

Appendix F

Noise Technical Report

Santee Town Center Specific Plan Update

Noise Technical Report

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ACRONYMS AND ABBREVIATIONS

μPa	micro-Pascals
ADT	average daily trips/traffic
AEN	Arts and Entertainment Neighborhood
ALUCP	Airport Land Use Compatibility Plan
ANSI	American National Standards Institute
APN	Assessor's Parcel Number
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
City	City of Santee
CNEL	Community Noise Equivalent Level
dB	decibel
dBA	A-weighted decibel
EIR	Environmental Impact Report
FTA	Federal Transit Administration
HVAC	Heating, ventilation, and air conditioning
Hz	Hertz
kHz	kilohertz
L _{DN}	Day-Night level
L _{EQ}	equivalent sound level
L _{MAX}	maximum noise level
NSLU	noise-sensitive land use
PPV	peak particle velocity
RCNM	Roadway Construction Noise Model
SANDAG	San Diego Association of Governments
SPL	sound pressure level
S _{WL}	sound power level
TCSP	Town Center Specific Plan
USDOT	U.S. Department of Transportation

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EXECUTIVE SUMMARY

The Town Center Specific Plan (TCSP) and Arts and Entertainment Neighborhood (AEN) areas are within the City of Santee (City). The proposed TCSP and AEN areas are intended to provide a policy framework to guide future development within these areas of the City. This report presents an assessment of the potential construction and operational noise and vibration impacts associated with the proposed implementation of the TCSP and AEN.

Construction noise impacts due to the implementation of the proposed TCSP and AEN and construction of the Housing Element sites would be potentially significant. Mitigation measure NOI-1 would require a construction noise management plan for future projects where construction noise may exceed existing ambient conditions.

Operational noise from implementation of the proposed TCSP and AEN and construction of the Housing Element sites would be potentially significant. Mitigation measures NOI-2 would require future operational noise to be below the conversational noise threshold of 60 dBA. The proposed outdoor performance space would also be required to be reduced to 60 dBA, through implementation of NOI-3 which would require a future study to ensure noise level compliance.

A site-specific vibration study would be required within specified distances from major construction sites, and pile driving activities. Implementation of mitigation measures Noi-4. Vibration impacts from construction of the Housing Element sites would be less than significant.

Traffic noise levels would increase resulting from implementation of the TCSP and AEN and construction of the Housing Element sites, however noise levels would not increase by more than 3 A-weighted decibels (dBA). Traffic noise increases would not be perceptible, and impacts would be less than significant.

Exterior noise levels from implementation of the proposed TCSP and AEN may exceed the City's Noise Element exterior noise level standards and Title 24 interior noise standards. As a condition of approval, a site-specific acoustical study would be required for future projects where noise levels exceed the conditionally compatible exterior noise levels as defined in the City's Noise Compatibility Guidelines for land uses. The completion of an exterior-to-interior noise analysis where exterior noise levels exceed 65 dBA CNEL for residential land uses and the subsequent implementation of applicable attenuation measures (e.g., noise barriers and architectural enhancements including dual pane windows reduce interior noise) would reduce interior noise levels below the 45 dBA CNEL interior standard for residences. Application of noise attenuation measures identified in the noise analysis would ensure that proposed new uses would be consistent with City policies and standards.

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1.0 INTRODUCTION

This report analyzes potential noise and vibration impacts associated with the Santee Town Center Specific Plan Housing Acceleration Program (project). The report analyzes the potential impacts of future development within the Santee Town Center Specific Plan (TCSP) area, and, as appropriate, identifies measures which can be taken to avoid adverse impacts related to noise and vibration. The analysis within this report was prepared pursuant to the California Environmental Quality Act (CEQA; Public Resources Code Sections 21000 et seq.), CEQA Guidelines (Title 14, Section 15000 et seq. of the California Code of Regulations).

1.1 PROJECT LOCATION

The project area is located in the City of Santee, in the eastern portion of the County of San Diego, north of State Route (SR) 52 and west of SR 67 (Figure 1, *Regional Location*). The proposed project area extends across over 1,000 Assessor Parcel Numbers (APNs), within the TCSP Area in the central portion of the City, bounded by Mission Gorge Road to the south, Mast Boulevard to the north, and Magnolia Avenue to the east (Figure 2, *Aerial Photograph*). Cuyamaca Street runs north-south through the western portion of the project area, forming segments of the western project boundary, and the San Diego River runs through the central northern portion of the project area (Figure 2). The topography of the project area is bisected by the San Diego River, which originates within the Santa Ysabel Open Space Preserve East and flows west and southwest and ultimately reaches the Pacific Ocean.

The overall project area consists of 651.42 acres, which includes the proposed Arts and Entertainment Neighborhood (341.72 acres) and four Housing Element Properties: Lot 16A is 11.04 acres, Lot 16B is 8.65 acres, Lot 20A is 7.76 acres, and Lot 20B is 9.92 acres.

1.2 PROJECT DESCRIPTION

The project proposes to update the City of Santee General Plan, modify the Arts and Entertainment Neighborhood (AEN), and provide objective design standards and contextual designs for four strategic Housing Element sites within the TCSP.

The proposed project consists of a comprehensive update to the TCSP to modify or establish new land use designations, land uses, development standards, and conceptual guidelines that would apply to future development within the TCSP area. As part of this effort, the City would also make modifications to the AEN and provide objective design standards and conceptual designs for strategic Housing Element sites within the TCSP. A more detailed description of each of the proposed project components is described below. Refer to Figure 3, *TCSP Land Uses*.

1.2.1 Town Center Specific Plan

Amendments to the TCSP would incorporate relevant updates to the plan's vision, land use permissions, and development standards. As part of the updates, new text and graphics would be developed and organized into a series of chapters, such as: Introduction, Land Use and Urban Form, Mobility and Beautification, Infrastructure and Public Facilities, Implementation, and Administration. Text and concepts that remain relevant to the vision and goals of the TCSP would be maintained and incorporated into the updated TCSP document format and structure.

The amended TCSP would incorporate updated allowable and permitted land uses and development standards tailored to the project area. The updated TCSP would include graphics that illustrate the planned land use concepts and the plan's vision at key sites. As part of the TCSP, the circulation network exhibits of the plan would be updated, including the bicycle, pedestrian, and transit network maps, and street cross sections. The TCSP would include concepts for key improvements in the public right-of-way to enhance circulation within the project area. The TCSP would incorporate concepts to illustrate wayfinding and branding signage at important locations within the public right-of-way and public trails, such as signs tailored for pedestrian, bicyclists and transit users, signs designed to direct vehicular traffic and refer to parking areas, as well as iconic gateway structures that enhance the identity and sense of place in the project area.

The TCSP would also outline fundamental elements for the administration of the plan, such as the process for future specific plan amendments, and the development review, permit, and approval process for projects within the TCSP area. Additionally, the TCSP would address the relationship between the TCSP document and other planning documents, as well as consistency with the General Plan. The TCSP would also include a section describing how to use the document and guide reviewers and applicants through the path for review and approval of proposals within the TCSP area.

Finally, the TCSP amendment would also incorporate an adjustment to the Specific Plan boundaries to include additional sites such as the shopping center located at the northwest corner of Mission Gorge Road and Cuyamaca Street, and the shopping center located west of Cuyamaca Street, between Mission Creek Drive and River Park Drive. As a result of the boundary adjustment, the TCSP area would expand from 609.70 to 651.42 acres¹, increasing by 41.72 acres.

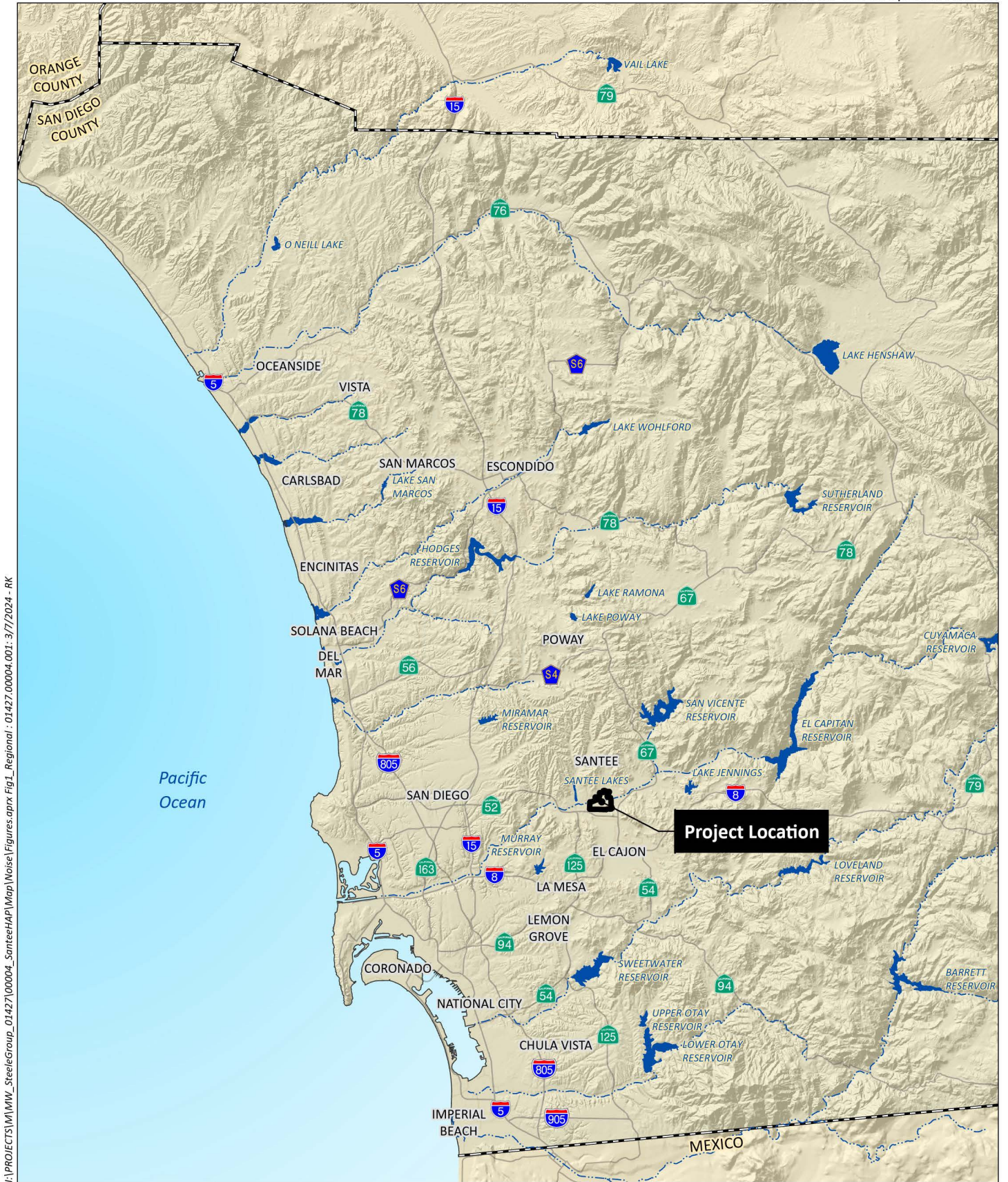
1.2.2 Arts & Entertainment Neighborhood

The TCSP would include an amendment to the AEN. As discussed above, the City adopted the AEN in 2019, with the intent of encouraging the development of an Arts & Entertainment Neighborhood within a significant portion of the TCSP. The update would incorporate the vision, guidelines, and development standards specific to the AEN as a subsection of the Land Use and Urban Form chapter of the TCSP. This section of the TCSP would also incorporate tailored land use designations that support uses related to art and culture, entertainment, commercial recreation, visitor, and civic uses.

The update to the vision and development standards for the AEN would aim to enhance connections to the San Diego River, strengthen the sense of place by creating an attraction for residents and visitors to gather, and public space concepts that would incorporate streetscape concepts with features such as landscaping, water elements, shade, lighting, and wayfinding. The concepts would also aim to create a central destination within the TCSP area, with a strong emphasis on connecting Arts & Entertainment to the natural environment.

Additionally, the update would incorporate an adjustment to the AEN boundaries to include additional sites such as the open space designated areas along the San Diego River, areas north of the San Diego River, south of Riverwalk Drive, west of River Park Drive, east of Cuyamaca Street, and west of Magnolia



¹ The original Town Center Specific Plan published in 1986 cited the TCSP area as 706 acres, however amendments to the plan have reduced the Specific Plan total acreage. Additionally, the original acreage was based on an estimate; due to improved geographic information software over time, the number of reported acres in the TCSP has changed as the accuracy of the data has increased.

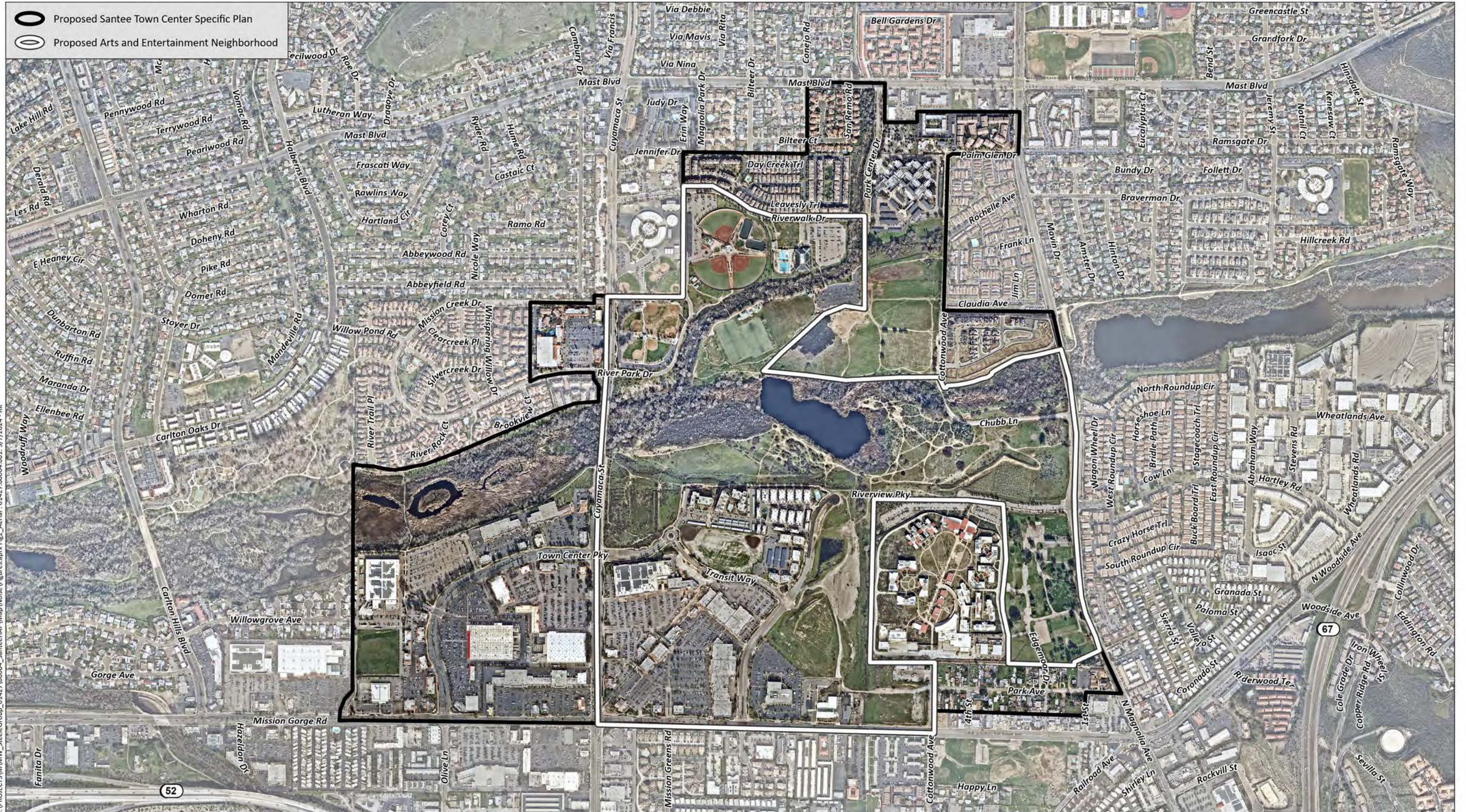


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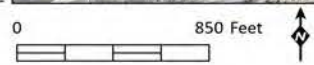
Source: Base Map Layers (SanGIS, 2016)










-  Proposed Santee Town Center Specific Plan
-  Proposed Arts and Entertainment Neighborhood

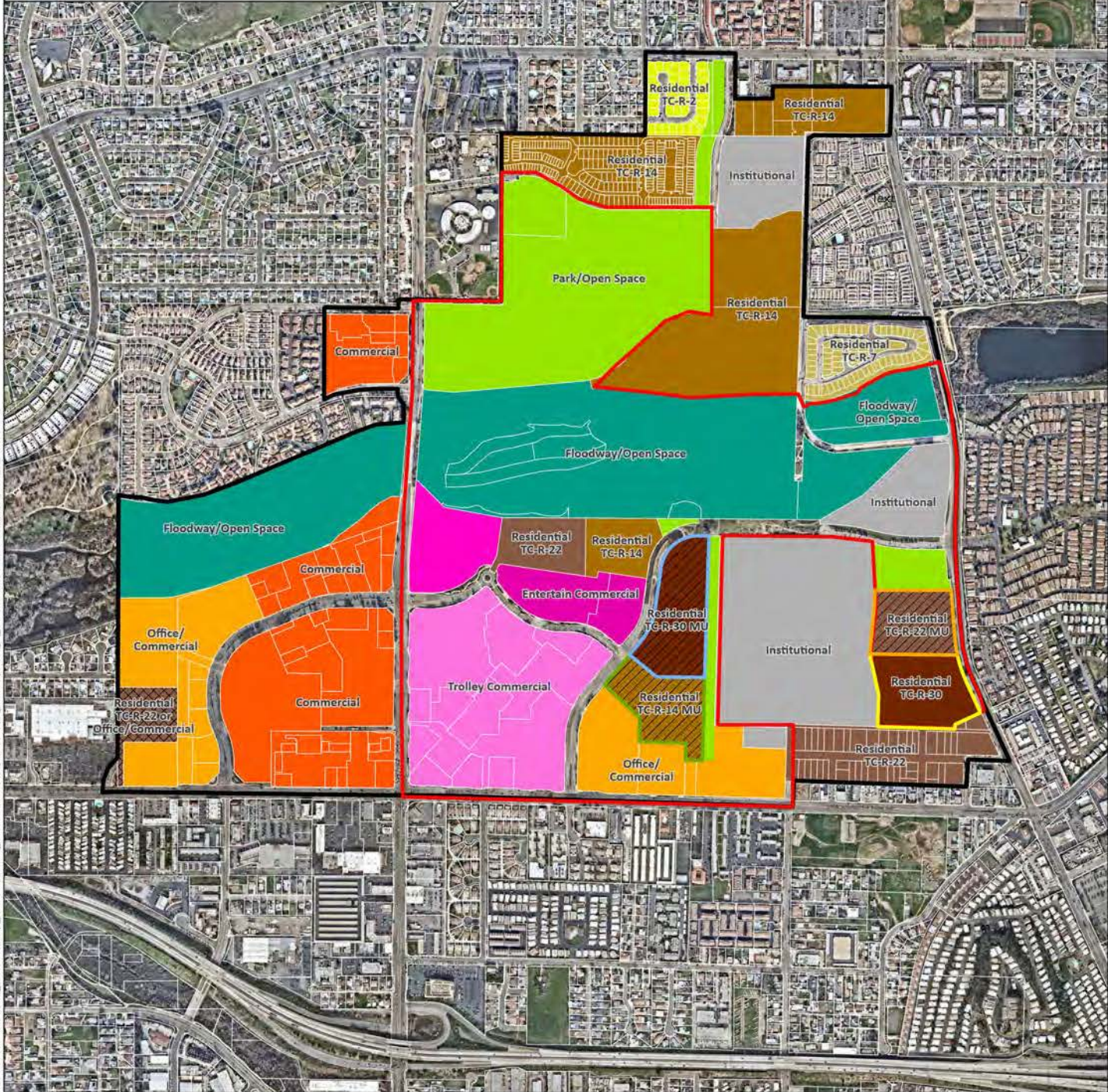


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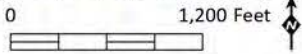
Source: Aerial (SanGIS, 2023)

-  Proposed Santee Town Center Specific Plan
-  Proposed Arts and Entertainment Neighborhood
-  Site 16A
-  Site 16B
-  Site 20A
-  Site 20B
-  Mixed-Use Overlay



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Source: Aerial (SanGIS, 2023)



Avenue. As a result of the boundary adjustments, the AEN area would expand from 172.49² to 341.72 acres, increasing by a total of 169.23 acres.

1.2.3 Four Strategic Housing Element Sites (2021-2029 Sixth Cycle)

The City Council adopted the Housing Element (2021-2029 Sixth Cycle) on May 11, 2022. The Housing Element was prepared in compliance with State housing law as determined by the California Department of Housing and Community Development on December 6, 2022. The Housing Element included a Sites Inventory map and table (Figure C-1 and Table C-1 of the Housing Element), that included a series of sites that are currently undeveloped or underutilized. The identified sites provide an opportunity for the City to meet its Regional Housing Needs Allocation housing production goals. Four strategic undeveloped housing sites identified in the Sites Inventory are located within the boundary of the TCSP and the AEN. The sites are identified as 16A, 16B, 20A, and 20B. Sites 16A and 16B are undeveloped sites located just north of Mission Gorge Road and east of Riverview Parkway in the Santee Town Center. The area surrounding the sites is primarily developed with Santee Trolley Square immediately west of the site, the Las Colinas Detention Facility to the east, and open space associated with the San Diego River to the north. A portion of Site 16A is located within the Airport Safety Zone 4 as designated in the Gillespie Field Land Use Compatibility Plan (ALUCP). Sites 20A and 20B are undeveloped sites located just west of Magnolia Avenue, south of Riverview Parkway, and east of Edgemoor Drive. Sites 20A and 20B surround the Historic Edgemoor Polo or Dairy Barn. To the west of Site 20A is the Las Colinas Detention Facility, to the east is a gated 55+ manufactured home community. Site 20B is bordered by single-family residential homes to the south, multifamily residential to the east, and Las Colinas and Riverview Office Park to the west. A portion of the site is located within the Gillespie Field ALUCP Airport Safety Zone 4. The sites are proposed to be developed with residential uses.

The Housing Element Implementation Program identified specific sites that would require rezoning to allow for residential uses, and/or to allow for the estimated housing capacity included in the Housing Element. The Housing Element proposed zoning changes for sites 16A, 16B, 20A, and 20B. As part of the realization of the Housing Element Implementation Program, the City analyzed and approved the rezone of the four above-mentioned sites and adopted the rezoning on October 26, 2022. The zoning for sites 16A, 16B, 20A, and 20B as a result of the Housing Element Implementation Program can be found in Table 1, *Housing Element Sites Zoning*.

Table 1
HOUSING ELEMENT SITES ZONING

Site	Size (acres)	Current Zoning	Current Density
16A	11.11	Residential (TC-R-30)	Minimum of 30 du/ac, Maximum of 36 du/ac
16B	8.61	Residential (TC-R-14)	Minimum of 14 du/ac, Maximum of 22 du/ac
20A	7.75	Residential (TC-R-22)	Minimum of 22 du/ac, Maximum of 30 du/ac
20B	10.00	Residential (TC-R-30)	Minimum of 30 du/ac, Maximum of 36 du/ac

To further advance the housing production in Santee, City staff applied for a Housing Acceleration Program (HAP) grant from the San Diego Association of Governments (SANDAG), which was awarded. The HAP grant provides funding for project-level analysis of Housing Element sites 16A, 16B, 20A, and 20B. The amended TCSP will include graphics and data that illustrate site planning and development

² The 2019 Art and Entertainment Overlay District refers to 155 acres; however, current GIS data shows 172 acres for the same area.

concepts for each of these sites based on the maximum allowable density allowed by zoning. The Environmental Impact Report (EIR) will analyze these sites at a project-level of detail.

1.3 NOISE AND SOUND LEVEL DESCRIPTORS AND TERMINOLOGY

1.3.1 Descriptors

All noise level or sound level values presented herein are expressed in terms of decibels (dB), with A-weighting (dBA) to approximate the hearing sensitivity of humans. Time-averaged noise levels are expressed by the symbol L_{EQ} , with a specified duration. The CNEL is a 24-hour average, where noise levels during the evening hours of 7:00 p.m. to 10:00 p.m. have an added 5 dBA weighting, and noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. have an added 10 dBA weighting. This is similar to the Day Night sound level (L_{DN}), which is a 24-hour average with an added 10 dBA weighting on the same nighttime hours but no added weighting on the evening hours. Sound levels expressed in CNEL are always based on dBA. These metrics are used to express noise levels for both measurement and municipal regulations, as well as for land use guidelines and enforcement of noise ordinances.

1.3.2 Terminology

1.3.2.1 Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

1.3.2.2 Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (μPa). One μPa is approximately one hundred billionth (0.0000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 μPa . Because of this wide range of values, sound is rarely expressed in terms of μPa . Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of dBA. The threshold of hearing for the human ear is about 0 dBA, which corresponds to 20 μPa .

1.3.2.3 Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through standard arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dBA increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dBA higher than from one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dBA—rather, they would combine to produce 73 dBA. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dBA louder than one source.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dBA changes in sound levels, when exposed to steady, single-frequency (“pure-tone”) signals in the mid-frequency (1,000 Hz–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dBA are generally not perceptible. It is widely accepted, however, that people begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dBA increase is generally perceived as a distinctly noticeable increase, and a 10-dBA increase is generally perceived as a doubling of loudness.

No known studies have directly correlated the ability of a healthy human ear to discern specific levels of change in traffic noise over a 24-hour period. Many ordinances, however, specify a change of 3 CNEL as the significant impact threshold. This is based on the concept of a doubling in noise energy resulting in a 3 dBA change in noise, which is the amount of change in noise necessary for the increase to be perceptible to the average healthy human ear.

1.3.3 Vibration Descriptors and Terminology

Vibration is measured in feet or inches (in). Acceleration is measured by comparing acceleration to that of the Earth’s gravity, and this unit is “G.” These units of acceleration or velocity are relative to time in seconds (sec) and are noted as in/sec² for acceleration and in/sec for velocity. Displacement is not relative to time and is only shown as inches.

Vibration effects can be described by its peak and root mean square amplitudes. Building damage is often discussed in terms of peak velocity, or peak particle velocity (PPV). The PPV is defined as the maximum instantaneous positive or negative peak of the vibration signal. PPV is related to the stresses that are experienced by buildings; it is often used in monitoring of blasting vibration and to discuss construction vibration.

2.0 REGULATORY FRAMEWORK

2.1 STATE REGULATIONS

2.1.1 California Noise Control Act

The California Noise Control Act is a section within the California Health and Safety Code that describes excessive noise as a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also finds that there is a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and

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

2.1.2 California Noise Insulation Standards [California's Title 24 Noise Standards, Cal. Adm. Code Title 24, Chap. 2-35]

In 1974, the California Commission on Housing and Community Development adopted noise insulation standards for multi-family residential buildings (California Code of Regulations Title 24, Part 2). Title 24 establishes standards for interior noise (attributable to outside noise sources) within habitable rooms. Where standard building materials would not ensure compliance with this requirement, additional acoustical analysis is required. Such acoustical analysis must demonstrate that the residence has been designed to limit intruding noise to an interior noise level below 45 CNEL (or L_{DN}).

2.1.3 California Environmental Quality Act

Under CEQA, lead agencies are directed to assess conformance to local or other agency noise standards; measure and identify the potentially significant exposure of people to (or generation of) excessive ground-borne vibration or noise levels; and measure and identify potentially significant permanent or temporary increases in ambient noise levels. Implementation of CEQA ensures that during the decision-making stage of development, decision-makers and the public will be informed of any potentially excessive noise levels and available mitigation measures to reduce them to acceptable levels.

2.1.4 Assembly Bill 1307

Assembly Bill 1307, approved on September 7, 2023, specifies that the effects of noise generated by project occupants and their guests on human beings is not a significant effect on the environment for residential projects for purposes of CEQA.

2.2 LOCAL REGULATIONS

2.2.1 City of Santee Municipal Code Noise Control Ordinance

On-site generated noise is regulated by the City's Municipal Code, Title 5 Health and Safety, Chapter 5.04 Noise Abatement and Control.

2.2.1.1 Section 5.04.040 General Noise Regulations

- A. General Prohibitions. 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. The characteristics and conditions which should be considered in determining whether a violation of the provisions of this section exists, include, but are not limited to, the following:
 1. The level of the noise;
 2. Whether the nature of the noise is usual or unusual;
 3. Whether the origin of the noise is natural or unnatural;
 4. The level of the background noise;

5. The proximity of the noise to sleeping facilities;
 6. The nature and zoning of the area within which the noise emanates;
 7. The density of the inhabitation of the area within which the noise emanates;
 8. The time of day or night the noise occurs;
 9. The duration of the noise;
 10. Whether the noise is recurrent, intermittent, or constant; and
 11. Whether the noise is produced by a commercial or noncommercial activity
- B. Disturbing, Excessive or Offensive Noises. The following acts, among others, are declared to be disturbing, excessive and offensive noises in violation of this section:
- 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.
 - b. All generators, heating, air conditioning, or refrigeration equipment are subject to the setback and screening requirements in this code.

2.2.1.2 Section 5.04.070 Motorized Equipment

It is unlawful to operate any lawn mower, backpack blower, lawn edger, leaf blower, riding tractor, or any other machinery, equipment, or other device, or any hand tool which creates a loud, raucous or impulsive sound, within or adjacent to any residential zone between the hours of 10:00 p.m. and 7:00 a.m. of the following day.

2.2.1.3 Section 5.04.130 Loading and Unloading Operations

It is unlawful for any person to engage in loading, unloading, opening, idling of trucks, closing or other handling of boxes, crates, containers, building materials, garbage cans, dumpsters or similar objects between the hours of 10:00 p.m. and 7:00 a.m. in such a manner as to cause a noise disturbance within or adjacent to a residential district.

2.2.1.4 Section 5.04.160 Limitations on sources of noise not otherwise addressed

- A. Between 10:00 p.m. and 7:00 a.m., it is unlawful for any person to generate any noise on the public way that is louder than average conversational level at a distance of 50 feet or more, vertically or horizontally, from the source.
- B. Between 10:00 p.m. and 7:00 a.m., no person is permitted to generate any noise on any private open space that is louder than average conversational level at a distance of 50 feet or more, measured from the property line of the property from which the noise is being generated.

The Noise Abatement and Control Ordinance establishes the City's noise regulation, generally prohibits nuisance noise and states that it is unlawful for any person to make, continue, or cause to be made or continued within the City limits any disturbing, excessive, or offensive noise that causes discomfort or

annoyance to reasonable persons of normal sensitivity residing in the area (Municipal Code Section 5.04.040(A)).

Municipal Code Section 5.04.090, which specifically pertains to construction equipment, makes operation of any construction equipment outside the hours of 7:00 a.m. through 7:00 p.m., Monday through Saturday, except holidays, unlawful unless the operation is expressly approved by the Director of Development Services. Construction equipment with a manufacturer's noise rating of 85 dBA L_{max} or greater may only operate at a specific location for 10 consecutive workdays. If work involving such equipment would involve more than 10 consecutive workdays, a notice must be provided to all property owners and residents within 300 feet of the site no later than 10 days before the start of construction. The notice must be approved by the City and describe the proposed project and the expected duration of work and provide a point of contact to resolve noise complaints.

2.2.2 City of Santee General Plan Noise Element

Objective 1.0. Control noise from sources adjacent to residential, institutional, and other noise sensitive receptors.

- **Policy 1.1:** The City shall support a coordinated program to protect and improve the acoustical environment of the City including development review for new public and private development and code compliance for existing development.
- **Policy 1.2:** The City shall utilize noise studies and noise contour maps when evaluating development proposals during the discretionary review process.
- **Policy 1.4:** The City shall promote alternative sound attenuation measures rather than traditional wall barrier wherever feasible; these may include glass or polycarbonate walls, berms, landscaping, and the siting of noise-sensitive uses on a parcel away from the roadway or other noise source.
- **Policy 1.5:** The City shall review future projects with particular scrutiny regarding the reduction of unnecessary noise near noise-sensitive areas such as hospitals, schools, parks, etc.

Objective 2.0: Ensure that future developments will be constructed to minimize interior and exterior noise levels.

- **Policy 2.1:** The City shall adhere to planning guidelines and building codes which include noise control for the exterior and interior living space of all new residential developments within noise impacted areas.
- **Policy 2.2:** The City should require new development to mitigate noise impacts to existing uses resulting from new development when: 1) such development adds traffic to existing City streets that necessitates the widening of the street; and 2) the additional traffic generated by new development causes the noise standard or significance thresholds to be exceeded.
- **Policy 2.3:** The City should not require new development to mitigate noise impacts to existing uses when new development only adds traffic already anticipated by the City's General Plan to an existing street but does not necessitate widening of that street.

The Noise Element also provides guidelines for determining acceptable and unacceptable community noise exposure limits for various land use categories (Table 2, *Exterior Land Use/Noise Compatibility Guidelines*). Normally acceptable noise levels are defined as satisfactory, based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements. Conditionally acceptable noise levels indicate that new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and required noise insulation features have been included in the design. Conventional construction with closed windows and fresh air supply systems or air conditioning will normally suffice. The General Plan states that these compatibility guidelines are not prohibitive but should be used as a guide and a resource (City of Santee 2003).

**Table 2
EXTERIOR LAND USE/NOISE COMPATIBILITY GUIDELINES**

Land Use Category	Community Noise Exposure (dBA CNEL)					
	55	60	65	70	75	80
Residential – Low-Density Singel Family Duplex, Mobile Homes						
Residential – Multiple Family						
Transient Lodging – Motels, and Hotels						
Schools, Libraries, Churches, Hospitals, and Nursing Homes ¹						
Auditoriums, Concert Halls, Amphitheaters						
Sports Arena, Outdoor Spectator Sports						
Playgrounds, Neighborhood Parks						
Golf Courses, Riding Stables, Water Recreation, Cemeteries						
Offices Buildings, Business Commercial, and Professional						
Industrial, Manufacturing, Utilities, Agriculture						

	Normally Acceptable – Specified land use is satisfactory, based upon the assumption that buildings involved are of normal conventional construction, without any special noise insulation requirements.
	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 usually suffice.
	Normally Unacceptable – New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with noise insulation features included in the design.
	Clearly Unacceptable - New construction or development clearly should not be undertaken.

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.

The Noise Element further states that when new development may result in the exposure of existing or future noise-sensitive uses to noise levels in excess of 65 dB(A) L_{dn}, an acoustical study will be required. If the acoustical study shows that the noise levels at any noise-sensitive area will exceed 65 dB(A) L_{dn}, the development should not be approved unless the following findings are made:

1. Modifications to the development have been, or will be made, which will reduce the exterior noise levels in noise-sensitive areas to 65 dB(A) L_{dn} or less, or
2. If, with current noise abatement technology, it is not feasible to reduce the exterior noise levels to 65 dB(A) L_{dn} or less, then modifications to the development have been, or will be made, which

reduce the exterior noise level to the maximum extent feasible and the interior noise level to 45 dB(A) L_{dn} or less. Particular attention shall be given to noise-sensitive spaces such as bedrooms.

3. For rooms in noise-sensitive areas which are occupied only for a part of the day (schools, libraries, or similar), the interior 1-hour average sound level during occupation, due to noise outside, should not exceed 45 dB(A) L_{EQ} .

Further, noise impacts shall be considered significant if any of the following occur as a result of the project:

1. If, as a direct result of the project, noise levels for any existing or planned development will exceed the noise levels considered compatible for that use as identified in Table 2.
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 dB or more.

Section 8.0, Implementation, of the Noise Element lists the following measures that may be incorporated into a proposed project as mitigation measures. The following measures are not always required, and mitigation is not limited to this list:

1. The use of site design techniques, such as the provision of buffers to increase distances between the noise source and receiver, siting of buildings and parking areas, and the careful siting of noise-sensitive outdoor features to minimize noise impacts.
2. Provision of berms, landscaping, and other sound barriers, without the exclusive use of walls (e.g., a combination of a small wall and a berm in concert with the overall streetscape in the area could be appropriate).
3. Insulation of buildings against noise, including thicker-than-standard glazing and mechanical ventilation.
4. Improvement of traffic circulation to “smooth” flow by such measures as interconnecting traffic signals.
5. Consideration of the use of innovative construction technologies and materials in constructing or reconstructing streets.
6. Setting of time limits on certain noisy activities.
7. Purchasing of demonstrably quiet equipment for City use.

3.0 ENVIRONMENTAL SETTING

3.1 EXISTING LAND USES

The TCSP and AEN areas contain a mixture of commercial, office, open space, residential, and institutional uses. Land uses surrounding the TCSP and AEN areas include commercial, open space, institutional and residential.

3.2 NOISE-SENSITIVE AND VIBRATION-SENSITIVE LAND USES

Noise-sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise, including residences, hospitals, schools, hotels, resorts, libraries, sensitive wildlife habitat, or similar facilities where quiet is an important attribute of the environment. Noise receptors are individual locations that may be affected by noise. NSLUs in the TCSP and AEN areas include residences and open space.

Land uses in which ground-borne vibration could potentially interfere with operations or equipment, such as research, manufacturing, hospitals, and university research operations (Federal Transit Administration [FTA] 2018) are considered “vibration-sensitive.” The degree of sensitivity depends on the specific equipment that would be affected by the ground-borne vibration. In addition, excessive levels of ground-borne vibration of either a regular or an intermittent nature can result in annoyance to land uses where people sleep, such as residences, hotels, hospitals, and dormitories. Vibration-sensitive uses include residences throughout the TCSP and AEN.

3.3 AMBIENT NOISE SURVEY

A community noise survey was conducted to document noise levels throughout the TCSP and AEN areas. Short-term daytime measurements at nine locations were selected to be representative of typical conditions in the planning area. The short-term measurements show the average sound level over roughly 15-minute periods on a weekday in July 2023. The locations were chosen based on land uses and proximity to nearby roadways. Noise measurement locations are shown on Figure 4, *Ambient Noise Survey*.

The community noise survey represents a range of the existing conditions and provides a representation of baseline conditions in the study area. The sources of noise varied between sites, but the primary noise generator in most locations is vehicular traffic.

The measured average noise levels ranged from 49.6 to 68.9 dBA L_{EQ} . The loudest average noise level was 68.9 dBA L_{EQ} . This measurement (M8) was located adjacent to Mission Gorge Road. Though these measurements provide a snapshot observation of the noise environment, noise can fluctuate widely throughout the day. Complete noise monitoring results are included in Table 3, *Noise Monitoring Results*. Individual site survey sheets can be found in Appendix A, *Site Survey Measurement Sheets*.

Table 3
NOISE MONITORING RESULTS

Site	Location	Time	Measured Noise Level (dBA L_{EQ})
M1	Town Center Park East	2:58 p.m. - 3:13 p.m.	50.2
M2	Cuyamaca Street, 790 feet south of River Park Drive	9:03 a.m. - 9:18 a.m.	69.2
M3	Chubb Lane south of San Diego River crossing	2:21 p.m. - 2:36 p.m.	49.6
M4	Riverview Parkway, 80 feet south of San Diego Christian College driveway	10:45 a.m. - 11:00 a.m.	54.0

Site	Location	Time	Measured Noise Level (dBA L _{EQ})
M5	Santee Historical Society Historic Barn	1:38 p.m. - 1:53 p.m.	54.5
M6	Trolley Square, 80 feet west of tracks	9:43 a.m. - 9:58 a.m.	60.9
M7	Riverview Parkway, 250 feet south of Town Center Parkway	11:18 a.m. - 11:33 p.m.	60.7
M8	Mission Gorge Road, 530 feet east of Riverview Parkway	1:07 p.m. - 1:22 p.m.	68.9
M9	Mast Boulevard, 120 feet west of Bilteer Court	3:40 pm. - 3:55 p.m.	66.9

Note: All site measurements taken on July 20, 2023.

4.0 ANALYSIS, METHODOLOGY, AND ASSUMPTIONS

4.1 METHODOLOGY

4.1.1 Ambient Noise Survey

The following equipment was used to measure existing noise levels at the project site:

- Larson Davis System LxT Integrating Sound Level Meters
- Larson Davis Model CA250 Calibrator
- Windscreen and tripod for the sound level meter

The sound level meter was field-calibrated immediately prior to the noise measurements to ensure accuracy. All sound level measurements conducted and presented in this report were made with a sound level meter that conforms to the American National Standards Institute (ANSI) specifications for sound level meters (ANSI SI.4-1983 R2006). All instruments were maintained with National Institute of Standards and Technology traceable calibration per the manufacturers' standards.

4.1.2 Noise Modeling Software

Modeling of the outdoor noise environment for this report used the TNM 2.5 software. The TNM was released in February 2004, by the U.S. Department of Transportation (USDOT), and calculates the daytime average Hourly L_{EQ} from three-dimensional model inputs and traffic data (Caltrans 2004).

Peak-hour traffic volumes are estimated based on the assumption that approximately 10 percent of average daily trips (ADT) would occur during a peak hour. The one-hour L_{EQ} noise level is calculated utilizing peak-hour traffic. Peak hour L_{EQ} can be converted to CNEL using the following equation, where $L_{EQ}(h)pk$ is the peak hour L_{EQ}, P is the peak hour volume percentage of the ADT, d and e are divisions of the daytime fraction of ADT to account for daytime and evening hours, and N is the nighttime fraction of ADT:

$$CNEL = L_{EQ}(h)pk + 10\log_{10} 4.17/P + 10\log_{10}(d + 4.77e + 10N)$$

- Ambient Noise Measurement Location
- Proposed Santee Town Center Specific Plan
- Proposed Arts and Entertainment Neighborhood



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0 750 Feet

Source: Aerial (SanGIS, 2023)

The model-calculated one-hour L_{EQ} noise output is therefore approximately equal to the CNEL (Caltrans 2013).

Project construction noise was analyzed using the Roadway Construction Noise Model (RCNM; USDOT 2008), which utilizes estimates of sound levels from standard construction equipment.

4.2 ASSUMPTIONS

4.2.1 Operational Noise

Anticipated operational noise sources associated with implementation of the project would be similar to existing conditions. Noise sources would include typical community noise from residential and commercial activities.

4.2.2 Stationary Noise Sources

The TCSP area includes various stationary noise sources including industrial and commercial activities. Noise levels from stationary sources are highly localized and may vary during the day based on the specific activity being performed, atmospheric conditions, and other factors. These noise sources can be continuous and may contain tonal components that may be annoying to people who live in the nearby vicinity. Stationary noise levels throughout the TCSP area may also vary due to different periods of activity depending on the time of day or day of the week.

Heating, Ventilation, and Air Conditioning Units

For the Housing Element sites, specific HVAC systems and locations have not been identified at this stage of project design. This analysis assumes that future residential buildings would use a typical to larger-sized residential condenser mounted on ground level or rooftop pads. The unit used in this analysis is a Carrier 38HDR060 split system condenser (see Appendix B, *Carrier 38HDR060 Split System Condenser*). The manufacturer's noise data is provided below in Table 4, *Carrier HDR060 Condenser Noise*.

Table 4
CARRIER 38HDR060 CONDENSER NOISE

Noise Levels in Decibels ¹ (dB) Measured at Octave Frequencies							Overall Noise Level in
125 Hz	250 Hz	500 Hz	1 KHz	2 KHz	4 KHz	8 KHz	A-weighted Scale (dBA) ¹
63.0	61.5	64.0	66.5	66.0	64.5	55.5	72.0

¹ Sound Power Levels (S_{WL})
KHz = kilohertz

Outdoor Performances

An outdoor performance space may be located within the TCSP, north of the Town Center Transit Station, and may include gatherings of people for artistic, cinematic, theatrical, musical, sporting events, cultural, education or civic purposes. Exact locations of outdoor venues, designs, and associated events are not known at this stage. Noise levels associated with gathering areas may therefore vary substantially depending on the type of event, use of amplified equipment, and size of crowds.

4.2.3 Vehicular Traffic Noise

Vehicles traveling along major roadways generate noise levels which affect adjacent land uses. Traffic noise generated on a roadway is dependent on vehicle speed, volume, flow, percentage of vehicle types, properly functioning muffler systems, and pavement type and conditions. Traffic noise is also dependent on the presence of barriers and the distance between the noise source and receptor. In general, as traffic volumes increase, noise levels increase. This condition exists until there is so much traffic that flow degrades, and speeds decrease which reduces noise levels. Furthermore, a heavy truck generates more noise than a car when travelling at the same speed and distance. Roads with the same amount of traffic can have higher or lower sound levels depending on the mixture of vehicles.

Future traffic volumes with and without implementation of the TCSP and Housing Element sites were provided by the traffic consultant for the project (Intersecting Metrics 2023). Modeling data used to develop the traffic contour maps is included in Appendix C, *Existing and Future Traffic Noise Levels*.

Within the TCSP area, major traffic noise generators are associated with Cuyamaca Street, Mast Boulevard, and Mission Gorge Road. The portions of the TCSP area affected by noise levels exceeding 65 CNEL are generally located adjacent to major roadways. Existing land uses in these areas include industrial, commercial, and open space.

4.2.4 Railway Noise

Existing rail traffic on existing tracks would continue to generate elevated noise levels within the TCSP area. These tracks are associated with the San Diego Trolley Green Line and terminate at the Santee Town Center station.

The San Diego Trolley's light rail vehicles generate high, relatively brief, intermittent noise events. At-grade crossings with warning bells are currently located at two locations within the Trolley Square shopping center and at the intersection of Mission Gorge Road and Cuyamaca Street. Light rail vehicles are equipped with horns for use in emergency situations and as a general audible warning to alert people in the vicinity of the tracks. Noise levels associated with the San Diego Trolley would not increase or decrease as a result of project implementation.

4.3 GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE AND CONDITIONS OF APPROVAL

Implementation of the project would result in a significant adverse impact if it would exceed the following thresholds based on Appendix G of the CEQA Guidelines, as applicable to the project:

Threshold 1: *Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the Santee General Plan or noise ordinance.*

Significant operational noise impacts would occur if implementation of the project would result in traffic noise exceeding the applicable land use compatibility level for a given use. For residential uses, this would be 65 CNEL. If noise levels exceed this threshold, a permanent increase in noise greater than a perceptible change (3 CNEL) over existing conditions would be considered significant.

The City requires that noise levels generated during nighttime hours (10:00 p.m. to 7:00 a.m.) do not exceed the average conversational level at a distance of 50 feet. Normal conversation is approximately 60 dBA (Centers for Disease Control and Prevention 2024), therefore operational noise levels, including from HVAC units, would be considered significant if they exceed 60 dBA at nearby property lines.

Significant construction noise impacts would occur if implementation of the project would generate construction noise outside of the allowed construction hours specified in the Santee Municipal Code, which are between 7:00 a.m. and 7:00 p.m. Monday through Saturday, except holidays. In addition, construction equipment to assess potential noise impacts, construction noise measured at off-site NSLUs would be significant if it resulted in a perceived doubling of loudness, estimated to be an increase of 10 dBA above exterior ambient noise levels.

Threshold 2: *Generate excessive ground-borne vibration or ground-borne noise levels.*

Ground-borne vibration would be potentially significant if implementation of the project would result in ground-borne vibration which exceeds the “strongly perceptible” vibration annoyance potential criteria for human receptors of 0.1 inch per second PPV for nearby residences, or exceed the threshold for architectural damage potential criteria for buildings of 0.4 inch per second PPV, for continuous/frequent intermittent construction sources (such as impact pile drivers, vibratory pile drivers, and vibratory compaction equipment; Caltrans 2020).

Threshold 3: *For a project located within the vicinity of a private airstrip or an airport land use plan, or where such a plan has not been adopted, within two miles of a public use airport or private airstrip, expose people residing or working in the project area to excessive noise.*

A significant impact would occur if airport activity would expose the project land use to noise levels that exceed the City’s noise compatibility standard provided in Table 2 of this report for that use.

Threshold 4: *Would the project conflict with the General Plan Noise Element standards for proposed uses?*

Projects shall not expose new development to noise levels at exterior use areas or interior areas in excess of the noise compatibility guidelines established in the City’s General Plan Noise Element. The conditionally acceptable noise levels for project land uses are up to 70 CNEL for single-family and multi-family residential, 70 for playgrounds and neighborhood parks, and 75 CNEL for offices, and business commercial. For outdoor uses at a conditionally compatible land use, feasible noise mitigation techniques should be analyzed and incorporated to make the outdoor activities acceptable. For indoor uses at a conditionally compatible land use, exterior noise must be attenuated to 45 CNEL for single- and multi-family residential.

5.0 IMPACTS

5.1 ISSUE 1: EXCESSIVE NOISE LEVELS

Would the project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the Santee General Plan or noise ordinance?

5.1.1 Construction Noise

Although typically short-term, construction can be a substantial source of noise. Implementation of the TCSP would generate construction noise as individual projects, such as the Housing Element sites, are approved and constructed. As shown in Table 5, *Typical Construction Equipment Noise Levels*, operation of typical construction equipment would have the potential to generate elevated noise levels for construction activities, depending on the type, duration, and location of the activity. These noise levels are presented at distances of 50 feet for reference.

Table 5
TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS

Equipment	Typical Noise Level (dBA at 50 feet from source)
Air Compressor	73.7
Backhoe	73.6
Ground Compactor	76.2
Concrete Mixer Truck	74.8
Crane	72.6
Dozer	77.7
Grader	81.0
Jack Hammer	81.9
Front End Loader	75.1
Paver	74.2
Pumps	77.9
Roller	73.0
Scraper	79.6
Dump Truck	72.5

Source: U.S. Department of Transportation Roadway Construction Noise Model, 2008.

Construction activities related to implementation of the proposed TCSP would not take place all at once; however, future development accommodated by the proposed TCSP would have the potential to temporarily generate construction noise resulting in a short-term annoyance to nearby NSLUs. More specifically, construction noise levels would have the potential to increase ambient noise levels by 10 dBA, depending on the location and construction equipment used.

5.1.1.1 Housing Element Sites

For the Housing Element sites, NSLUs would be located at varying distances from future construction noise. Ambient noise levels vary at NSLUs depending on their proximity to existing noise sources (e.g. Magnolia Avenue). Two measurements were taken at locations to approximate existing noise levels at NSLUs, including near Housing Element Site 16A at 54.0 dBA and near Housing Element Site 20B at 54.5 dBA.

Construction equipment would be traversing the entirety of each project site; construction noise may be closer or further from nearby NSLUs throughout a given construction day. For this analysis, the closest construction equipment to nearby NSLUs would be used at Housing Element Site 20B. Due to the size of the site and proximity to nearby residences, the average distance from the approximate center of the

construction site to nearby residences to the south would be an average distance of 250 feet. Noise levels modeled at 250 feet are shown in Table 6, *Typical Construction Equipment Noise Levels – 250 Feet*.

Table 6
TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS – 250 FEET

Equipment	Typical Noise Level (dBA at 250 feet from source)
Air Compressor	59.7
Backhoe	59.6
Ground Compactor	62.3
Concrete Mixer Truck	60.8
Crane	58.6
Dozer	63.7
Grader	67.0
Jack Hammer	67.9
Front End Loader	61.2
Paver	60.2
Pumps	64.0
Roller	59.0
Scraper	65.6
Dump Truck	58.5

Source: U.S. Department of Transportation Roadway Construction Noise Model, 2008.

At 250 feet, construction noise levels would range from 58.5 dBA to 67.9 dBA, depending on the equipment in use. As described in Section 4.3, for the purposes of this analysis, a significant increase in noise would occur if construction noise levels exceed 10 dBA above ambient conditions at the time of project construction. At these distances, ambient noise levels ranging between 54.0 and 54.5 dBA may exceed 5 dBA at nearby residences.

5.1.2 Operational Noise

5.1.2.1 Stationary Noise

Similar to existing conditions, future development within the TCSP area would be subject to various stationary noise sources including noise from equipment and commercial activities. The City Municipal Code does not provide numerical standards for noise generated by individual uses but requires that HVAC uses do not create a noise disturbance at nearby occupied properties. In addition, noise generated during nighttime hours is not to exceed the average conversational level at a distance of 50 feet.

5.1.2.2 Housing Element Sites

For the Housing Element sites, specific planning data for the future HVAC systems and exact building site locations are not available; however, analysis using a typical to larger-sized residential condenser mounted on ground level pads provides a reasonable basis for analysis. HVAC units are anticipated to be located on project building rooftops or mounted on pads at distances greater than 25 feet from nearby property lines. As mentioned in Section 3.2.2, modeling assumed that the HVAC unit would be a Carrier 38HDR060 split system condenser. This unit typically generates a noise level of 56 dBA at a distance of

7 feet. If placed at a distance of 25 feet from nearby noise-sensitive land uses, a single HVAC would generate a noise level of approximately 45 dBA.

5.1.2.3 Traffic Noise

As noted in the assumptions, future traffic noise levels presented in this analysis are based on existing and future traffic volumes provided by Intersecting Metrics (2023). These future volumes include implementation of the TCSP and AEN and construction of the Housing Element sites. TNM software was used to calculate the noise contour distances for Existing and Future conditions for the 2050 horizon year. The off-site roadway modeling represents a conservative analysis that does not consider topography or attenuation provided by existing structures. The results of this analysis for the CNEL at 100 feet from the roadway centerline are shown below in Table 7, *Traffic Noise Levels – 2050 Horizon Year*. Additional analysis for the 75, 70, 65, and 60 CNEL distances are provided in Appendix C. Vehicular traffic noise level contours for the 2050 horizon year are depicted in Figure 5, *Transportation Noise Contours (No Project)* and Figure 6, *Transportation Noise Contours (With Project)*. The noise levels are expressed in terms of CNEL. All noise contours depict the predicted noise level based on existing traffic volumes, and do not reflect attenuating effects of existing features such as noise barriers, buildings, topography, and dense vegetation.

A significant direct impact would occur if existing noise conditions approach or exceed the City significance thresholds for traffic noise for nearby land uses and the project more than doubles (increases by more than 3 CNEL) the existing noise level. Roadway noise increases associated with future development pursuant to the proposed TCSP, including the Housing Element sites, are shown in Table 6.

Table 7
TRAFFIC NOISE LEVELS – 2050 HORIZON YEAR

Roadway Segment	No Project CNEL at 100 feet ¹	With Project CNEL at 100 feet	Change from Existing (CNEL)	Direct Impact? ¹
Cottonwood Avenue				
Street A to Riverview Parkway	57.5	57.5	+0	No
Park Avenue to Mission Gorge Road	50.7	50.7	+0	No
Mission Gorge Road to Buena Vista Avenue	56.7	56.7	+0	No
Buena Vista Avenue to Prospect Avenue	56.7	56.7	+0	No
Cuyamaca Street				
Woodglen Vista Road to El Nopal	62.9	62.4	-0.5	No
El Nopal to Mast Boulevard	63.4	63.4	+0	No
Mast Boulevard to Riverpark Drive	65.0	65.1	+0.1	No
Riverpark Drive to Town Center Parkway	65.8	65.9	+0.1	No
Town Center Parkway to Mission Gorge Road	65.5	65.8	+0.3	No
Mission Gorge Road to SR-52 Westbound Ramps	67.7	67.8	+0.1	No
Magnolia Avenue				
Mast Boulevard to Braverman Drive	64.9	65.2	+0.3	No
Braverman Drive to Mission Gorge Road	65.6	65.9	+0.3	No
Mast Boulevard				

Roadway Segment	No Project CNEL at 100 feet ¹	With Project CNEL at 100 feet	Change from Existing (CNEL)	Direct Impact? ¹
Cuyamaca Street to Magnolia Avenue	65.8	65.8	+0	No
Magnolia Avenue to Los Ranchitos Road	60.3	60.3	+0	No
Mission Gorge Road				
Carlton Hills Boulevard to Town Center Parkway	67.2	67.5	+0.3	No
Town Center Parkway to Cuyamaca Street	66.5	66.7	+0.2	No
Cuyamaca Street to Riverview Parkway	66.8	67.0	+0.2	No
Riverview Parkway to Cottonwood Avenue	66.8	67.0	+0.2	No
Cottonwood Avenue to Magnolia Avenue	66.5	66.7	+0.2	No
Riverview Parkway				
Mission Gorge Road to Town Center Parkway	61.4	61.4	+0	No
Town Center Parkway to Cottonwood Avenue	61.0	61.0	+0	No
Cottonwood Avenue to Magnolia Avenue	60.6	60.6	+0	No
Town Center Parkway				
Mission Gorge Road to Cuyamaca Street	62.9	62.9	+0	No
Cuyamaca Street to Transit Way	59.1	59.4	+0.3	No
Transit Way to Riverview Parkway	59.3	59.4	+0.1	No

Source: USDOT 2004; Intersecting Metrics 2023

¹ A direct impact to off-site uses would occur if the project would increase noise levels above the applicable threshold or, where the existing noise level exceeds the threshold, would increase noise levels by 3 CNEL.

CNEL = Community Noise Equivalent Level

When measured at 100 feet from a given roadway's centerline, noise levels along some roadways may exceed 65 CNEL with or without implementation of the project. No roadway would increase by more than 0.3 CNEL, which would not be a perceptible change.

5.1.2.4 Outdoor Performances

The TCSP may include outdoor events and gatherings of people for artistic, cinematic, theatrical, musical, sporting, cultural, education or civic purposes. Design details for outdoor venues, designs, and associated events are not known at this stage; however potential locations may be located at sites throughout the TCSP. Noise levels associated with gathering areas may therefore vary significantly depending on the type of event, use of amplified equipment, and size of crowds.

5.1.3 Significance of Impacts

5.1.3.1 Construction Noise

Construction noise would be regulated by the City's Municipal Code, which enforces hours and days of construction activities. However, for future development within the TCSP and for future Housing Element sites, noise levels may exceed 10 dBA above ambient conditions at nearby NSLUs. Therefore, it cannot be determined that construction noise would not significantly increase noise levels without mitigation. Impacts for construction noise through implementation of the TCSP and construction of the individual Housing Element areas are considered significant.

5.1.3.2 Stationary Operational Noise

Operational noise would be regulated by the City's Municipal Code, which does not provide numerical thresholds for noise generation, but states that noise generated by HVAC units do not create a noise disturbance on nearby occupied properties and that other operational noise does not exceed conversational levels. For the purposes of this analysis, conversational noise levels and noise disturbances are considered noise levels that exceed 60 dBA at nearby NSLUs. Because there is no numerical standard set by the City Municipal Code, adequate reduction of future projects' noise levels are not guaranteed. Stationary operational noise is therefore considered significant.

5.1.3.3 Traffic Noise

Noise levels from traffic associated with implementation of the TCSP and Housing Element sites would increase by up to 0.3 CNEL. Noise level increases below 3 CNEL are not readily perceptible. Impacts from traffic noise due to implementation of the TCSP and AEN areas and construction of the Housing Element sites are less than significant.

5.1.3.4 Outdoor Performances



Similar to stationary operational noise, noise associated with outdoor performances would be regulated by the City's Municipal Code, which does not provide numerical thresholds for noise generation. For the purposes of this analysis, conversational noise levels and noise disturbances are considered noise levels that exceed 60 dBA at nearby NSLUs. Because no set plans are available for outdoor performance areas, including site layouts or locations of potential noise-amplification equipment, impacts are considered significant without mitigation.

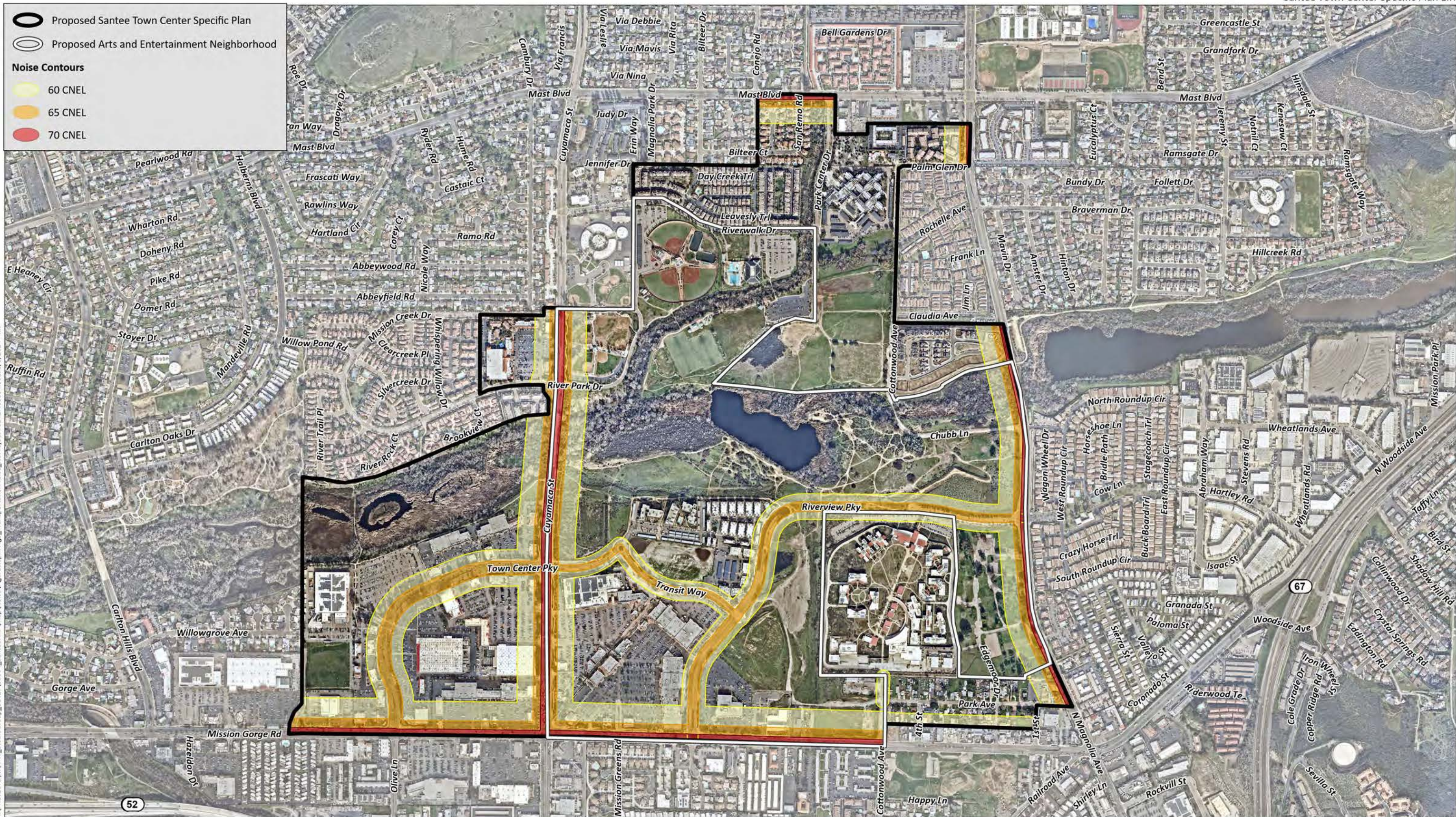
5.1.4 Mitigation Measures

5.1.4.1 Construction Noise

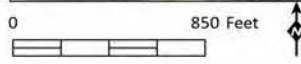
NOI-1 Construction Noise Management Plan. Noise levels from construction of future projects within the TCSP shall not exceed 10 dBA above the daytime baseline ambient noise levels as measured at nearby noise-sensitive land uses. To ensure the reduction of noise levels, a Construction Management Plan describing measures shall be included on future construction plans to ensure compliance with the aforementioned limits. The plans shall be prepared by future project applicants and submitted to the City for approval prior to issuance of a grading permit. The following measures may be included to reduce construction noise:

- Construction equipment to be properly outfitted and maintained with manufacturer-recommended noise-reduction devices.
- Diesel equipment to be operated with closed engine doors and equipped with factory-recommended mufflers.
- Mobile or fixed "package" equipment (e.g., arc-welders and air compressors) to be equipped with shrouds and noise control features that are readily available for that type of equipment.

 Proposed Santee Town Center Specific Plan
 Proposed Arts and Entertainment Neighborhood
Noise Contours
 60 CNEL
 65 CNEL
 70 CNEL



I:\PROJECTS\MM\MM_SteelGroup_01427\00004_SanteeHAP\Map\Noise\Figures.aprx Fig5_TransportationNoise_NoProject_01427_00004_001_3/18/2024 - RK



Source: Aerial (SanGIS, 2023)

- Electrically powered equipment to be used instead of pneumatic or internal combustion powered equipment, where feasible.
- Unnecessary idling of internal combustion engines (e.g., in excess of 5 minutes) to be prohibited.
- Material stockpiles and mobile equipment staging, parking, and maintenance areas to be located as far as practicable from noise sensitive receptors.
- The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.
- No project-related public address or music system shall be audible at any adjacent sensitive receptor.
- Temporary sound barriers or sound blankets may be installed between construction operations and adjacent noise-sensitive receptors. If barriers are to be used, the noise barrier should be constructed of a material with an STC 20 rating with no gaps or perforations and remain in place until the conclusion of demolition, grading, and construction activities.
- The project applicant shall notify residences within 100 feet of the project's property line in writing within one week of any construction activity such as demolition, concrete sawing, asphalt removal, and/or heavy grading operations. The notification shall describe the activities anticipated, provide dates and hours, and provide contact information with a description of a complaint and response procedure.
- The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process for the affected resident shall be established prior to construction commencement to allow for resolution of noise problems that cannot be immediately solved by the site supervisor.

5.1.4.2 Stationary Operational Noise

NOI-2 Operational Noise Reduction. Noise generated by standard operation of future projects within the TCSP shall not exceed 60 dBA when measured at nearby noise-sensitive land uses such as residences, schools, daycares, hospitals, or hotels. To ensure that noise levels are reduced to adequate levels, a site-specific noise study may be requested by the City for individual future projects, as deemed necessary by the City's Planning Department. If noise levels are anticipated to exceed this limit, appropriate noise-attenuation features shall be installed to ensure noise levels are reduced.

5.1.4.3 Outdoor Performances

NOI-3 Performance Areas Noise Studies. When plans for future temporary or permanent performance spaces or entertainment activities are prepared, they shall be analyzed to ensure that noise levels generated by future events are reduced to 60 dBA at nearby noise-sensitive land uses. For each proposed performance area or venue where noise levels could exceed this limit, a noise assessment shall be performed by a qualified noise consultant

which analyzes anticipated noise-generating sources. The study shall assess any noise-amplifying equipment, directionality of amplified noise, positioning of bandstands, and potential crowd noise. The analysis shall also consider the anticipated event types. If modeled noise levels exceed the limits, design considerations shall be provided to ensure noise levels are reduced. Noise attenuation features to be considered may include, but are not limited to, the following:

- Permanent barriers blocking the line-of-sight between the noise source and sensitive land use;
- Relocation of noise-generating equipment or areas where noise-generating activities may occur;
- Repositioning of noise-generating equipment facing away from sensitive uses; and
- Enclosing event spaces within structures, as feasible.

The results of the study shall be incorporated into design plans and be approved by the City Planning Department.

5.1.5 Significance After Mitigation

Mitigation measure NOI-1 would apply to future projects within the TCSP and Housing Element sites. Impacts related to construction noise would be reduced to less than significant levels. Mitigation measure NOI-2 would reduce impacts from future operational noise levels to less than significant levels. Mitigation measure NOI-3 would reduce impacts from future outdoor performance venues; however, reducing noise levels to 60 dBA may not be achievable in every instance and impacts would be significant and unavoidable after incorporation of mitigation measure NOI-3.

5.2 ISSUE 2: EXCESSIVE VIBRATION

Would the project result in generation of excessive ground-borne vibration or ground-borne noise levels?

5.2.1 Construction Vibration

Construction activities are known to generate excessive ground-borne vibration. Construction activities related to implementation of the proposed TCSP and Housing Element sites would not take place all at once; however, future development accommodated by the proposed TCSP would have the potential to temporarily generate vibration resulting in a short-term effect on nearby vibration-sensitive land uses. Sources of vibration during the construction of future projects within the proposed TCSP may include the potential for pile driving equipment and smaller equipment such as a vibratory roller. According to the Caltrans Transportation and Construction Vibration Guidance Manual, “strongly perceptible” ground-borne vibration is defined as equal to or exceeding 0.1 in/sec PPV. Construction activities within 200 feet and pile-driving within 600 feet of a vibration sensitive use would be potentially disruptive to vibration-sensitive operations (Caltrans 2013).

5.2.1.1 Housing Element Sites

A possible source of vibration during construction of the Housing Element sites would be a vibratory roller, which may be used for compaction of soil beneath building foundations and could be used within 50 feet of off-site residences. Most usage of a vibratory roller, however, would occur at distances greater than 50 feet from any single residence due to the mobile nature of its use across the large project sites. A vibratory roller would create approximately 0.210 inch per second PPV at a distance of 25 feet (Caltrans 2020). A 0.210 inch per second PPV vibration level would equal 0.098 inch per second PPV at a distance of 50 feet.³ This would be lower than the “strongly perceptible” impact for humans of 0.1 inch per second PPV. Additionally, off-site exposure to such ground-borne vibration would be temporary as it would be limited to the short-term construction period.

5.2.2 Significance of Impacts

Impacts from future projects within the TCSP, excluding the Housing Element sites are not known and therefore are considered significant without mitigation. Construction of the Housing Element sites is anticipated to require the use of a vibratory roller and are not anticipated to be used within 50 feet of any nearby residences. At these distances, impacts would be less than significant.

5.2.2.1 Mitigation Measure

NOI-4 Construction Vibration Analysis. A site-specific vibration study shall be prepared for proposed land uses that have the potential for construction-related vibration impacts. Construction activities within 200 feet and pile-driving within 600 feet of a vibration-sensitive use could be potentially disruptive to vibration-sensitive operations. Proposed development shall implement recommended measures within the study to ensure that projects reduce construction-related vibration impacts to below 0.1 in/sec PPV at vibration-sensitive uses.

5.2.2.2 Significance of Impacts After Mitigation

Impacts would be less than significant with implementation of mitigation measure NOI-4. Impacts from construction of the Housing Element sites would be less than significant and do not require mitigation.

5.3 ISSUE 3: AIRPORT NOISE EXPOSURE

For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

5.3.1 Airport Noise

The TCSP area is subject to some aircraft noise associated with Gillespie Field, located approximately 0.5 miles to the south. The TCSP area is mostly located in locations that would be exposed to noise levels below 60 CNEL. Portions of the commercial areas north of Mission Gorge Road and west of Town Center Parkway are located within an area that would be exposed to 60 CNEL. The commercial uses within

³ Equipment PPV = Reference PPV * (25/D)ⁿ (inches per second), where Reference PPV is PPV at 25 feet, D is distance from equipment to the receiver in feet, and n = 1.1 (the value related to the attenuation rate through the ground); formula from Caltrans 2013.

these areas would not exceed the land use compatibility standards described in the City General Plan Noise Element. Impacts would be less than significant.

5.3.1.1 Housing Element Sites

As described above, only commercial uses would be exposed to aircraft noise levels exceeding 60 CNEL. Housing Element sites would not be located in these areas.

5.3.1.2 Significance of Impacts

Impacts would be less than significant.

5.3.1.3 Mitigation Framework

Impacts would be less than significant and no mitigation is required.

5.3.1.4 Significance After Mitigation

Impacts would be less than significant and no mitigation is required.

5.4 ISSUE 4: LAND USE COMPATIBILITY

Would the project conflict with the General Plan Community Protection Element noise standards for the proposed uses?

5.4.1 Exterior Noise Levels

Future noise levels in the TCSP area would generally increase or decrease in accordance with traffic levels. Following implementation of the proposed TCSP, traffic levels on roadway segments along Cuyamaca Street, Magnolia Avenue, Mission Gorge Road, and Town Center Parkway would increase. A segment of Cuyamaca Street from Woodglen Vista Road to El Nopal would see a decrease in traffic levels. The projected ADT for selected road segments, calculated CNEL at 100 feet from the centerline of each roadway, and the distance from the roadway centerline to the 60, 65, 70, and 75 CNEL contours are contained in Appendix C.

Land use designations which allow residential development are proposed throughout the TCSP area. Some residential structures along major roadways, including Mast Boulevard and Magnolia Avenue, may be located within areas that are exposed to noise levels exceeding 65 CNEL. Although noise levels throughout the TCSP area would generally increase, nearby land uses generally would not be subjected to elevated noise levels incompatible with proposed land uses.

5.4.2 Interior Noise Levels

Title 24 regulations require that noise levels in habitable interior spaces for multi-family residential uses do not exceed 45 CNEL. Traditional architectural materials are estimated to attenuate noise levels by 20 CNEL; therefore, if exterior noise levels at future building façades exceed 65 CNEL, interior noise levels may exceed the 45 CNEL limit and further analysis is required.

Traffic associated with implementation of the proposed TCSP would increase noise levels along a number of roadway segments throughout the TCSP area. Furthermore, the proposed TCSP would allow new residential development in areas where noise levels exceed 60 CNEL. As a result, additional noise attenuation would be required for new structures to achieve or maintain interior noise levels which would not exceed 45 CNEL for residences.

5.4.3 Consistency with City Standards

Implementation of the proposed TCSP would potentially expose new development to noise levels at exterior use areas in excess of the City's noise compatibility guidelines established in the General Plan Noise Element, which would result in an inconsistency with City standards. In addition, new residential developments may be exposed to noise levels exceeding Title 24 standards.

5.4.4 Conditions of Approval

The following conditions of approval would be required to ensure project consistency with the General Plan Noise Element and Title 24 standards:

NOI-5: Site-Specific Acoustic Analysis. Where new development would expose people to noise exceeding normally acceptable levels, a site-specific acoustical analysis shall be performed prior to the approval of building permits for:

- Single-family and multi-family residences, mobile homes, transient lodging, schools, libraries, churches, hospitals, and nursing homes, where exterior noise levels range between 65 and 70 CNEL.
- All land uses where noise levels exceed the conditionally compatible exterior noise exposure levels as defined in the City's General Plan Noise Element Exterior Land Use/Noise Compatibility Guidelines.

The acoustical analysis shall be conducted to ensure that barriers, building design and/or location are capable of maintaining interior noise levels at 45 CNEL or less for residences. Barriers may include a combination of earthen berms, masonry block, and plexiglass. Building location may include the use of appropriate setbacks. Building design measures may include dual-pane windows, solid core exterior doors with perimeter weather stripping, and mechanical ventilation to allow windows and doors to remain closed.

5.4.5 Policy Consistency After Implementation of Conditions of Approval

With the implementation of NOI-5, potential interior noise levels at noise-sensitive land uses would be consistent with City's General Plan Noise Element standards.

6.0 LIST OF PREPARERS

Jason Runyan, Senior Noise Specialist
 Joanne Dramko, AICP, Principal Noise Specialist, QA/QC
 Yara Fisher, Project Manager

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

7.0 REFERENCES

- California Building Standards Commission. 2022. California Building Code, California Code of Regulations, Title 24, Part 2 (Volumes 1 & 2). Chapter 12.
- California Department of Transportation (Caltrans). 2020. Transportation and Construction Vibration Guidance Manual. April.
2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol. September.
2004. California Department of Transportation, Traffic Noise Model (TNM)
- Centers for Disease Control and Prevention. 2022. What Noises Cause Hearing Loss? November 8. Available at: https://www.cdc.gov/nceh/hearing_loss/what_noises_cause_hearing_loss.html.
- Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. September.
- Intersecting Metrics. 2024. Local Transportation Study – Santee Town Center Specific Plan. March
- Santee, City of. 2003. City of Santee General Plan.
- U.S. Department of Transportation (USDOT). 2008. Roadway Construction Noise Model. Version 1.1. December 8.

Appendix A

Site Survey Measurement Sheets

Site Survey

Job # 01427.00004.001

Project Name: Santee TCSP Amendment

Date: 7/20/23

Site #: M1

Engineer: Pano and Simmons

Address: 32° 50' 55.5" N 116° 58' 39.5" W

Meter: LD

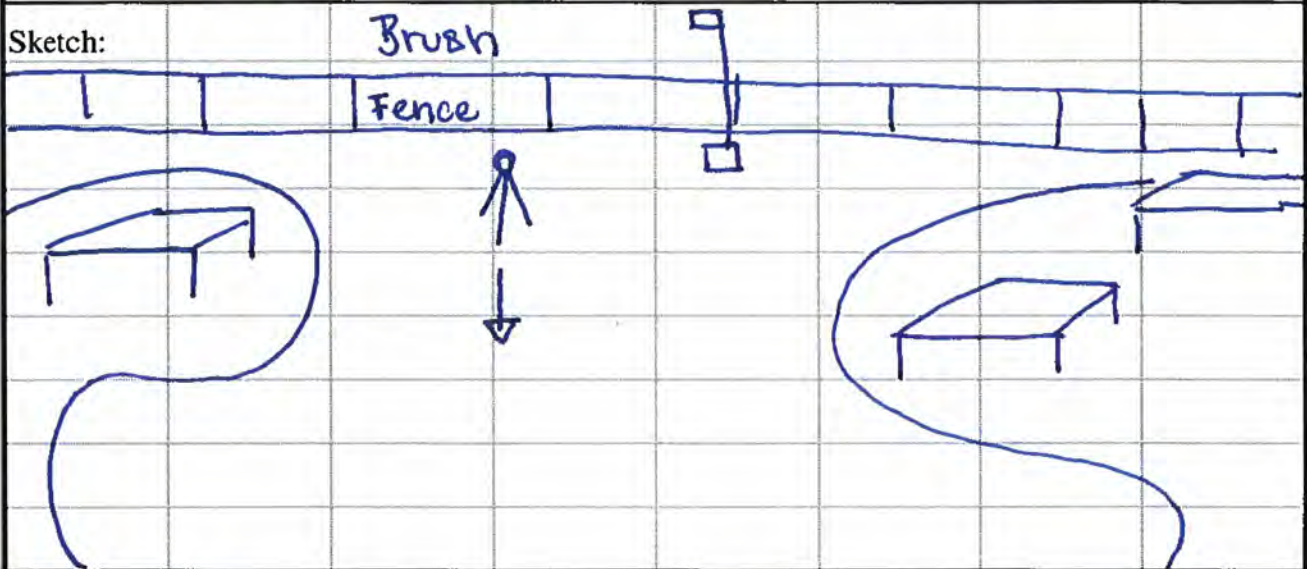
Serial #: 0001741

Calibrator: LD

Serial #: 2621

Notes: Number of small planes: 4
music lightly playing at ~~west~~^{east} corner of the park.

Sketch:



Temp: 92°F

Wind Spd:

8 mph

Humidity:

41 %

Start of Measurement: 2:58

End of Measurement: 3:13

50.2 dBA L_{EQ}

Cars (tally per 5 cars)

Medium Trucks (MT)

Heavy Trucks (HT)

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

File # 419

Site Survey

Job # 01427.00004.001

Project Name: Santee TCSP Amendment

Date: 7/20/23

Site #: M2

Engineer: Pano and Simmons

Address: 32° 50' 48.6" N 116° 59' 00.8" W

Meter: LD

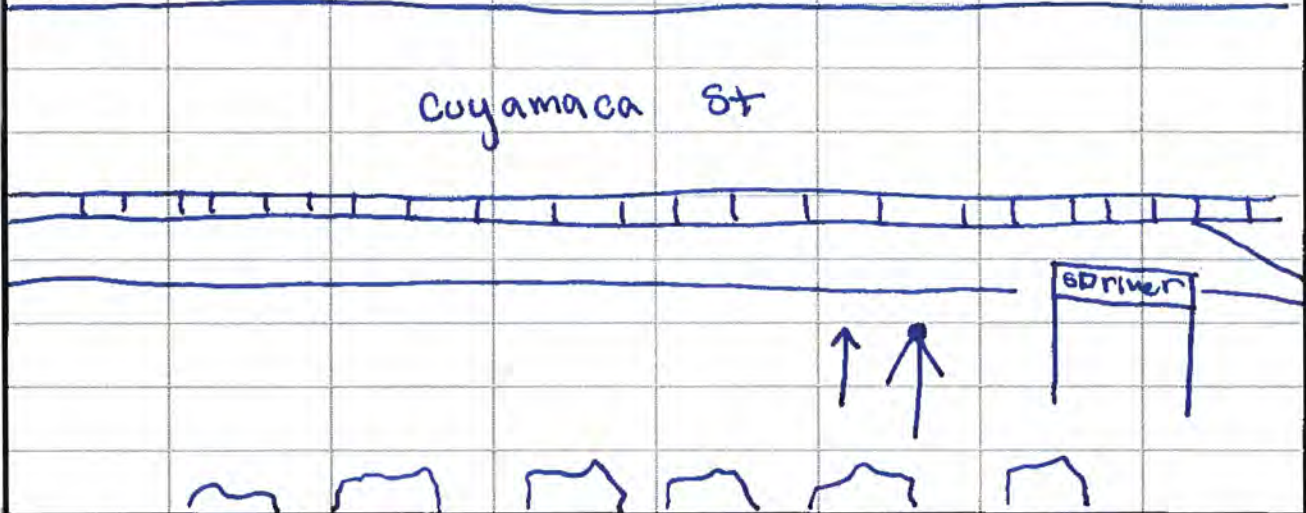
Serial #: 0001741

Calibrator: LD

Serial #: 2621

Notes: One small plane flew overhead and one medium plane flew overhead. One garbage truck passed by

Sketch:



Temp: 74°F

Wind Spd: 2 mph

Humidity: 68 %

Start of Measurement: 9:03 am

End of Measurement: 9:18 am

69.2 dBA L_{EQ}

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)																
 <table border="1" style="width: 100%; height: 100%; border-collapse: collapse;"> <tr><td style="width: 50%; height: 50px;"></td><td style="width: 50%; height: 50px;"></td></tr> <tr><td style="width: 50%; height: 50px;"></td><td style="width: 50%; height: 50px;"></td></tr> <tr><td style="width: 50%; height: 50px;"></td><td style="width: 50%; height: 50px;"></td></tr> <tr><td style="width: 50%; height: 50px;"></td><td style="width: 50%; height: 50px;"></td></tr> </table> 									 <table border="1" style="width: 100%; height: 100%; border-collapse: collapse;"> <tr><td style="width: 50%; height: 100px;"></td><td style="width: 50%; height: 100px;"></td></tr> <tr><td style="width: 50%; height: 100px;"></td><td style="width: 50%; height: 100px;"></td></tr> </table> 					 <table border="1" style="width: 100%; height: 100%; border-collapse: collapse;"> <tr><td style="width: 50%; height: 100px;"></td><td style="width: 50%; height: 100px;"></td></tr> <tr><td style="width: 50%; height: 100px;"></td><td style="width: 50%; height: 100px;"></td></tr> </table> 				
<p>Noise Measurement for Information Only</p> <p>No Through Roadways</p> <p>No Calibration Analysis Will Be Provided</p>																		

File # 411

Site Survey

Job # 01427.00004.001

Project Name: *Santee TCSP Amendment*

Date: *7/20/23*

Site #: *173*

Engineer: *Pano and Simmons*

Address: *32° 50' 48.3" N 116° 58' 23.7" W*

Meter: *LD*

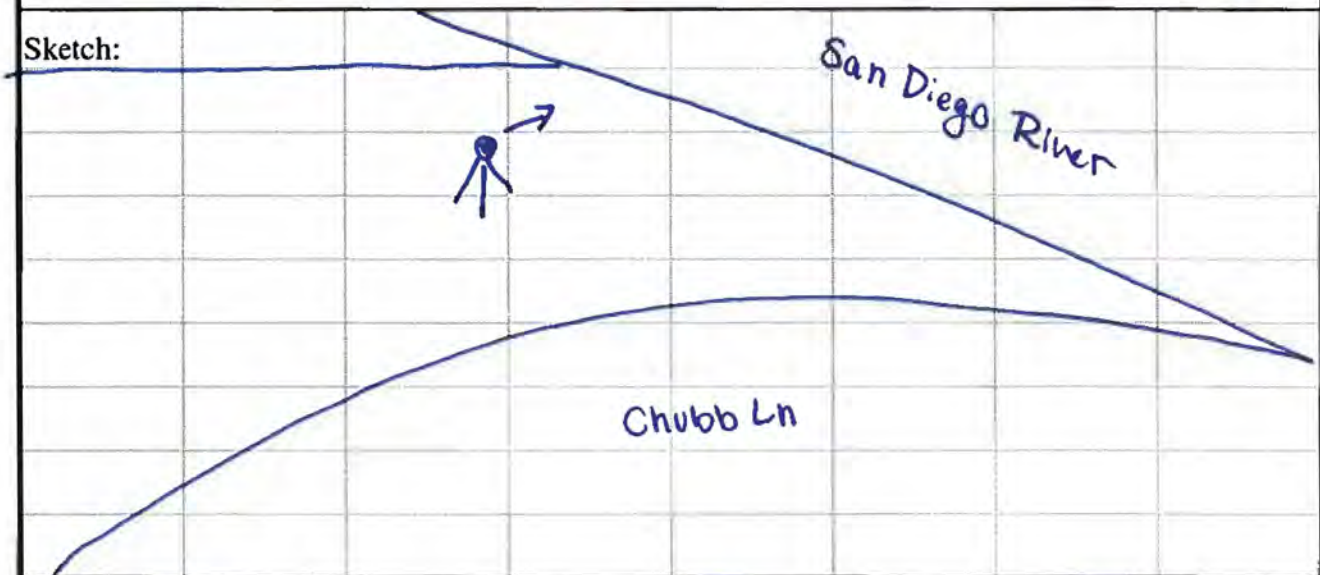
Serial #: *0001741*

Calibrator: *LD*

Serial #: *2621*

Notes: *Number of small planes: 7*
group of people talking near measurement (50 feet away)

Sketch:



Temp: *93°F*

Wind Spd: *9* mph

Humidity: *49* %

Start of Measurement: *2:21*

End of Measurement: *2:36*

49.6 dBA L_{EQ}

Cars (tally per 5 cars)

Medium Trucks (MT)

Heavy Trucks (HT)

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

File # 418

Site Survey

Job # 01427.0000 4.001

Project Name: *Santee T~~able~~ CSP Amendment*

Date: 7/20/23

Site #: M4

Engineer: Pano and Simmons

Address: 32° 50' 34.6" N 116° 58' 38.9" W

Meter: LD

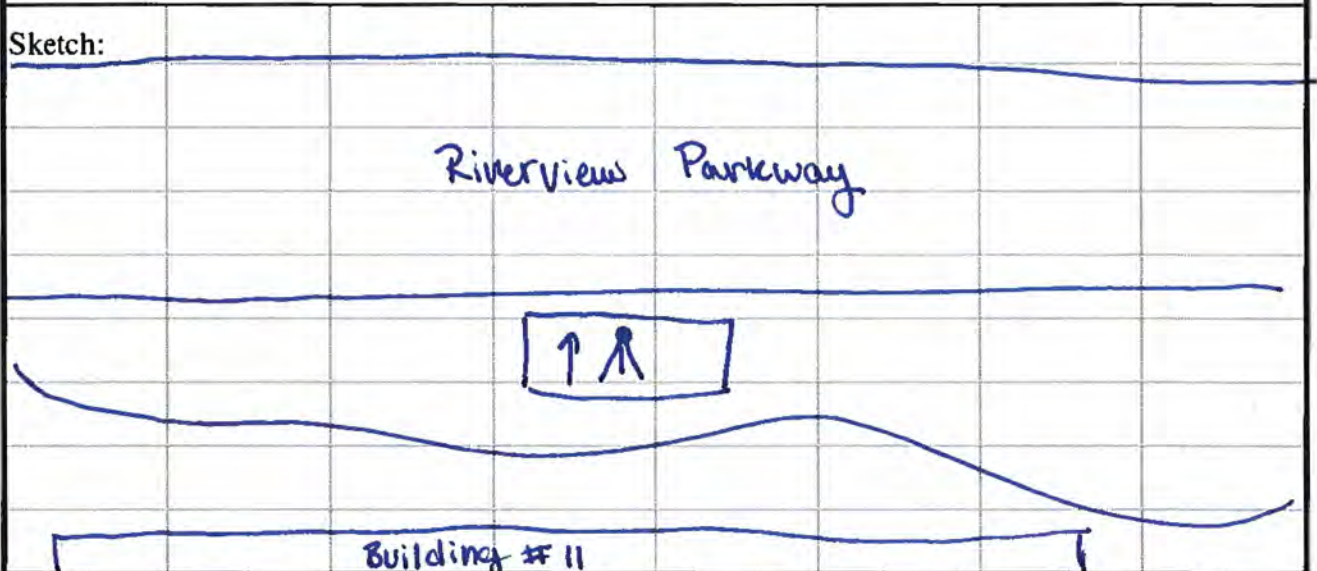
Serial #: 0001741

Calibrator: LD

Serial #: 2621

Notes: Number of small planes: 4

Sketch:



Temp: 85°F

Wind Spd: 5 mph

Humidity: 52 %

Start of Measurement: 10:45

End of Measurement: 11:00

54.0 dBA L_{EQ}

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)
Noise Measurement for Information Only No Through Roadways No Calibration Analysis Will Be Provided	<div style="border: 1px dashed gray; width: 100%; height: 100%; display: flex; align-items: center; justify-content: center;"> X </div>	<div style="border: 1px dashed gray; width: 100%; height: 100%; display: flex; align-items: center; justify-content: center;"> X </div>

File # 414

Site Survey

Job # 01427.00004.001

Project Name: Santee TCSP Amendment

Date: 7/20/23

Site #: M5

Engineer: Pano and Simmons

Address: 32°50'35.5" N 116°58'12.7" W

Meter: LD

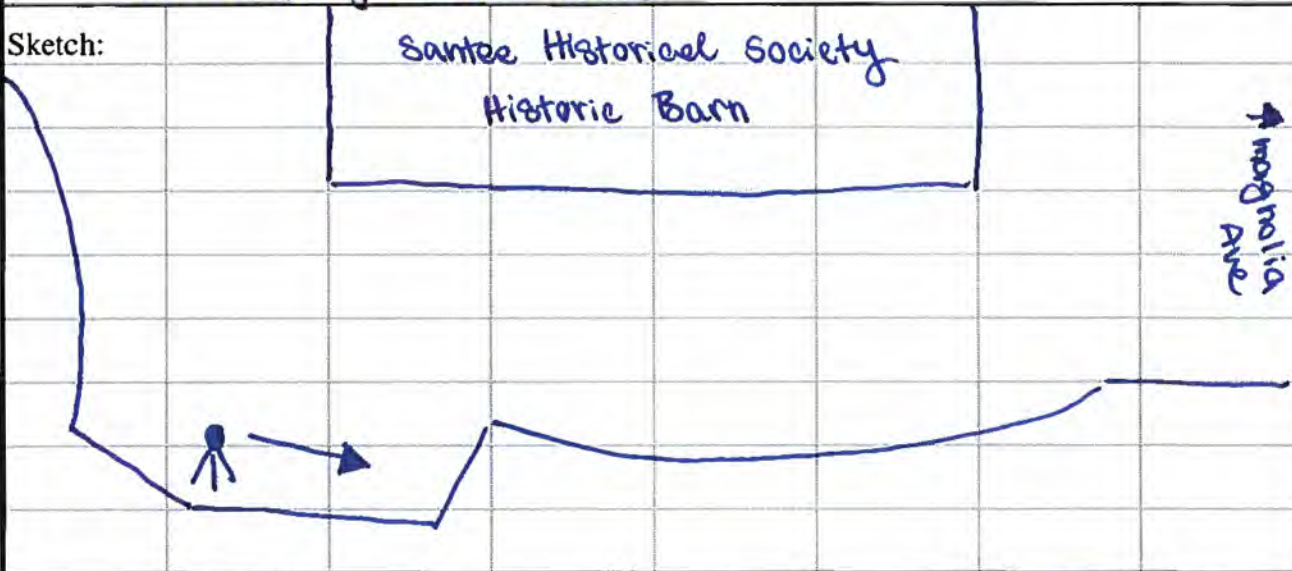
Serial #: 0001741

Calibrator: LD

Serial #: 2621

Notes: Number of small planes: 2
 Number of helicopters: 1
 Car beeping a few times

Sketch:



Temp: 94°F

Wind Spd: 9 mph

Humidity: 89 %

Start of Measurement: 1:38

End of Measurement: 1:53

54.5 dBA L_{EQ}

Cars (tally per 5 cars)

Medium Trucks (MT)

Heavy Trucks (HT)

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

File# 417

Site Survey

Job # 01427.00004.001

Project Name: Santee TOSP Amendment

Date: 7/20/23

Site #: M6

Engineer: Pano and Simmons

Address: 32°50'27.6"N 118°58'56.0"W

Meter: LD

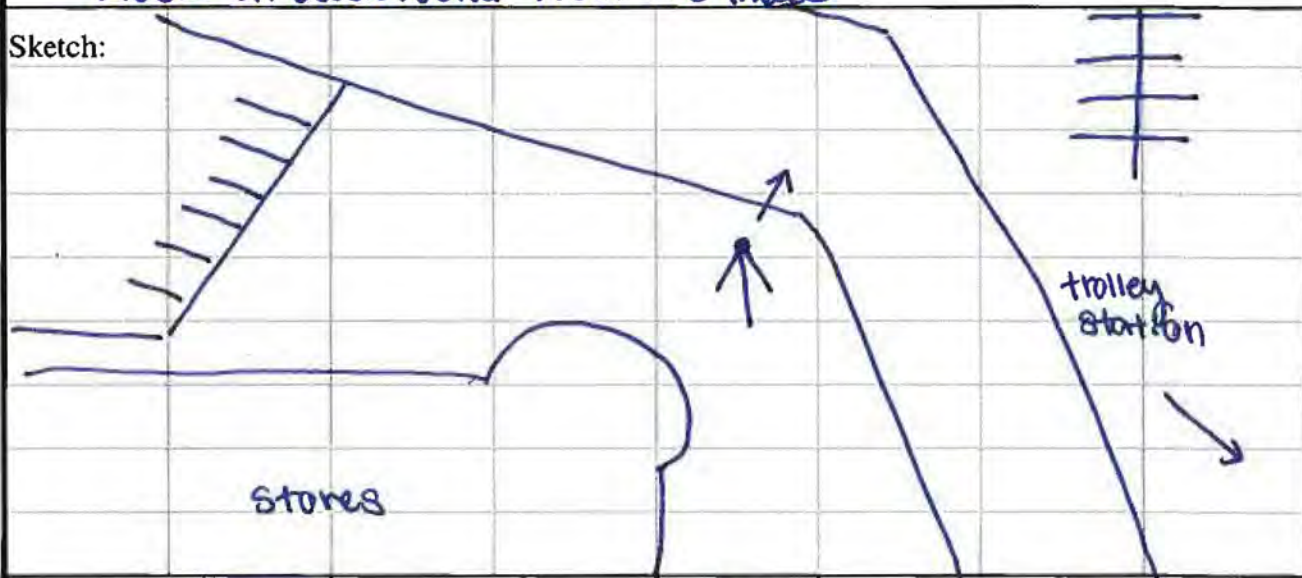
Serial #: 0001741

Calibrator: LD

Serial #: 2621

Notes: Number of times trolley passed by: 2
 Number of small planes: 3
 music in background from the mall

Sketch:



Temp: 81°F

Wind Spd: 3 mph

Humidity: 60%

Start of Measurement: 9:43

End of Measurement: 9:58

60.9 dBA L_{EQ}

Cars (tally per 5 cars)

Medium Trucks (MT)

Heavy Trucks (HT)

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

File# 412

Site Survey

Job # 01427.00004.001

Project Name: Santee TCSP Amendment

Date: 7/20/23

Site #: M7

Engineer: Pano and Simmons

Address: 32° 50' 28.3" N 116° 58' 42.6" W

Meter: LD

Serial #: 0001741

Calibrator: LD

Serial #: 2621

Notes: Number of small planes: 4

Sketch:

Riverview Parkway



Town center
Parkway

Temp: 89°F

Wind Spd: 6 mph

Humidity: 47%

Start of Measurement: 11:18 am

End of Measurement: 11:33 am

60.7 dBA L_{EQ}

Cars (tally per 5 cars)

Medium Trucks (MT)

Heavy Trucks (HT)

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

File# 416

Site Survey

Job # 01427.00004.001

Project Name: Santee TC&P Ammendment

Date: 7/20/23

Site #: M8

Engineer: Pano and Simmons

Address: 32° 50' 19.4" N 116° 58' 39.3" W

Meter: LD

Serial #: 0001711

Calibrator: LD

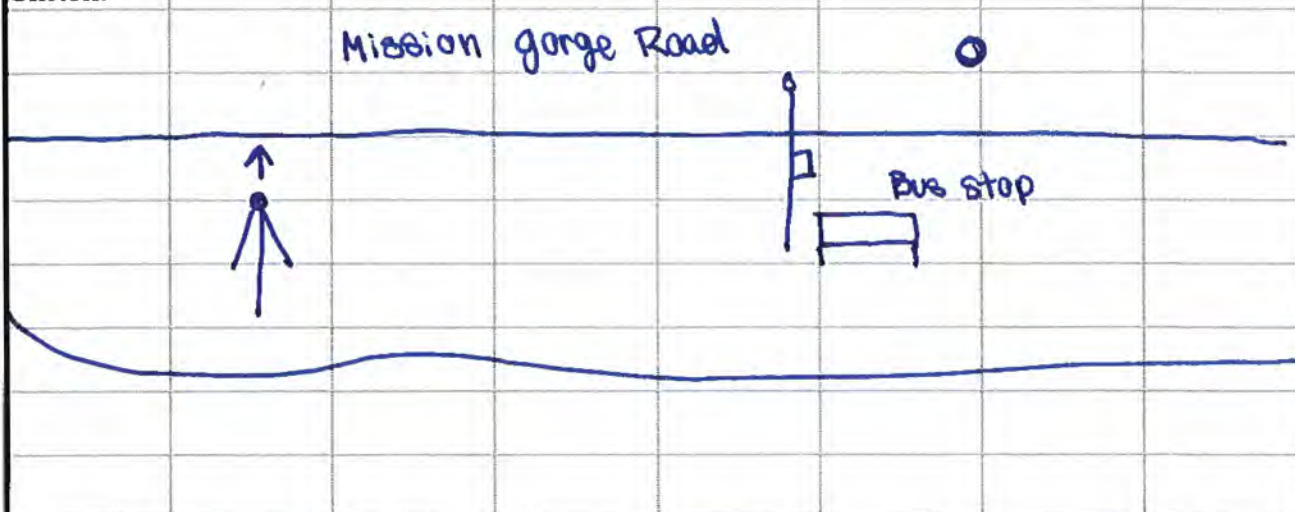
Serial #: 2621

Notes: Car wash located approximately 250 feet away

Number of small planes : 3

Manhole cover on the road near the meter

Sketch:



Temp: 94°F

Wind Spd: 8 mph

Humidity: 41 %

Start of Measurement: 1:07pm

End of Measurement: 1:22pm

68.9 dBA L_{EQ}

Cars (tally per 5 cars)

Medium Trucks (MT)

Heavy Trucks (HT)

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

Site Survey

Job # 01427.00004.001

Project Name: Santee TCSP Amendment

Date: 7/20/23

Site #: M9

Engineer: Pann and Simmons

Address: 32° 51' 18.0" N 116° 58' 36.0" W

Meter: LD

Serial #: 0001741

Calibrator: LD

Serial #: 2621

Notes: Number of small plates: 1

Sketch:

Mast Blud

Bilfoer Court

single-family
Residences

Temp: 91°F

Wind Spd: 8 mph

Humidity: 39 %

Start of Measurement: 3:40 pm

End of Measurement: 3:55 pm

66.9 dBA L_{EQ}

Cars (tally per 5 cars)

Medium Trucks (MT)

Heavy Trucks (HT)

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

File# 420

Appendix B

Carrier 38HDR060 Split System
Condenser

ELECTRICAL DATA

38HDR UNIT SIZE	V-PH-Hz	VOLTAGE RANGE*		COMPRESSOR		OUTDOOR FAN MOTOR			MIN CKT AMPS	FUSE/ HACR BKR AMPS
		Min	Max	RLA	LRA	FLA	NEC Hp	kW Out		
018	208/230-1-60	187	253	9.0	48.0	0.80	0.125	0.09	12.1	20
024	208/230-1-60	187	253	12.8	58.3	0.80	0.125	0.09	16.8	25
030	208/230-1-60	187	253	14.1	73.0	1.45	0.25	0.19	19.1	30
036	208/230-1-60	187	253	14.1	77.0	1.45	0.25	0.19	19.1	30
	208/230-3-60	187	253	9.0	71.0	1.45	0.25	0.19	12.7	20
	460-3-60	414	506	5.6	38.0	0.80	0.25	0.19	7.8	15
048	208/230-1-60	187	253	21.8	117.0	1.45	0.25	0.19	28.7	50
	208/230-3-60	187	253	13.7	83.1	1.45	0.25	0.19	18.6	30
	460-3-60	414	506	6.2	41.0	0.80	0.25	0.19	8.6	15
060	208/230-1-60	187	253	26.4	134.0	1.45	0.25	0.19	34.5	60
	208/230-3-60	187	253	16.0	110.0	1.45	0.25	0.19	21.5	35
	460-3-60	414	506	7.8	52.0	0.80	0.25	0.19	10.6	15

* Permissible limits of the voltage range at which the unit will operate satisfactorily

FLA – Full Load Amps

HACR – Heating, Air Conditioning, Refrigeration

LRA – Locked Rotor Amps

NEC – National Electrical Code

RLA – Rated Load Amps (compressor)

NOTE: Control circuit is 24-V on all units and requires external power source. Copper wire must be used from service disconnect to unit. All motors/compressors contain internal overload protection.

SOUND LEVEL

Unit Size	Standard Rating (dB)	Typical Octave Band Spectrum (dBA) (without tone adjustment)						
		125	250	500	1000	2000	4000	8000
018	68	52.0	57.5	60.5	63.5	60.5	57.5	46.5
024	69	57.5	61.5	63.0	61.0	60.0	56.0	45.0
030	72	56.5	63.0	65.0	66.0	64.0	62.5	57.0
036	72	65.0	61.5	63.5	65.0	64.5	61.0	54.5
048	72	58.5	61.0	64.0	67.5	66.0	64.0	57.0
060	72	63.0	61.5	64.0	66.5	66.0	64.5	55.5

CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE)

UNIT SIZE-VOLTAGE, SERIES	REQUIRED SUBCOOLING °F (°C)
018	12 (6.7)
024	12 (6.7)
030	12 (6.7)
036	12 (6.7)
048	12 (6.7)
060	12 (6.7)

Appendix C

Existing and Future Traffic Noise Levels

Existing and Future Traffic Volumes											
Roadway /Segment	ADT	No Project (2050)				ADT	With Project (2050)				Posted Speed (mph)
		Peak Hour Traffic	Traffic Breakdown				Peak Hour Traffic	Traffic Breakdown			
			Cars 97.5%	MT 2.0%	HT 0.5%			Cars 97.5%	MT 2.0%	HT 0.5%	
Cottonwood											
Street A to Riverview Parkway	4800	480	468	10	2	4800	480	468	10	2	35
Park Ave to Mission Gorge Rd	2200	220	215	4	1	2200	220	215	4	1	25
Mission Gorge Rd to Buena Vista Ave	8500	850	829	17	4	8500	850	829	17	4	25
Buena Vista Ave to Prospect Ave	8700	870	848	17	4	8700	870	848	17	4	25
Cuyamaca Street											
Woodglen Vista Rd to El Nopal	16500	1650	1609	33	8	14730	1473	1436	29	7	35
El Nopal to Mast Blvd	18630	1863	1816	37	9	18630	1863	1816	37	9	35
Mast Blvd to Riverpark Drive	26600	2660	2594	53	13	27510	2751	2682	55	14	35
Riverpark Drive to Town Center Pkwy	31700	3170	3091	63	16	32670	3267	3185	65	16	35
Town Center Pkwy to Mission Gorge Rd	30100	3010	2935	60	15	31640	3164	3085	63	16	35
Mission Gorge Rd to SR 52 WB	49600	4960	4836	99	25	50660	5066	4939	101	25	35
Magnolia Avenue											
Mast Blvd to Braverman Dr	26200	2620	2555	52	13	27940	2794	2724	56	14	35
Braverman Dr to Mission Gorge Rd	30400	3040	2964	61	15	32450	3245	3164	65	16	35
Mast Blvd											
Cuyamaca St to Magnolia Ave	22300	2230	2174	45	11	22400	2240	2184	45	11	40
Magnolia Ave to Los Ranchitos Rd	6300	630	614	13	3	6300	630	614	13	3	40
Mission Gorge Blvd											
Carlton Hills Blvd to Town Center Pkwy	44400	4440	4329	89	22	46920	4692	4575	94	23	35
Town Center Pkwy to Cuyamaca St	37700	3770	3676	75	19	39700	3970	3871	79	20	35
Cuyamaca St to Riverview Pkwy	28200	2820	2750	56	14	29510	2951	2877	59	15	40
Riverview Pkwy to Cottonwood Ave	28400	2840	2769	57	14	29710	2971	2897	59	15	40
Cottonwood Ave to Magnolia Ave	26400	2640	2574	53	13	27710	2771	2702	55	14	40
Riverview Pkwy											
Mission Gorge Rd to Town Center Pkwy	11600	1160	1131	23	6	11600	1160	1131	23	6	35
Town Center Pkwy to Cottonwood Ave	10700	1070	1043	21	5	10700	1070	1043	21	5	35
Cottonwood Ave to Magnolia Ave	9600	960	936	19	5	9600	960	936	19	5	35
Town Center Pkwy											
Mission Gorge Rd to Cuyamaca St	16500	1650	1609	33	8	16500	1650	1609	33	8	35
Town Center Pkwy											
Cuyamaca St to Transit Wy	6900	690	673	14	3	7300	730	712	15	4	35
Transit Wy to Riverview Pkwy	7200	720	702	14	4	7300	730	712	15	4	35

Existing and Future Traffic Noise Levels

Roadway/Segment	No Project (2050)				With Project (2050)				
	CNEL @ 100 ft	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)	CNEL @ 100 ft	Δ at 100ft. (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)
Cottonwood									
Street A to Riverview Parkway	57.5	-	20	60	57.5	0.0	-	20	60
Park Ave to Mission Gorge Rd	50.7	-	-	12	50.7	0.0	-	-	12
Mission Gorge Rd to Buena Vista Ave	56.7	-	15	50	56.7	0.0	-	15	50
Buena Vista Ave to Prospect Ave	56.7	-	15	50	56.7	0.0	-	15	50
Cuyamaca Street									
Woodglen Vista Rd to El Nopal	62.9	25	65	170	62.4	-0.5	20	60	155
El Nopal to Mast Blvd	63.4	25	75	185	63.4	0.0	25	75	185
Mast Blvd to Riverpark Drive	65.0	35	100	240	65.1	0.1	37	105	250
Riverpark Drive to Town Center Pkwy	65.8	45	115	270	65.9	0.1	45	115	280
Town Center Pkwy to Mission Gorge Rd	65.5	40	110	260	65.8	0.3	45	115	280
Mission Gorge Rd to SR 52 WB	67.7	65	165	370	67.8	0.1	65	165	370
Magnolia Avenue									
Mast Blvd to Braverman Dr	64.9	35	100	240	65.2	0.3	40	105	250
Braverman Dr to Mission Gorge Rd	65.6	40	110	250	65.9	0.3	45	115	280
Mast Blvd									
Cuyamaca St to Magnolia Ave	65.8	45	115	270	65.8	0.0	45	115	270
Magnolia Ave to Los Ranchitos Rd	60.3	10	40	105	60.3	0.0	10	40	105
Mission Gorge Blvd									
Carlton Hills Blvd to Town Center Pkwy	67.2	60	150	340	67.5	0.3	60	160	360
Town Center Pkwy to Cuyamaca St	66.5	50	130	310	66.7	0.2	50	135	320
Cuyamaca St to Riverview Pkwy	66.8	55	140	320	67.0	0.2	55	145	330
Riverview Pkwy to Cottonwood Ave	66.8	55	140	320	67.0	0.2	55	145	330
Cottonwood Ave to Magnolia Ave	66.5	50	130	310	66.7	0.2	55	140	310
Riverview Pkwy									
Mission Gorge Rd to Town Center Pkwy	61.4	15	50	130	61.4	0.0	15	50	130
Town Center Pkwy to Cottonwood Ave	61.0	10	45	120	61.0	0.0	10	45	120
Cottonwood Ave to Magnolia Ave	60.6	10	40	110	60.6	0.0	10	40	110
Town Center Pkwy									
Mission Gorge Rd to Cuyamaca St	62.9	20	65	170	62.9	0.0	20	65	170
Town Center Pkwy									
Cuyamaca St to Transit Wy	59.1	-	30	85	59.4	0.3	-	33	90
Transit Wy to Riverview Pkwy	59.3	-	30	90	59.4	0.1	-	33	90