.

3.3 Potential General Construction Noise Impacts

3.3.1 Potential Temporary Construction Noise Impacts without Mitigation

Noise associated with the grading, building, and paving for the project would potentially result in short-term impacts to surrounding properties. Land uses surrounding the project site include the following: residential subdivisions to the southeast of North Magnolia Avenue; residential mobile homes to the east of North Magnolia Avenue; Las Colinas Detention and Reentry Facility to the immediate south; and undeveloped land and the San Diego River to the west and north.

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. The loudest phase of construction would be the grading/excavation phase and would include dozers, loaders, and excavators. Hourly average noise levels from the grading phase of construction would be 85 dB(A) L_{eq} at 50 feet from the center of construction activity when assessing the loudest pieces of equipment working simultaneously. Maximum construction equipment noise levels (90 dB(A) L_{eq} at 50 feet) were also modeled.

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. The total sound energy of the area source was modeled with all pieces of equipment

operating simultaneously. Noise levels were modeled at a series of 20 receivers located at the adjacent uses properties. The results are summarized in Table 14. Modeled receiver locations and construction noise contours are shown on Figure 9. SoundPLAN data is contained in Attachment 7.

Table 14			
Construction Noise Levels			
Receiver	Land Use	Construction Noise Level	
		Maximum Noise Level [dB(A) L_{max}]	Average Hourly Noise Level [dB(A) L_{eq}]
1	Single-Family Residential	62	57
2	Single-Family Residential	63	58
3	Single-Family Residential	64	59
4	Single-Family Residential	66	61
5	Single-Family Residential	67	62
6	Single-Family Residential	67	62
7	Single-Family Residential	67	62
8	Single-Family Residential	65	60
9	Single-Family Residential	64	59
10	Single-Family Residential	62	57
11	Las Colinas Detention Center	69	64
12	Las Colinas Detention Center	71	66
13	Las Colinas Detention Center	70	65
14	Las Colinas Detention Center	70	65
15	Las Colinas Detention Center	69	64
16	Open Space	74	69
17	Open Space	75	70
18	Open Space	73	68
19	Open Space	67	62
20	Open Space	62	57
dB(A) L_{max} = A-weighted decibels maximum sound noise level;			
dB(A) L_{eq} = A-weighted decibels equivalent noise level			

As shown, construction noise levels are not anticipated to exceed a maximum noise level of 85 dB(A) L_{max} or an average hourly noise level of 75 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, no construction activities would occur between 7:00 p.m. and 7:00 a.m. on Mondays through Saturdays or at any time on Sundays or holidays. As construction activities associated with the project would comply with noise level limits and time restrictions from County's Noise Ordinance and the time restriction of the City's Municipal Code, temporary increases in noise levels from construction activities would be less than significant.



- Project Boundary
- Site Plan
- Receivers

Construction Noise Contours

- 60 dB(A) Leq
- 65 dB(A) Leq
- 70 dB(A) Leq
- 75 dB(A) Leq

FIGURE 8

Construction Noise Contours

3.3.2 Design Considerations and Temporary Mitigation Measures

Construction activities from the loudest activities would comply with noise level limits and time restrictions from County's Noise Ordinance and the time restriction of the City's Municipal Code; thus, no impacts are anticipated to occur and no mitigation measures are required.

3.4 Potential Impulsive Noise Impacts

3.4.1 Potential Impulsive Noise Impacts without Mitigation

No operational impulsive noise sources are proposed as part of the project. Additionally, it is not anticipated that any impact hammering or pile driving would be required for project construction. Therefore, impulsive noise impacts would be less than significant.

3.4.2 Design Considerations and Mitigation Measures

Impulsive noise impacts would be less than significant; therefore, no mitigation would be required for construction activities.

3.5 Cumulative or Combined Noise Impacts

3.5.1 Potential Combined Noise Impacts

Noise is a localized occurrence and attenuates rapidly with distance. Therefore, only future development projects in the direct vicinity of the project site could add to construction noise generated by the project and result in a cumulative noise impact. As part of the preparation of the project's Traffic Impact Analysis, the traffic engineer consulted with the City to develop a list of cumulative projects within the City. Of the projects in the cumulative list, five projects that are not currently under construction were identified within one mile of the project site: Cornerstone, Karl Strauss, Walker Trails, Village Run Homes, and Lantern Crest Ridge Phase II. Construction noise associated with these cumulative projects would be similar to the construction noise generated by the proposed project. The closest project would be Walker Trails, approximately 600 feet to the north. As shown in Figure 8, the 75 dB(A) L_{eq} construction noise contour for the project would not extend beyond the project boundary. Construction contours for cumulative projects would be similar, and the 75 dB(A) L_{eq} noise contours would not extend far beyond the project boundaries. Given the distance between the nearby cumulative projects, should simultaneous construction activities occur, it is not anticipated that cumulative construction noise would exceed County or City Municipal Code standards at nearby receivers. Cumulative construction noise impacts would be less than significant.

Operational noise associated with nearby cumulative projects would be typical of the developed nature of the project area, and aren't anticipated to result in noise levels that would exceed County or City Municipal Code standards. Further, enforcement of the City's Municipal Code would reduce any potential noise conflict. Operational cumulative noise impacts would be less than significant.

3.5.2 Design Considerations and Mitigation Measures

Cumulative or combined noise impacts would be less than significant, and no mitigation would be required.

Additionally, cumulative traffic-related impacts would be less than significant, and no mitigation would be required.

4.0 Groundborne Vibration and Noise Impacts

4.1 Guidelines for the Determination of Significance

4.1.1 County of San Diego

Project implementation could expose the uses listed in Tables 15 and 16 to groundborne vibration and noise levels equal to or in excess of the levels shown.

As stated in note 6 of Table 15, Caltrans criteria shall be used for piles drivers and transient sources such as those associated with project construction. Pile driving is not anticipated for the proposed project. Therefore, for the purposes of this vibration analysis, impacts from general construction would occur if vibration levels exceed 0.004 inches per second (in/sec) root mean square (RMS) (County of San Diego 2009b). For historic buildings and ruins, the allowable upper limit for continuous vibration to structures is identified to be 0.056 in/sec RMS, and the transient conditions (single-event) would be limited to approximately twice the continuous acceptable value (County of San Diego 2009b).

4.1.2 City of Santee

The City's Municipal Code, Title 13 Zoning, Chapter 13.30 General Development and Performance Standards states that "No operation or activity is permitted which will create vibration noticeable without instruments at the perimeter of the subject property." The County-recommended standards discussed above were used to assess the significance of the project's groundborne vibration impacts.

Table 15 Guidelines for Determining the Significance of Groundborne Vibration and Noise Impacts				
Land Use Category	Groundborne Vibration Impact Levels (inches/sec RMS)		Groundborne Noise Impact Levels (dB re 20 micro Pascals)	
	Frequent Events ¹	Occasional or Infrequent Events ²	Frequent Events ¹	Occasional or Infrequent Events ²
Category 1: Buildings where low ambient vibration is essential for interior operations (research & manufacturing facilities with special vibration constraints) ⁶	0.0018 ³	0.0018 ³	Not applicable ^{4,5}	Not applicable ^{4,5}
Category 2: Residences and buildings where people normally sleep (hotels, hospitals, residences, & other sleeping facilities) ⁶	0.0040	0.010	35 dB(A)	43 dB(A)
Category 3: Institutional land uses with primarily daytime use (schools, churches, libraries, other institutions, & quiet offices) ⁶	0.0056	0.014	40 dB(A)	48 dB(A)
<p>SOURCE: Federal Transit Authority 2006. RMS = root mean square; re = relative ¹“Frequent Events” is defined as more than 70 vibration events per day. Most rapid transit projects fall into this category. ²“Infrequent Events” is defined as fewer than 70 vibration events per day. This category includes most commuter rail systems. ³This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors. ⁴Vibration-sensitive equipment is not sensitive to groundborne noise. ⁵There are some buildings, such as concert halls, TV and recording studios, and theaters that can be very sensitive to vibration and noise but do not fit into any of the three categories. Table 16 gives criteria for acceptable levels of groundborne vibration and noise for these various types of special uses. ⁶For Categories 2 and 3 with occupied facilities, isolated events such as blasting are significant when the peak particle velocity (PPV) exceeds 1 inch per second. Nontransportation vibration sources such as impact pile drivers or hydraulic breakers are significant when their PPV exceeds 0.1 inch per second. More specific criteria for structures and potential annoyance were developed by Caltrans (2004) and will be used to evaluate these continuous or transient sources in the County of San Diego.</p>				

Table 16 Guidelines for Determining the Significance of Groundborne Vibration and Noise Impacts for Special Buildings				
Type of Building or Room	Groundborne Vibration Impact Levels (inches/sec RMS)		Groundborne Noise Impact Levels (dB re 20 micro Pascals)	
	Frequent Events ¹	Occasional or Infrequent Events ²	Frequent Events ¹	Occasional or Infrequent Events ²
Concert Halls, TV Studios, and Recording Studios	0.0018	0.0018	25 dB(A)	25 dB(A)
Auditoriums	0.0040	0.010	30 dB(A)	38 dB(A)
Theaters	0.0040	0.010	35 dB(A)	43 dB(A)
SOURCE: Federal Transit Authority 2006. RMS = root mean square; re = relative ¹ “Frequent Events” is defined as more than 70 vibration events per day. Most rapid transit projects fall into this category. ² “Infrequent Events” is defined as fewer than 70 vibration events per day. This category includes most commuter rail systems.				

4.2 Potential and Mitigated Noise Impacts

4.2.1 Potential Groundborne Vibration and Noise Impacts without Mitigation

4.2.1.1 Operations

No operational components of the project include significant groundborne noise or vibration sources and no significant vibrations sources currently exist, or are planned, in the project area. Thus, no significant groundborne noise or vibration impacts would occur with the operation of the proposed project.

4.2.1.2 Construction

Construction activities produce varying degrees of ground vibration, depending on the equipment and methods employed. While ground vibrations from typical construction activities very rarely reach levels high enough to cause damage to structures, special consideration must be made when sensitive or historic land uses are near the construction site (Caltrans 2013b). The construction activities that typically generate the highest levels of vibration are blasting and impact pile driving. However, the project would not require blasting or pile driving.

On-site construction equipment that would cause the most noise and vibration would be associated with site grading. According to the Caltrans, vibration levels associated with the use of bulldozers range from approximately 0.003 to 0.089 in/sec peak particle velocity (PPV) at 25 feet and 58 to 87 vibration decibels (VdB referenced to 1 microinch per second and based on the RMS velocity amplitude) at 25 feet, as shown in Table 17. Using the Federal Transit Authority’s recommended procedure for applying a propagation adjustment

to these reference levels, vibration levels would exceed County-recommended Caltrans thresholds (0.004 in/sec RMS) within 120 feet of large bulldozers and 80 feet of loaded trucks but would be below the County's threshold for a small bulldozer as close as 17 feet from the equipment. The closest structures to the project site are the residences east of North Magnolia Avenue. These residences are located at least 150 feet from the project boundary and separated from the project site by North Magnolia Avenue. There is also an historic polo barn located 155 feet south of the project site. At this distance, vibration levels would be well less than 0.056 in/sec RMS. Given the distance between proposed construction activities and the closest structures, groundborne vibration impacts would be less than significant.

Table 17 Typical Construction Equipment Vibration Levels		
Equipment	PPV at 25 feet (in/sec)¹	Approximate Noise Level at 25 feet²
Large Bulldozer	0.089	87
Loaded Trucks	0.076	86
Small Bulldozer	0.003	58
SOURCE: Caltrans 2013b. PPV = peak particle velocity; in/sec = inch per second. ¹ Where PPV is the peak particle velocity. ² Where noise level is the velocity level in decibels referenced to 1 microinch/second and based on the root mean square velocity amplitude.		

4.2.2 Design Considerations and Temporary Mitigation Measures

Groundborne vibration impacts would be less than significant; therefore, no mitigation would be required for construction activities.

5.0 Summary of Project Impacts, Design Considerations, Mitigation, and Conclusion

The proceeding analysis provides an evaluation of compatibility of the proposed land use with the existing and future noise environment of the project site, potential noise and vibration impacts due to construction of the project, and the direct and indirect noise generated by operation of the project.

5.1 Noise-Sensitive Land Uses Affected by Airborne Noise

5.1.1 On-site Noise Sensitive Land Uses

The project would be exposed to noise from future vehicle traffic on North Magnolia Avenue and Riverview Parkway. The County's and the City's noise compatibility level for commercial uses is 70 CNEL. Noise levels would be less than 65 CNEL across the entire project site, and less than 60 CNEL at the proposed development area. The project would be compatible with the County's and the City's normally acceptable standard of 70 CNEL for commercial uses. Impacts associated with noise compatibility would be less than significant.

5.1.2 Off-site Vehicle Traffic Noise

The project would increase noise levels by less than 3 dB over existing noise levels project. Therefore, it is concluded that direct and cumulative noise impacts to NSLU would be **less than significant**.

5.2 Project-Generated Airborne Noise

5.2.1 Operation

The primary noise sources on-site would be barking dogs and HVAC equipment. The adjacent residential properties are located within the City and are not subject to County standards. However, the City Municipal Code does not provide property line noise level limits for operational sources. For informational purposes, the noise sensitive (single-family residential) property line noise levels shown in Table 13 were compared to County standards. The daytime and nighttime Noise Ordinance limits for single-family residential uses are 50 and 45 d(A) L_{eq} , respectively. Daytime noise levels would range from 38 to 50 dB(A) L_{eq} at the adjacent residential uses, and nighttime noise levels would range from 28 to 30 dB(A) L_{eq} . Noise levels would not exceed the County's property line noise level limits for single-family residential uses. Therefore, impacts would be **less than significant**.

5.2.2 Construction

Construction noise levels are not anticipated to exceed a maximum noise level of 85 dB(A) L_{max} or an average hourly noise level of 75 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, no construction activities would occur between 7:00 p.m. and 7:00 a.m. on Mondays through Saturdays or at any time on Sundays or holidays. As construction activities associated with the project would comply with noise level limits and time restrictions from County's Noise

Ordinance and the time restriction of the City's Municipal Code, temporary increases in noise levels from construction activities would be **less than significant**.

5.2.3 Impulsive Noise

No operational impulsive noise sources are proposed as part of the project. Additionally, it is not anticipated that any impact hammering or pile driving would be required for project construction. Therefore, impulsive noise impacts would be **less than significant**.

5.3 Groundborne Vibration and Noise

5.3.1 Operation

No operational components of the project include significant groundborne noise or vibration sources and no significant vibrations sources currently exist, or are planned, in the project area. Thus, no significant groundborne noise or vibration impacts would occur with the operation of the proposed project, and operational impacts would be **less than significant**.

5.3.2 Construction

On-site construction equipment that would cause the most noise and vibration would be associated with site grading. Vibration levels would exceed County-recommended Caltrans thresholds within 120 feet of large bulldozers and 80 feet of loaded trucks but would be below the threshold for a small bulldozer as close as 17 feet from the equipment. The closest structures to the project site are the residences east of North Magnolia Avenue. These residences are located at least 150 feet from the project boundary, and separated from the project site by North Magnolia Avenue. There is also an historic polo barn located 155 feet south of the project site. At this distance, vibration levels would be well less than 0.056 in/sec RMS. Given the distance between proposed construction activities and the closest structures, groundborne vibration impacts would be **less than significant**.

6.0 Certification

The following is a list of preparers, persons, and organizations involved with the noise assessment.

RECON Environmental, Inc.

Jessica Fleming, County-approved Air Quality Consultant

Michael Page, AICP, Principal Environmental Planner

Morgan Weintraub, Environmental Analyst

Stacey Higgins, Senior Production Specialist

Frank McDermott, GIS Specialist

7.0 References Cited

California Department of Transportation (Caltrans)

2013a Technical Noise Supplement. November.

2013b Transportation and Construction Vibration Guidance Manual. September.

Federal Highway Administration (FHWA)

2006 Roadway Construction Noise Model User's Guide. FHWA-HEP-05-054, SOT-VNTSC-FHWA-05-01. Final Report. January.

2008 Roadway Construction Noise Mode, V1.1. Washington DC.

Federal Transit Administration (FTA)

2006 Transit Noise and Vibration Impact Assessment. Washington, DC. May.

Linscott, Law, & Greenspan (LLG)

2020 Transportation Impact Analysis, South County Animal Shelter Project. LLG Ref. 3-20-3211. March 20, 2020.

Navcon Engineering, Inc.

2018 SoundPLAN Essential version 4.1.

San Diego, County of

2009a Noise Ordinance, Section 36.404 and 36.410. Last amended by ordinance number 9962, January 9.

2009b Guidelines for Determining Significance and Report Format and Content Requirements, Noise. January 27.

2011 General Plan, Chapter 8, Noise Element. August 3.

Santa Clara, County of

2018 Initial Study, South County Animal Services Center. October 23, 2018.

Santee, City of

2003 General Plan 2000-2020. Adopted August 27, 2003.

2020 Santee Municipal Code, Title 5 Health and Safety, Chapter 5.04 Noise Abatement and Control. Last amended January 2020.

ATTACHMENTS

ATTACHMENT 1

Noise Measurement Data

9591 South County Animal Shelter
Noise Measurement Data

Summary							
Filename	LxT_Data.003						
Serial Number	3827						
Model	SoundExpert™ LxT						
Firmware Version	2.301						
User	Jesse Fleming						
Location	South County Animal Shelter						
Job Description	9591.0						
Note							
Measurement Description							
Start	2020/03/24 10:00:54						
Stop	2020/03/24 10:15:55						
Duration	0:15:00.7						
Run Time	0:15:00.7						
Pause	0:00:00.0						
Pre Calibration	2020/03/24 9:56:19						
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	121.7 dB						
	A	C	Z				
Under Range Peak	78.0	75.0	80.0 dB				
Under Range Limit	26.0	25.2	32.0 dB				
Noise Floor	16.2	16.1	21.9 dB				
Results							
LAeq	65.9 dB						
LAE	95.4 dB						
EA	386.160 µPa²h						
LAPeak (max)	2020/03/24 10:02:37	95.8 dB					
LASmax	2020/03/24 10:13:18	80.5 dB					
LASmin	2020/03/24 10:01:58	45.6 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	LEvening 19:00-22:00	LNight 22:00-07:00
	65.9	65.9	-99.9	65.9	65.9	-99.9	-99.9
LCeq	74.3 dB						
LAeq	65.9 dB						
LCeq - LAeq	8.5 dB						
LAleq	67.1 dB						
LAeq	65.9 dB						
LAleq - LAeq	1.3 dB						
# Overloads	0						
Overload Duration	0.0 s						
# OBA Overloads	0						
OBA Overload Duration	0.0 s						
Statistics							
LAS5.00	70.5 dB						
LAS10.00	68.7 dB						
LAS33.30	64.6 dB						
LAS50.00	61.4 dB						
LAS66.60	58.0 dB						
LAS90.00	51.6 dB						

9591 South County Animal Shelter
Noise Measurement Data

Summary							
Filename	LxT_Data.004						
Serial Number	3827						
Model	SoundExpert™ LxT						
Firmware Version	2.301						
User	Jesse Fleming						
Location	South County Animal Shelter						
Job Description	9591.0						
Note							
Measurement Description							
Start	2020/03/24 10:23:20						
Stop	2020/03/24 10:38:21						
Duration	0:15:00.6						
Run Time	0:15:00.6						
Pause	0:00:00.0						
Pre Calibration	2020/03/24 9:56:19						
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	121.7 dB						
	A	C	Z				
Under Range Peak	78.0	75.0	80.0 dB				
Under Range Limit	26.0	25.2	32.0 dB				
Noise Floor	16.2	16.1	21.9 dB				
Results							
LAeq	63.8 dB						
LAE	93.3 dB						
EA	240.243 µPa²h						
LApeak (max)	2020/03/24 10:36:13	98.5 dB					
LASmax	2020/03/24 10:32:26	78.8 dB					
LASmin	2020/03/24 10:28:16	41.0 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	LEvening 19:00-22:00	LNight 22:00-07:00
	63.8	63.8	-99.9	63.8	63.8	-99.9	-99.9
LCeq	76.4 dB						
LAeq	63.8 dB						
LCeq - LAeq	12.6 dB						
LAleq	66.5 dB						
LAeq	63.8 dB						
LAleq - LAeq	2.7 dB						
# Overloads	0						
Overload Duration	0.0 s						
# OBA Overloads	0						
OBA Overload Duration	0.0 s						
Statistics							
LAS5.00	71.5 dB						
LAS10.00	67.8 dB						
LAS33.30	56.4 dB						
LAS50.00	51.7 dB						
LAS66.60	47.4 dB						
LAS90.00	43.8 dB						

ATTACHMENT 2

SoundPLAN – Existing Vehicle Traffic

9591 South County Animal Shelter
SoundPLAN - Existing Vehicle Traffic

Station km	ADT Veh/24h	Traffic values		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 %
		Vehicles type	Vehicle name									
Magnolia		Traffic direction:	In entry direction									
0+000	25824	Total	-	1657	861	373	-	none	-	-	Average (of DGAC and PCC)	-2.947368421
0+000	25824	Automobiles	-	1574	818	354		72 none	-	-	Average (of DGAC and PCC)	-2.947368421
0+000	25824	Medium trucks	-	33	17	7		72 none	-	-	Average (of DGAC and PCC)	-2.947368421
0+000	25824	Heavy trucks	-	17	9	4		72 none	-	-	Average (of DGAC and PCC)	-2.947368421
0+000	25824	Buses	-	17	9	4		72 none	-	-	Average (of DGAC and PCC)	-2.947368421
0+000	25824	Motorcycles	-	17	9	4		72 none	-	-	Average (of DGAC and PCC)	-2.947368421
0+000	25824	Auxiliary vehicle	-	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-2.947368421
0+308	22440	Total	-	1440	748	324	-	none	-	-	Average (of DGAC and PCC)	-2.947368421
0+308	22440	Automobiles	-	1368	711	308		72 none	-	-	Average (of DGAC and PCC)	-2.947368421
0+308	22440	Medium trucks	-	29	15	6		72 none	-	-	Average (of DGAC and PCC)	-2.947368421
0+308	22440	Heavy trucks	-	14	7	3		72 none	-	-	Average (of DGAC and PCC)	-2.947368421
0+308	22440	Buses	-	14	7	3		72 none	-	-	Average (of DGAC and PCC)	-2.947368421
0+308	22440	Motorcycles	-	14	7	3		72 none	-	-	Average (of DGAC and PCC)	-2.947368421
0+308	22440	Auxiliary vehicle	-	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-2.947368421
0+927	-	-	-	-	-	-						
Riverview		Traffic direction:	In entry direction									
0+000	1092	Total	-	70	36	16	-	none	-	-	Average (of DGAC and PCC)	-1.230769231
0+000	1092	Automobiles	-	67	34	15		56 none	-	-	Average (of DGAC and PCC)	-1.230769231
0+000	1092	Medium trucks	-	1	1	0		56 none	-	-	Average (of DGAC and PCC)	-1.230769231
0+000	1092	Heavy trucks	-	1	0	0		56 none	-	-	Average (of DGAC and PCC)	-1.230769231
0+000	1092	Buses	-	1	0	0		56 none	-	-	Average (of DGAC and PCC)	-1.230769231
0+000	1092	Motorcycles	-	1	0	0		56 none	-	-	Average (of DGAC and PCC)	-1.230769231
0+000	1092	Auxiliary vehicle	-	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-1.230769231
0+321	-	-	-	-	-	-						

ATTACHMENT 3

HVAC 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 4

SoundPLAN – Future Vehicle Traffic

9591 South County Animal Shelter
SoundPLAN - Future Vehicle Traffic

Station km	Traffic values			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 %
	ADT Veh/24h	Vehicles type	Vehicle name									
Magnolia	Traffic direction: In entry direction											
0+000	35007	Total	-	2246	1167	506	-	none	-	-	Average (of DGAC and PCC)	-2.94737
0+000	35007	Automobiles	-	2134	1109	481		72 none	-	-	Average (of DGAC and PCC)	-2.94737
0+000	35007	Medium trucks	-	45	23	10		72 none	-	-	Average (of DGAC and PCC)	-2.94737
0+000	35007	Heavy trucks	-	22	12	5		72 none	-	-	Average (of DGAC and PCC)	-2.94737
0+000	35007	Buses	-	22	12	5		72 none	-	-	Average (of DGAC and PCC)	-2.94737
0+000	35007	Motorcycles	-	22	12	5		72 none	-	-	Average (of DGAC and PCC)	-2.94737
0+000	35007	Auxiliary vehicle	-	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-2.94737
0+927	-	-	-	-	-	-						
Riverview	Traffic direction: In entry direction											
0+000	1716	Total	-	110	57	25	-	none	-	-	Average (of DGAC and PCC)	-1.23077
0+000	1716	Automobiles	-	105	54	24		56 none	-	-	Average (of DGAC and PCC)	-1.23077
0+000	1716	Medium trucks	-	2	1	1		56 none	-	-	Average (of DGAC and PCC)	-1.23077
0+000	1716	Heavy trucks	-	1	1	0		56 none	-	-	Average (of DGAC and PCC)	-1.23077
0+000	1716	Buses	-	1	1	0		56 none	-	-	Average (of DGAC and PCC)	-1.23077
0+000	1716	Motorcycles	-	1	1	0		56 none	-	-	Average (of DGAC and PCC)	-1.23077
0+000	1716	Auxiliary vehicle	-	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-1.23077
0+321	-	-	-	-	-	-						

ATTACHMENT 5

FHWA RD-77-108 – Off-Site Vehicle Traffic

FHWA RD-77-108
Traffic Noise Prediction Model

Data Input Sheet

Project Name : South County Animal Shelter
Project Number : 9591
Modeled Condition : Existing, Existing + Project

Surface Refelction: CNEL
Assessment Metric: Hard
Peak ratio to ADT: 10.0
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	Magnolia Avenue	Mast Bouelvard to Riverview Parkway	22,440	45	50	95.00	3.00	2.00	80.00	10.00	10.00	
2	Magnolia Avenue	Riverview Parkway to Mission Gorge Road	25,830	45	50	95.00	3.00	2.00	80.00	10.00	10.00	
3	Riverview Parkway	Magnolia Avenue to Town Center Parkway	1,090	35	50	95.00	3.00	2.00	80.00	10.00	10.00	
EXISTING + PROJECT												
1	Magnolia Avenue	Mast Bouelvard to Riverview Parkway	22,610	45	50	95.00	3.00	2.00	80.00	10.00	10.00	
2	Magnolia Avenue	Riverview Parkway to Mission Gorge Road	26,180	45	50	95.00	3.00	2.00	80.00	10.00	10.00	
3	Riverview Parkway	Magnolia Avenue to Town Center Parkway	1,610	35	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 : South County Animal Shelter
Project Number : 9591
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	Magnolia Avenue	Mast Bouelvard to Riverview Parkway	70.5	63.8	66.5	72.6	29	91	288	910	2,877	9,099
2	Magnolia Avenue	Riverview Parkway to Mission Gorge Road	71.1	64.4	67.1	73.2	33	104	330	1,045	3,303	10,446
3	Riverview Parkway	Magnolia Avenue to Town Center Parkway	54.3	48.9	52.4	57.1	1	3	8	26	81	256
EXISTING + PROJECT												
1	Magnolia Avenue	Mast Bouelvard to Riverview Parkway	70.6	63.8	66.5	72.6	29	91	288	910	2,877	9,099
2	Magnolia Avenue	Riverview Parkway to Mission Gorge Road	71.2	64.4	67.2	73.3	34	107	338	1,069	3,380	10,690
3	Riverview Parkway	Magnolia Avenue to Town Center Parkway	56.0	50.6	54.1	58.8	1	4	12	38	120	379

FHWA RD-77-108
Traffic Noise Prediction Model

Data Input Sheet

Project Name : South County Animal Shelter
Project Number : 9591
Modeled Condition : Existing + Cumulative, Existing + Cumulative + Project

Surface Refelction: CNEL
Assessment Metric: Hard
Peak ratio to ADT: 10.0
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 + CUMULATIVE												
1	Magnolia Avenue	Mast Bouelvard to Riverview Parkway	24,380	45	50	95.00	3.00	2.00	80.00	10.00	10.00	
2	Magnolia Avenue	Riverview Parkway to Mission Gorge Road	28,590	45	50	95.00	3.00	2.00	80.00	10.00	10.00	
3	Riverview Parkway	Magnolia Avenue to Town Center Parkway	1,190	35	50	95.00	3.00	2.00	80.00	10.00	10.00	
EXISTING + CUMULATIVE + PROJECT												
1	Magnolia Avenue	Mast Bouelvard to Riverview Parkway	24,550	45	50	95.00	3.00	2.00	80.00	10.00	10.00	
2	Magnolia Avenue	Riverview Parkway to Mission Gorge Road	28,940	45	50	95.00	3.00	2.00	80.00	10.00	10.00	
3	Riverview Parkway	Magnolia Avenue to Town Center Parkway	1,710	35	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 : South County Animal Shelter
Project Number : 9591
Modeled Condition : Existing + Cumulative, Existing + Cumulative + 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 + CUMULATIVE												
1	Magnolia Avenue	Mast Bouelvard to Riverview Parkway	70.9	64.1	66.9	73.0	32	100	315	998	3,155	9,976
2	Magnolia Avenue	Riverview Parkway to Mission Gorge Road	71.6	64.8	67.6	73.6	36	115	362	1,145	3,622	11,454
3	Riverview Parkway	Magnolia Avenue to Town Center Parkway	54.6	49.3	52.8	57.5	1	3	9	28	89	281
EXISTING + CUMULATIVE + PROJECT												
1	Magnolia Avenue	Mast Bouelvard to Riverview Parkway	70.9	64.2	66.9	73.0	32	100	315	998	3,155	9,976
2	Magnolia Avenue	Riverview Parkway to Mission Gorge Road	71.6	64.9	67.6	73.7	37	117	371	1,172	3,707	11,721
3	Riverview Parkway	Magnolia Avenue to Town Center Parkway	56.2	50.9	54.3	59.1	1	4	13	41	129	406

ATTACHMENT 6

SoundPLAN – On-Site Generated Noise

9591 South County Animal Shelter
SoundPLAN - On-Site Generated Noise

Source name	Reference	Level		Cwall dB(A)	Corrections	
		Daytime dB(A)	Nighttime dB(A)		CI dB(A)	CT dB(A)
HVAC1	Lw/unit	82	82	-	-	-
HVAC2	Lw/unit	82	82	-	-	-
HVAC3	Lw/unit	82	82	-	-	-
HVAC4	Lw/unit	82	82	-	-	-
Dogs1	Lw/unit	107.7	-	-	-	-
Dogs2	Lw/unit	107.7	-	-	-	-

9591 South County Animal Shelter
SoundPLAN - On-Site Generated Noise

No.	Coordinates		Height m	Level w/o NP	
	X in meter	Y		Daytime dB(A)	Nighttime
1	502897.75	3634262.20	108.18	38.0	27.8
2	502899.34	3634230.05	108.18	40.2	28.4
3	502898.94	3634197.51	108.18	44.4	29.1
4	502897.75	3634163.78	108.18	49.5	29.9
5	502897.36	3634130.04	108.18	50.0	30.3
6	502897.36	3634098.69	108.18	41.6	30.2
7	502896.56	3634065.75	108.22	39.9	30.0
8	502889.02	3634012.17	108.77	42.5	29.4
9	502889.02	3633981.21	109.59	40.5	28.6
10	502891.40	3633944.30	109.19	39.3	27.6
11	502818.71	3634011.04	108.20	43.0	33.3
12	502740.39	3634014.75	108.79	54.7	36.1
13	502685.89	3634021.63	108.23	56.2	36.7
14	502622.39	3634035.39	108.29	56.7	34.0
15	502554.12	3634045.44	107.81	53.8	30.7
16	502555.18	3634102.59	105.74	54.7	31.2
17	502606.51	3634133.81	106.33	59.2	34.2
18	502647.26	3634162.39	106.35	62.8	35.7
19	502700.17	3634215.30	106.71	58.1	35.1
20	502811.83	3634296.27	106.96	41.2	28.7

9591 South County Animal Shelter
SoundPLAN - On-Site Generated Noise

Source name		Level w/o NP			
		Daytime	Nighttime	dB(A)	
1	GF	38.0	27.8	0.0	0.0
Dogs1		36.0	-		
Dogs2		32.2	-		
HVAC1		21.9	21.9		
HVAC2		22.7	22.7		
HVAC3		20.4	20.4		
HVAC4		21.8	21.8		
2	GF	40.2	28.4	0.0	0.0
Dogs1		39.1	-		
Dogs2		32.1	-		
HVAC1		22.1	22.1		
HVAC2		23.5	23.5		
HVAC3		21.1	21.1		
HVAC4		22.7	22.7		
3	GF	44.4	29.1	0.0	0.0
Dogs1		44.0	-		
Dogs2		32.1	-		
HVAC1		22.4	22.4		
HVAC2		24.3	24.3		
HVAC3		21.7	21.7		
HVAC4		23.6	23.6		
4	GF	49.5	29.9	0.0	0.0
Dogs1		49.3	-		
Dogs2		32.0	-		
HVAC1		22.9	22.9		
HVAC2		24.9	24.9		
HVAC3		22.8	22.8		
HVAC4		24.4	24.4		
5	GF	50.0	30.3	0.0	0.0
Dogs1		49.9	-		
Dogs2		31.6	-		
HVAC1		23.0	23.0		
HVAC2		25.1	25.1		
HVAC3		23.6	23.6		
HVAC4		25.0	25.0		
6	GF	41.6	30.2	0.0	0.0
Dogs1		40.7	-		
Dogs2		32.0	-		
HVAC1		22.9	22.9		
HVAC2		25.0	25.0		
HVAC3		22.9	22.9		
HVAC4		25.2	25.2		
7	GF	39.9	30.0	0.0	0.0
Dogs1		38.6	-		
Dogs2		32.1	-		
HVAC1		22.6	22.6		
HVAC2		24.6	24.6		
HVAC3		22.9	22.9		
HVAC4		25.2	25.2		
8	GF	42.5	29.4	0.0	0.0
Dogs1		42.0	-		
Dogs2		31.1	-		
HVAC1		22.0	22.0		
HVAC2		23.7	23.7		
HVAC3		22.6	22.6		
HVAC4		24.7	24.7		
9	GF	40.5	28.6	0.0	0.0
Dogs1		39.7	-		
Dogs2		31.0	-		
HVAC1		21.3	21.3		
HVAC2		22.8	22.8		
HVAC3		22.1	22.1		
HVAC4		23.9	23.9		
10	GF	39.3	27.6	0.0	0.0
Dogs1		38.4	-		
Dogs2		30.5	-		
HVAC1		20.3	20.3		
HVAC2		21.6	21.6		
HVAC3		21.2	21.2		

Contributions

9591 South County Animal Shelter
SoundPLAN - On-Site Generated Noise

HVAC4		22.7		22.7	
11	GF	43.0	33.3	0.0	0.0
Dogs1		41.9		-	
Dogs2		33.9		-	
HVAC1		24.7		24.7	
HVAC2		26.6		26.6	
HVAC3		26.1		26.1	
HVAC4		30.0		30.0	
12	GF	54.7	36.1	0.0	0.0
Dogs1		54.5		-	
Dogs2		39.1		-	
HVAC1		26.8		26.8	
HVAC2		27.9		27.9	
HVAC3		31.1		31.1	
HVAC4		32.2		32.2	
13	GF	56.2	36.7	0.0	0.0
Dogs1		51.0		-	
Dogs2		54.5		-	
HVAC1		27.1		27.1	
HVAC2		29.4		29.4	
HVAC3		32.0		32.0	
HVAC4		32.4		32.4	
14	GF	56.7	34.0	0.0	0.0
Dogs1		43.0		-	
Dogs2		56.5		-	
HVAC1		27.3		27.3	
HVAC2		26.3		26.3	
HVAC3		29.5		29.5	
HVAC4		28.1		28.1	
15	GF	53.8	30.7	0.0	0.0
Dogs1		41.8		-	
Dogs2		53.5		-	
HVAC1		24.8		24.8	
HVAC2		23.4		23.4	
HVAC3		25.9		25.9	
HVAC4		24.0		24.0	
16	GF	54.7	31.2	0.0	0.0
Dogs1		37.7		-	
Dogs2		54.6		-	
HVAC1		25.7		25.7	
HVAC2		24.3		24.3	
HVAC3		26.1		26.1	
HVAC4		24.2		24.2	
17	GF	59.2	34.2	0.0	0.0
Dogs1		43.8		-	
Dogs2		59.1		-	
HVAC1		29.5		29.5	
HVAC2		27.1		27.1	
HVAC3		28.8		28.8	
HVAC4		26.5		26.5	
18	GF	62.8	35.7	0.0	0.0
Dogs1		39.1		-	
Dogs2		62.7		-	
HVAC1		32.4		32.4	
HVAC2		27.4		27.4	
HVAC3		30.2		30.2	
HVAC4		26.1		26.1	
19	GF	58.1	35.1	0.0	0.0
Dogs1		53.9		-	
Dogs2		56.0		-	
HVAC1		30.3		30.3	
HVAC2		30.9		30.9	
HVAC3		26.0		26.0	
HVAC4		27.3		27.3	
20	GF	41.2	28.7	0.0	0.0
Dogs1		36.9		-	
Dogs2		38.8		-	
HVAC1		23.0		23.0	
HVAC2		23.8		23.8	
HVAC3		21.6		21.6	
HVAC4		22.0		22.0	

Contributions

ATTACHMENT 7

SoundPLAN – Construction

9591 South County Animal Shelter
SoundPLAN - Construction

Source name	Reference	Level		Cwall dB(A)	Corrections	
		Leq1 dB(A)	Lmax dB(A)		CI dB(A)	CT dB(A)
Construction	Lw/unit	116.6	121.6	-	-	-

9591 South County Animal Shelter
SoundPLAN - Construction

No.	Coordinates		Height	Level w/o NP	
	X	Y		Leq1	Lmax
	in meter		m	dB(A)	
1	502897.75	3634262.20	108.18	56.8	61.8
2	502899.34	3634230.05	108.18	58.0	63.0
3	502898.94	3634197.51	108.18	59.4	64.4
4	502897.75	3634163.78	108.18	61.1	66.1
5	502897.36	3634130.04	108.18	62.2	67.2
6	502897.36	3634098.69	108.18	62.4	67.4
7	502896.56	3634065.75	108.22	61.9	66.9
8	502889.02	3634012.17	108.77	60.3	65.3
9	502889.02	3633981.21	109.59	58.9	63.9
10	502891.40	3633944.30	109.19	57.2	62.2
11	502818.71	3634011.04	108.20	64.1	69.1
12	502740.39	3634014.75	108.79	65.5	70.5
13	502685.89	3634021.63	108.23	65.4	70.4
14	502622.39	3634035.39	108.29	65.4	70.4
15	502554.12	3634045.44	107.81	64.1	69.1
16	502555.18	3634102.59	105.74	68.7	73.7
17	502606.51	3634133.81	106.33	70.2	75.2
18	502647.26	3634162.39	106.35	67.9	72.9
19	502700.17	3634215.30	106.71	62.3	67.3
20	502811.83	3634296.27	106.96	57.1	62.1