

901 MISSION AVENUE MIXED-USE PROJECT

NOISE REPORT

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EXECUTIVE SUMMARY

The proposed Project (Project) is located on an undeveloped 1.5-acre site comprising the block bounded by Mission Avenue (north), South Horne Street (east), South Clementine Street (west) and Seagaze Drive (south). The site is zoned Downtown Subdistrict 2 and is bisected by an unnamed paved street corridor. This street segment would be vacated as part of the proposed Project. The project would develop 273 multifamily apartments and 4,006 square feet (sf) of space for commercial uses. The 273 apartments would be available to serve the housing needs of downtown Oceanside with 10% (28 apartments), reserved for low-income households. The residential rental apartment homes would be located within the upper five floors (3-8) of the building. The commercial space and parking level 1 would be located on the ground floor. Parking levels 2-3 would be subterranean. A total of 328 parking spaces would be provided in a four-level parking garage under the building. Of the four levels, 2.5 would be subterranean. On the Mission Avenue frontage, five parallel parking spaces in addition to a loading zone will be provided.

Temporary Construction Noise

Consistent with the City's Noise Ordinance, project construction would be limited to the period between 7:00 a.m. and 6:00 p.m. each day, Monday through Friday, and no earthmoving or grading operations shall be conducted on the premises on Saturdays, Sundays or legal holidays. Maximum construction noise levels would not exceed 85 dBA Lmax at 100 feet as stated in the City of Oceanside General Plan. Thus, temporary construction noise impacts would be less than significant.

Operational Noise

Traffic. The proposed project would not have a noticeable effect on traffic-related noise levels. Noise modeling was performed for existing conditions, 2030 Without the Project, 2030 With the Project and 2050 Without the Project and 2050 With the Project. Without the project, traffic noise at Receiver 1 and 3 would exceed 65 dBA. Thus, the project would have a potentially significant impact if the project's traffic contribution exceeded 3 dBA. For all receivers, the greatest increase would be between the 2050 No Project and 2050 With Project scenario. The highest increase would be +0.3 dBA at Receivers 1, 2 and 3. The project would not cause noise levels that were (or are projected to be) below 65 dBA CNEL in a without project scenario, to exceed 65 dBA CNEL nor would the project cause an increase of 3 dBA or more for those scenarios where noise levels without the project exceed 65 dBA CNEL. Therefore, traffic noise impacts with the project at all receivers would be less than significant under the applicable thresholds.

The project design incorporates an approximately four-foot tall glass or other solid barrier around the balconies located along the Mission Avenue and North Horne Street frontage and those balconies located along a portion of the North Clementine Street frontage. A wall partition barrier with a single-layer of glass incorporated into the project design will provide 5-10 dBA of

attenuation as sound waves will refract over the top of the barrier. Noise reduction methods are only required for those units on floors two and three facing Mission Avenue and those units on floors one, two and three along North Horne Street. Noise reduction would also be required on the west building face, floors one, two and three from the northwest corner south approximately 100 feet. With that level of attenuation incorporated into the project design for those locations, noise levels at the exterior balconies will meet the significance threshold of 65 dBA.

Heating, Ventilation and Air Conditioning. As a design feature, the individual HVAC systems would be located within the building. The HVAC systems for the common areas would be either on the rooftop or within an enclosed space within the building. The rooftop units would be located near the center of the building with a screening wall separating the units from the remaining rooftop area. The pool equipment would be located within a 3rd level interior courtyard and activities in the pool area would not be audible off-site. No impact from stationary sources would occur with the project. Operational noise impacts would be less than significant.

Temporary Construction-Related Vibration. Construction activity on the project site would be temporary and vibration events would be transitory occurring only during equipment pass bys. Using vibration levels associated with a large bulldozer, the piece of grading equipment with the highest vibration level, as a worst case scenario, groundborne vibration would be approximately 0.089 PPV at 25 feet. Even conservatively, assuming a clam shovel or vibratory roller would be used on-site when excavating the parking garage or performing other site development activities, those equipment pieces can generate 0.202 PPV and 0.21 PPV, respectively, at 25 feet from the source. If used on-site, they would likely operate in the excavation pit below ground level and the elevation of neighboring properties. The PPV generated by a heavy bulldozer, clam shovel and vibratory roller at 25 feet are below the vibration thresholds of significance referenced above. As stated, the closest sensitive properties are 70 feet from the property line so project generated construction related vibrations would be below those reported in Table 9 herein.

Operational Vibration. The proposed project is a multistory residential apartment building. These uses do not generate vibration; thus, no vibration impacts are anticipated to occur with operation of the project. Operational vibration impacts would be less than significant.

Airport Operations. There are no private airstrips within the vicinity of the project site. The closest airport to the proposed project site is the Oceanside Municipal Airport, approximately 1.9 miles northeast of the site. The project site is not located within a noise exposure range of 60–75 dB CNEL. Thus, the project residents and employees would not be exposed to excessive noise levels associated with an airport or air strip. Impacts would be less than significant.

901 MISSION AVENUE MIXED-USE PROJECT
OCEANSIDE, CALIFORNIA
Noise Study

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901 MISSION AVENUE MIXED-USE PROJECT OCEANSIDE, CALIFORNIA NOISE STUDY

This report is an analysis of the potential noise and vibration impacts associated with the 901 Mission Avenue Mixed-Use Project, a multifamily residential development proposed for construction and operation at the southwest corner of Mission Avenue and South Horne Street in the City of Oceanside, California. This study analyzes the potential for impacts associated with construction activity and project operation.

PROJECT DESCRIPTION

The proposed Project (Project) is located on an undeveloped 1.5 acre site comprising the block bounded by Mission Avenue (north), South Horne Street (east), South Clementine Street (west) and Seagaze Drive (south). The site is zoned Downtown Subdistrict 2 and is bisected by an unnamed paved street corridor. This street segment would be vacated as part of the proposed Project. The project would develop 273 multifamily apartment and 4,006 square feet (sf) of space for commercial uses. The 273 apartments would be available to serve the housing needs of downtown Oceanside with 10% (28 apartments), reserved for low-income households. The residential rental apartment homes would be located within the upper five floors (3-8) of the building. The commercial space and parking level 1 would be located on the ground floor. Parking levels 2-3 would be subterranean. A total of 322 parking spaces would be provided in a four-level parking garage under the building. Of the four levels, 2.5 would be subterranean. On the Mission Avenue frontage, five parallel parking spaces in addition to a loading zone will be provided.

The project would provide a total of 25,866 square foot studio units, 97,589 square foot one-bedroom units and 83,896 square foot two-bedroom units. The units would be arranged in a “stacked flat” configuration. Each unit would be open to an exterior wall along the perimeter of the building or into an interior courtyard that is open to the sky.

Access to the 3-level parking garage is separated would be provided from North Clementine Street. The levels would be connected by ramps; thus, vehicles will circulate between floors. Resident parking will all be assigned. The uppermost (P1) garage level accessible from South North Horne Street provides resident parking controlled by an entry gate. Taking advantage of the site grade, the first (P1) parking level entry is at grade with North Horne Street. The lowest parking level (P3) is below the alley grade. To accommodate the parking garage, approximately 58,400 cubic yards of soil export will be excavated from the site.

Construction of the project is expected to begin in November 2026 and be completed by January 2029. However, 2030 would be the first full year of stabilized occupancy. The project site is shown in Figure 1 - Vicinity Map). The preliminary site plan is shown on Figure 2 – Proposed Site Plan.

Project Design Features

The following design features will also minimize potential noise levels at neighboring residential properties during both construction and operation.

- Use of air compressor for application of architectural coatings would be staged within the building when work is occurring proximal to neighboring receivers to reduce equipment noise;
- The Heating, Ventilation and Air Conditioning (HVAC) systems for each unit and interior common areas would be contained within the units or within the building;
- All rooftop HVAC equipment for common areas would be located near the center of the building and behind behind screen walls; and
- The pool area would be located on the 3rd level within an internal courtyard. All equipment would be contained within an enclosed room adjacent to the pool area.

SETTING

Overview of Sound Measurement

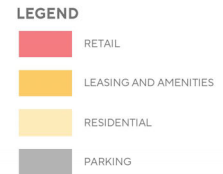
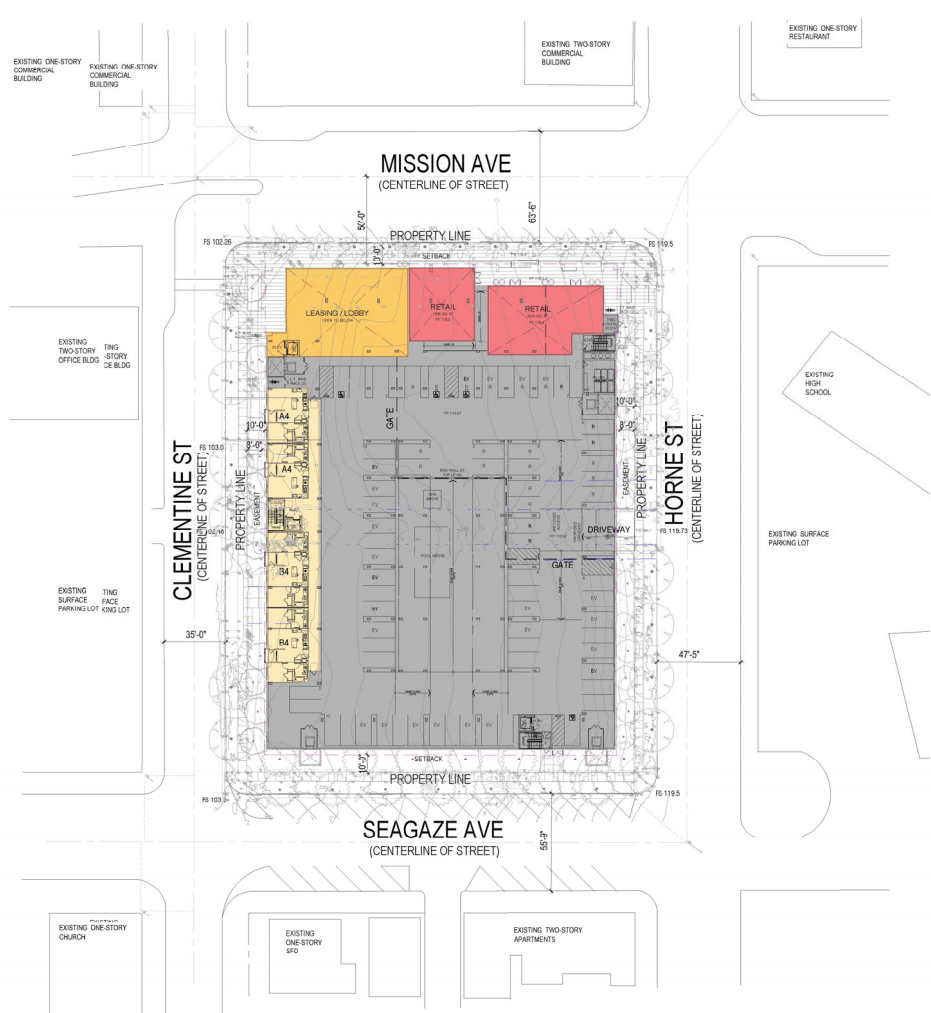
Noise level (or volume/loudness) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz).

Sound pressure level is measured on a logarithmic scale with the 0 dB level based on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound pressure level). Based on the logarithmic scale, a doubling of sound energy is equivalent to an increase of 3 dBA, and a sound that is 10 dBA less than the ambient sound level would be half as loud and influence the character of ambient noise without influencing the overall sound level. Because of the nature of the human ear, a sound must be about 10 dBA greater than the reference sound to be judged as twice as loud. In general, a 3 dBA change in community noise



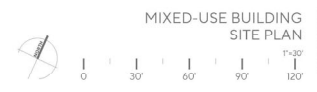
Figure 1 - Vicinity Map

 - Project Site



901 MISSION AVENUE MIXED-USE

OCEANSIDE, CA



A1.0

JOB NO. 2023-0939
DATE 05-22-2024

Figure 2— Site Plan

levels is noticeable, while 1-2 dB changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40-50 dBA, while arterial streets are in the 50-60+ dBA range. Normal conversational levels are in the 60-65 dBA range, and ambient noise levels greater than 65 dBA can interrupt conversations. Noise levels typically attenuate (or drop off) at a rate of 6 dBA per doubling of distance from point sources (i.e., industrial machinery). Noise from lightly traveled roads typically attenuates at a rate of about 4.5 dBA per doubling of distance. Noise from heavily traveled roads typically attenuates at about 3 dBA per doubling of distance. Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA. The manner in which older homes in California were constructed (approximately 30 years old or older) generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units and office buildings construction to California Energy Code standards is generally 30 dBA or more (FTA 2018).

In addition to the actual instantaneous measurement of sound levels, the duration of sound is important since sounds that occur over a long period of time are more likely to be an annoyance or cause direct physical damage or environmental stress. One of the most frequently used noise metrics that considers both duration and sound pressure level is the equivalent noise level (Leq). The Leq is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). Typically, Leq is summed over a one-hour period. Lmax is the highest RMS (root mean squared) sound pressure level within the measuring period, and Lmin is the lowest RMS sound pressure level within the measuring period.

The time period in which noise occurs is also important since noise that occurs at night tends to be more disturbing than that which occurs during the day. Community noise is usually measured using Day-Night Average Level (Ldn), which is the 24-hour average noise level with a 10-dBA penalty for noise occurring during nighttime (10 p.m. to 7 a.m.) hours, or Community Noise Equivalent Level (CNEL), which is the 24-hour average noise level with a 5 dBA penalty for noise occurring from 7 p.m. to 10 p.m. and a 10 dBA penalty for noise occurring from 10 p.m. to 7 a.m. Noise levels described by Ldn and CNEL usually do not differ by more than 1 dB. Table 1 shows sounds levels of typical noise sources in Leq.

Noise Sensitive Receivers

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with each of these uses. Urban areas contain a variety of land use and development types that are noise sensitive including residences, schools, churches, hospitals and convalescent care facilities. Nearby noise sensitive receivers (NSRs) are single- and multifamily

Table 1
Sound Levels of Typical Noise Sources and Noise Environments

Noise Source (at Given Distance)	Noise Environment	A-Weighted Sound Level (Decibels)	Human Judgment of Noise Loudness (Relative to Reference Loudness of 70 Decibels*)
Military Jet Takeoff with Afterburner (50 ft)	Carrier Flight Deck	140	128 times as loud
Civil Defense Siren (100 ft)		130	64 times as loud
Commercial Jet Take-off (200 ft)		120	32 times as loud Threshold of Pain
Pile Driver (50 ft)	Rock Music Concert Inside Subway Station (New York)	110	16 times as loud
Ambulance Siren (100 ft) Newspaper Press (5 ft) Gas Lawn Mower (3 ft)		100	8 times as loud Very Loud
Food Blender (3 ft) Propeller Plane Flyover (1,000 ft) Diesel Truck (150 ft)	Boiler Room Printing Press Plant	90	4 times as loud
Garbage Disposal (3 ft)	Noisy Urban Daytime	80	2 times as loud
Passenger Car, 65 mph (25 ft) Living Room Stereo (15 ft) Vacuum Cleaner (10 ft)	Commercial Areas	70	Reference Loudness Moderately Loud
Normal Speech (5 ft) Air Conditioning Unit (100 ft)	Data Processing Center Department Store	60	½ as loud
Light Traffic (100 ft)	Large Business Office Quiet Urban Daytime	50	¼ as loud
Bird Calls (distant)	Quiet Urban Nighttime	40	1/8 as loud Quiet
Soft Whisper (5 ft)	Library and Bedroom at Night Quiet Rural Nighttime	30	1/16 as loud
	Broadcast and Recording Studio	20	1/32 as loud Just Audible

		0	1/64 as loud Threshold of Hearing
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Source: Compiled by dBF Associates, Inc., 2016

residences located adjacent to and south/southwest of the site along Seagaze Drive, South Clementine Street and South Horne Street. Classrooms that are part of the Oceanside High School campus are located on the north side of North/South Horne Street adjacent to the site. The closest receiver to the south/southeast are multi-family residences at 101 South Horne Street, across the street and approximately 70 feet from the project site property line. The Oceanside High School property line is approximately 70 feet northeast of the site. The commercial uses to the north/northwest across Mission Avenue and west/southwest across South Clementine Street are not considered sensitive for the purpose of this evaluation. Figure 3 shows the closest noise sensitive receivers and distances from the project site.

Project Site Setting

The project area is urbanized and located at the southwest corner of the Mission Avenue and North Horne Street intersection. The site is approximately 1,200 feet (as measured from the southbound on-ramp to the northeast corner of the site) west/southwest of Interstate 5 and approximately 1,900 feet east/northeast of the Los Angeles-San Diego (LOSSAN) rail corridor. The southwest corner of the Oceanside High School campus is located east of the site across North Horne Street. Multifamily development is located to the north/northwest and west. Commercial/office uses are located to the north/northwest, west/southwest. Multifamily residences are located to the south/southwest/southeast. The most common and primary sources of noise in the project site vicinity are motor vehicles (e.g., automobiles and trucks) operating on Mission Avenue, Seagaze Drive, North/South Horne Street and North/South Clementine Street. Interstate 5 is not audible over the traffic operating adjacent to the site. Motor vehicle noise, because of the high number of individual events, can create a sustained noise level. Aircraft overflights occur but do not noticeably contribute to the ambient noise environment.

To gather data on the general noise environment at the project site, four weekday morning 15-minute noise measurements were taken on the site on April 11, 2024 using an ANSI Type II integrating sound level meter. The predominant noise source was traffic. The temperature during the monitoring episodes was 65 degrees Fahrenheit with 1-2 mile per hour westerly wind and 90% cloud cover. A second set of measurements was taken on March 18, 2025 during the evening peak hour (4:00 p.m. to 6:00 p.m.) at the same locations. The temperature during monitoring was 67 degrees Fahrenheit with 1-2 mile per hour westerly wind and 10% cloud cover.



Figure 3 - Noise Sensitive Receivers

 - Project Site

Monitoring Site M1 is located on the southern site boundary adjacent to Seagaze Drive mid-block between North Horne Street and North Clementine Street. Traffic from both North/South Horne Street and Seagaze Drive contributes to ambient conditions at this location. During monitoring, 26 cars/light trucks, zero medium trucks (six tires/two axles) and zero heavy truck (all vehicles with three or more axles) passed the site and approximately 74 cars/light trucks, zero medium trucks (six tires/two axles) and zero heavy trucks (all vehicles with three or more axles) passed the site on North/South Horne Street. Monitoring Site M2 is located at the southwest corner of the site adjacent to the Seagaze Drive and North/South Clementine Street intersection. During monitoring, approximately 45 cars/light trucks, four medium trucks (six tires/two axles) and zero heavy trucks (all vehicles with three or more axles) passed the site on North/South Clementine Street and 85 cars/light trucks, zero medium trucks (six tires/two axles) and zero heavy trucks (all vehicles with three or more axles) passed the site on Seagaze Drive. Monitoring Site M3 is located at the northeast corner of the site adjacent to the Oceanside High School campus. During monitoring, approximately 269 cars/light trucks, seven medium trucks (six tires/two axles) and zero heavy trucks (all vehicles with three or more axles) passed the site on Mission Avenue and 148 cars/light trucks, four medium trucks (six tires/two axles) and zero heavy trucks (all vehicles with three or more axles) passed the site on North Horne Street. Monitoring Site M4 is located along Mission Avenue mid-block between North Horne Street and North Clementine Street. During monitoring, approximately 181 cars/light trucks, four medium trucks (six tires/two axles) and zero heavy trucks (all vehicles with three or more axles) passed the site on Mission Avenue.

As stated, a second set of measurements were taken on March 18, 2025 at the same locations identified above. During monitoring, approximately 77 cars/light trucks, one medium truck (six tires/two axles) and zero heavy trucks (all vehicles with three or more axles) passed the Site M1 on Seagaze Avenue and 47 cars/light trucks, zero medium trucks (six tires/two axles) and zero heavy trucks (all vehicles with three or more axles) passed the site on South Clementine Street. During monitoring, approximately 76 cars/light trucks, zero medium trucks (six tires/two axles) and zero heavy trucks (all vehicles with three or more axles) passed site M2 on Seagaze Drive. During monitoring, approximately 168 cars/light trucks, two medium trucks (six tires/two axles) and zero heavy trucks (all vehicles with three or more axles) passed site M3 on South Horne Street and 252 cars/light trucks, two medium trucks (six tires/two axles) and zero heavy trucks (all vehicles with three or more axles) passed site M3 on Mission Avenue. During monitoring, approximately 181 cars/light trucks, zero medium trucks (six tires/two axles) and zero heavy trucks (all vehicles with three or more axles) passed site M4 on Mission Avenue. Table 2 identifies the noise measurement location and measured noise level.

The monitoring location is shown in Figure 4. As shown in Table 2, during the April 11, 2024 monitoring period, the measured Leq was 54.7 dBA at Site M1, 62.2 dBA at Site M2, 66.1 dBA at Site M3 and 63.0 dBA at Site M4. During the March 18, 2025 monitoring period, the measured Leq was 55.3 dBA at Site M1, 63.5 dBA at Site M2, 66.1 dBA at Site M3 and 66.7 dBA at Site M4.

The monitoring data sheets are provided in Appendix A.

**Table 2
Noise Monitoring Results**

Measurement Location	Primary Noise Source	Sample Time	Leq (dBA)
April 11, 2024			
M1. Southern site boundary mid-block between North Horne Steet and North Clementine Street.	Traffic	April 11, 2024 12:38 -12:53 p.m.	54.7
M2. Southwestern corner of the site at the intersection of Seagaze Avenue and North Clementine Street.	Traffic	April 11, 2024 12:59-1:14 p.m.	62.2
M3. Northeastern corner of site adjacent to Oceanside High School campus at northeast corner of North Horne Street and Mission Avenue.	Traffic	April 11, 2024 1:22-1:37 p.m.	66.1 (L ₁₀)
M4. Northern site boundary mid-block between North Clementine Street and North Horne Street	Traffic	April 11, 2024 1:43 p.m.-1:58 p.m.	63.0
March 18, 2025			
M1. Southern site boundary mid-block between North Horne Steet and North Clementine Street.	Traffic	March 18, 2025 4:40 – 4:55 p.m.	55.3
M2. Southwestern corner of the site at the intersection of Seagaze Avenue and North Clementine Street.	Traffic	March 18, 2025 5:00 – 5:15 p.m.	63.5
M3. Northeastern corner of site adjacent to Oceanside High School campus at northeast corner of North Horne Street and Mission Avenue.	Traffic	March 18, 2025 5:41 – 5:56 p.m.	66.1
M4. Northern site boundary mid-block between North Clementine Street and North Horne Street	Traffic	March 18, 2025 5:20 – 5:35 p.m.	66.7

Source: Field visit using ANSI Type II Integrating sound level meter.

Note – the measured L10 is used for site M3 (April 11, 2024 monitoring period) to account to siren passby during last one minute of monitoring episode

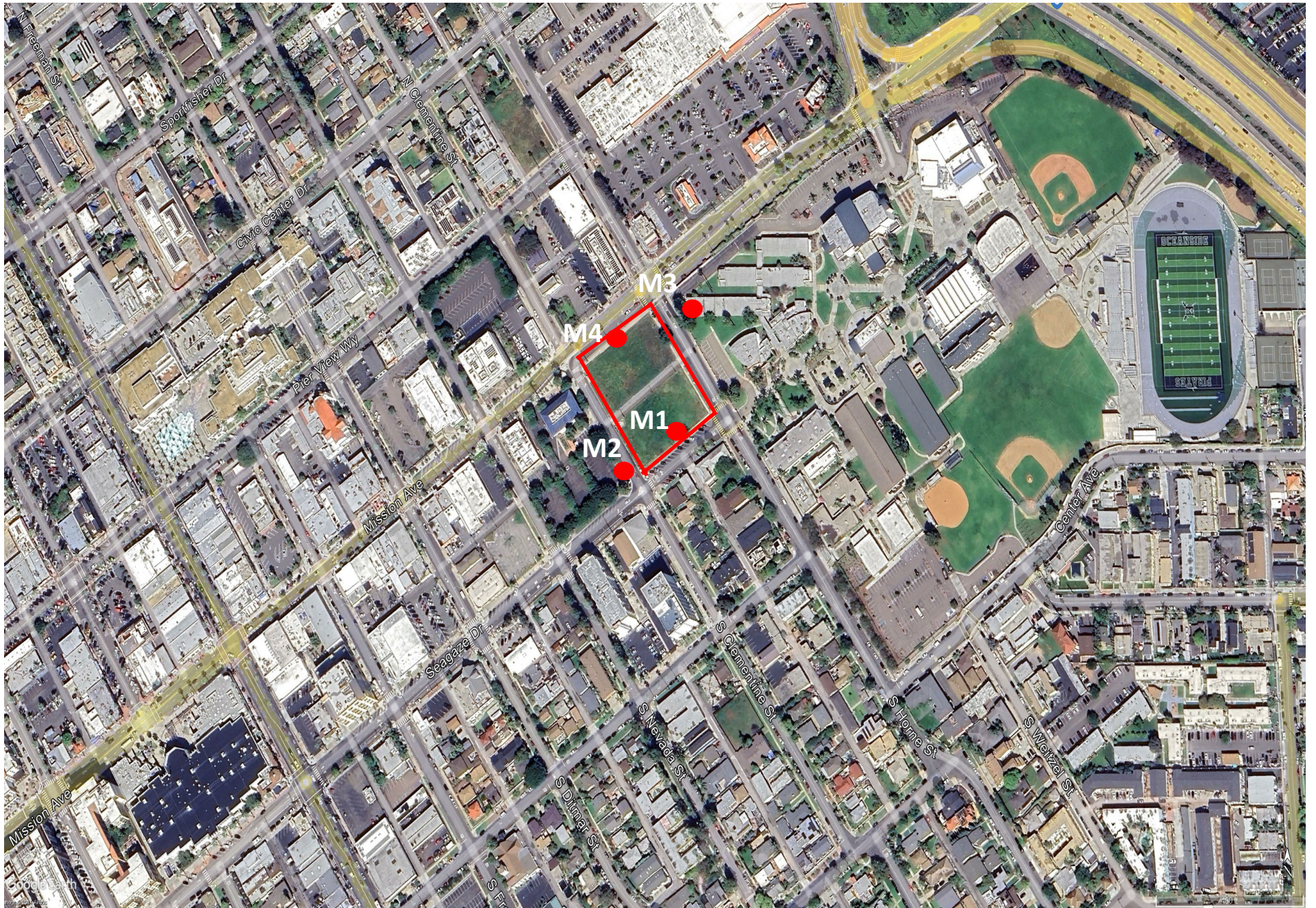


Figure 4 - Noise Monitoring Locations

 - Project Site

Regulatory Setting

Noise Standards and Policies

State of California

In 1976, the California Department of Health, State Office of Noise Control published a recommended noise/land use compatibility matrix which many jurisdictions have adopted as a standard in their general plan noise elements. The California State Office of Planning and Research 2017 updates to the General Plan Guidelines, Appendix D Noise Element Guidelines, Figure 2, shows that exterior noise levels up to 60 dBA (CNEL or Ldn) are normally compatible for low density single-family residences, duplexes and mobile homes. Noise levels up to 70 dBA (CNEL or Ldn) are conditionally compatible in urban settings like the project site for

multifamily residences. The term “normally compatible” refers to compatibility with the ambient outdoor noise environment for the land use type referenced such that interior noise levels are adequately attenuated without implementation of specific noise reduction measures. Whereas, “conditionally compatible” refers to exterior ambient conditions that require the use of construction materials and methods or mitigation to achieve interior noise standards for the specified land use type.

California Green Building Code

Section 5.507.4.2 of the 2019 California Green Building Code (CALGreen) stipulates that for buildings exposed to a noise level of 65 dB or more when measured as a 1-hour Equivalent Sound Level (Leq), the building façade, including walls, windows, and roofs, shall provide enough sound insulation so that the interior sound level from exterior sources does not exceed 50 dBA during any hour of operation. This applies to non-residential occupancies only.

California Building Code

Section 1206.4 Allowable Interior Noise Levels of California Building Code 2022, the interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric shall be either the day-night average sound level (Ldn) or the community noise equivalent level (CNEL) consistent with noise element of the local general plan.

City of Oceanside Noise Level Compatibility Standards

The Noise Element of the City’s General Plan (June 2002) establishes target maximum noise levels in the City. The Noise Element provides the following limitations on construction noise:

1. It should be unlawful for any person within any residential zone or 500 feet therefrom to operate any pile driver, power shovel, pneumatic, power hoist, or other construction equipment between 8:00 p.m. and 7:00 a.m. generating an ambient noise levels of 50 dBA at any property line unless an emergency exists.

2. It should be unlawful for any person to operate any construction equipment at a level in excess of 85 dBA at 100 feet from the source.

3. It should be unlawful for any person to engage in construction activities between 6:00 p.m. and 7:00 a.m. when such activities exceed the ambient noise level by 5 dBA. A special permit may be granted by the Director of Public Works if extenuating circumstances exist.

In addition, the Noise Element addresses nuisance noise and states that it should be unlawful for any person to make or continue any loud, unnecessary noise that causes annoyance to any reasonable person of normal sensitivity.

Noise Element Policies

- Noise levels shall not be so loud as to cause danger to public health in all zones except manufacturing zones where noise levels may be greater;
- Noise shall be controlled at the source where possible;
- Noise shall be intercepted by barriers or dissipated by space where other controls fail or are impractical;
- Noise levels shall be considered in any change to the Land Use and Circulation Elements of the General Plan; and
- Noise levels of City vehicles, construction equipment, and garbage trucks shall be reduced to acceptable levels.

City of Oceanside Noise Ordinance

Chapter 38 of the Oceanside Municipal Code governs operational noise and contains the maximum one-hour average sound levels for various land uses (Table 3) generated by sources within or affecting each land use zone. The Noise Ordinance sets an allowed level for commercial zones, noise generation is limited to 65 dBA Leq from 7:00 a.m. to 9:59 p.m. and 60 dBA Leq from 10:00 p.m. to 6:59 a.m. Noise levels within the Downtown zone are limited to 65 dBA from 7:00 a.m. to 9:59 p.m. and 55 dBA Leq from 10:00 p.m. to 6:59 a.m. Where two land use zones abut one another, the more restrictive noise limit is enforced along the common boundary between the two land uses.

**Table 3
City of Oceanside Exterior Noise Standards**

Base District Zone	Applicable Limit (dBA)	Time Period
Residential Estate, Single-Family Residential, Medium Density Residential, Agricultural, Open Space	50 45	7:00 a.m. to 9:59 p.m. 10:00 p.m. to 6:59 a.m.
High Density, Residential Tourist	55 50	7:00 a.m. to 9:59 p.m. 10:00 p.m. to 6:59 a.m.
Commercial	65 60	7:00 a.m. to 9:59 p.m. 10:00 p.m. to 6:59 a.m.
Industrial	70 65	7:00 a.m. to 9:59 p.m. 10:00 p.m. to 6:59 a.m.
Downtown	65 55	7:00 a.m. to 9:59 p.m. 10:00 p.m. to 6:59 a.m.

Source: City of Oceanside Municipal Code Section 38.12 – General Sound Level Limits

Construction activities are subject to Section 38.17 (h) of the Noise Ordinance, which specifically prohibits the operation of any pneumatic or air hammer, pile driver, steam shovel, derrick, steam, or electric hoist, parking lot cleaning equipment or other appliance, the use of which is attended by loud or unusual noise, between the hours of 10:00 p.m. and 7:00 a.m.

Section 38.16 prohibits nuisance noise as recommended in the General Plan Noise Element. It is unlawful for any person to make, continue or cause to be made or continued, within the limits of the City of Oceanside, any disturbing, excessive, or offensive noise that causes discomfort or annoyance to reasonable persons of normal sensitivity.

No specific noise standards are provided for school uses. The City of San Diego California Environmental Quality Act (CEQA) Significance Determination Thresholds (September 2022), Table K-2, establishes traffic noise standards for various land uses. The threshold for school uses is 65 dBA for usable exterior space. This is consistent with the neighboring Downtown zoning designation; and thus, is uses herein for for addressing traffic noise levels at the portion of the Oceanside High School campus adjacent to North Horne Street. For stationary noise purposes, the school is considered a residential use.

City of Oceanside Engineering Design Manual

Construction noise in Oceanside is governed by the City Engineering Design Manual, General Notes section, Grading Plan Design Notes, Note 20; states the following:

“All operations conducted on the premises, including the warming up, repair, arrival, departure, or running of trucks, earthmoving equipment, construction equipment, and any other associated equipment shall be limited to the period between 7:00 a.m. and 6:00 p.m. each day, Monday through Friday, and no earthmoving or grading operations shall be conducted on the premises on Saturdays, Sundays or legal holidays, unless waived by the City

Engineer.”<https://www.ci.oceanside.ca.us/government/development-services/engineering/engineering-manuals/engineering-design-manual>

Vibration Standards and Guidelines

Vibration is a unique form of noise as the energy is transmitted through buildings, structures and the ground whereas audible noise energy is transmitted through the air. Thus, vibration is generally felt rather than heard. The ground motion caused by vibration is measured as peak particle velocity (PPV) in inches per second. Vibration impacts to buildings are generally discussed in terms of PPV which describes particle movement over time (in terms of physical displacement of mass). Vibration can impact people, structures, and sensitive equipment. Groundborne vibration generated by construction projects is usually highest during pile driving, rock blasting, soil compacting, jack hammering, and other high impact demolition and excavation-related activities. Grading also has the potential to cause short-term vibration impacts if large bulldozers, loaded trucks, or other heavy equipment operate within proximity to sensitive land uses. Use of the PPV descriptor is common when addressing potential impacts to structures. Per Caltrans standards, excessive ground-borne vibration would occur if construction-related ground-borne vibration exceeds the “severe” vibration annoyance potential criteria for human receptors of 0.4 inch per second PPV or the damage potential criteria to older residential structures of 0.3 inch per second PPV for continuous/frequent intermittent construction sources.

Construction activities referenced above that would generate significant vibration levels are not proposed (i.e., blasting, pile driving, jackhammering). On-site soils, as describe in the Geotechnical Investigation Report (May 2024), are comprised of undocumented fill and Old Paralitic Deposits. The fill generally consists of silty sand with scattered gravel. The fill is unsuitable to support the planned improvements and would be removed during excavation. The Old Paralitic Deposits were encountered beneath the undocumented fill and extended through the full depth explored. The material consists of dense to very dense, silty sand, clayey sand, and sand with silt. Cobbles were encountered at a depth of approximately 20 feet below the ground surface. Excavation of these types of soils typically requires equipment such as excavators, back hoes and tractors. On-site soils would not require impact methods, such as rock breaking or blasting, to excavate and remove the soils from the site. To provide information for use in completing the CEQA evaluation, construction-related vibration impacts are evaluated using both PPV and associated VdB criteria. Table 4 shows PPV, approximate VdB and related human reaction and effects on buildings.

Table 5 summarizes the noise standards referenced above that apply to the proposed project.

**Table 4
Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent
Traffic Vibration Levels**

Peak Particle Velocity (inches/second)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effects on Buildings
0.006–0.019	64–74	Range of threshold of perception.	Vibrations unlikely to cause damage of any type.
0.08	87	Vibrations readily perceptible.	Recommended upper level to which ruins and ancient monuments should be subjected.
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities.	Virtually no risk of architectural damage to normal buildings.
0.2	94	Vibrations may begin to annoy people in buildings.	Threshold at which there is a risk of architectural damage to normal dwellings.
0.4–0.6	98-104	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges.	Architectural damage and possibly minor structural damage.

Source: Caltrans, April 2020

**Table 5
Project Noise Standards**

Activity	Standard
Interior Noise in Project Residences	45 CNEL
Operational Noise (Stationary Equipment) C-Commercial	65 dBA Leq (1hr) 7:00 a.m. to 10:00 p.m. 60 dBA Leq (1hr) 10:00 p.m. to 7:00 a.m.
Operational Noise (Stationary Equipment) D-Downtown	65 dBA Leq (1hr) 7:00 a.m. to 10:00 p.m. 55 dBA Leq (1hr) 10:00 p.m. to 7:00 a.m.
Operational Noise (Traffic)	CNEL increase of 3 dBA above ambient noise levels at noise sensitive receptors when ambient conditions exceed 65 dBA CNEL or the project causes noise levels to exceed 65 dBA CNEL.
Construction Noise	85 dBA at 100 feet from source.

Activity	Standard
Ground-borne Vibration	0.04 PPV for frequent events. 0.25 PPV for occasional events.

IMPACT ANALYSIS

Significance Thresholds and Methodology

The following significance criteria are based on Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.) and will be used to determine the significance of potential noise impacts. Impacts to noise would be significant if the proposed project would result in:

- (a) *Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;*
- (b) *Generation of excessive groundborne vibration or groundborne noise levels; or*
- (c) *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 airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.*

Construction noise estimates are based upon noise levels reported by the Federal Transit Administration, Office of Planning and Environment, and the distance to nearby sensitive receptors. Reference noise levels from that document were used to estimate noise levels at nearby sensitive receptors based on the applicable noise attenuation rate of 6 dB per doubling of distance (free field propagation of sound attenuation).

The proposed project would be a new use; thus, noise levels associated with existing and future traffic were based on the difference in trip volumes attributable to the project between existing conditions and the proposed use. A doubling of traffic volumes would be required to cause a noticeable increase (3 dBA) in traffic noise. As stated, measured baseline conditions exceed 65 dBA CNEL, the normally acceptable exterior sound level for residential properties referenced in the General Plan Noise Element, at M3 which is located across from the northeast corner of the site adjacent to the northwest corner of the Oceanside High School campus.. This location is exposed to traffic from both Mission Avenue and North Horne Street, including southbound North Horne Street traffic turning eastbound on Mission Avenue towards Interstate 5. The normally acceptable exterior sound level is also exceeded at M4 which is located along the northern property boundary. The remaining two monitoring locations are within the normally acceptable exterior standard. Baseline (2025) and with project sound levels during the first full build out year (2030) and horizon year (2050) were calculated to determine whether project

traffic, when added to cumulative traffic, would noticeably increase (+3 dBA or greater) the Leq over baseline conditions for receivers exceeding 65 dBA CNEL or cause noise levels to exceed 65 dBA CNEL at receivers where noise levels are less than 65 dBA CNEL under baseline conditions.

As noted, a noise increase greater than 3 dBA is readily perceptible to the average human ear; and thus, is the level considered a substantial noise increase related to traffic operations when noise levels without the project exceed 65 dBA CNEL or the project causes the noise levels to exceed 65 dBA CNEL. For the purpose of this evaluation, the CNEL are used for traffic noise as it provides a conservative estimate of potential noise levels. Temporary construction noise was estimated at the noise sensitive properties shown in Figure 3. As shown, retail, commercial or office uses, which are not noise sensitive, are located approximately 50 feet to the west across North Clementine Street and 90 feet north across Mission Avenue; Multi-family residences, in a designated commercial zone, are located on the south side of Seagaze Drive approximately 70 feet south of the project site; and Oceanside High School is located approximately 70 feet east of the site on the east side of North Horne Street. Both the multifamily residences and Oceanside High School are noise sensitive.

a. 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 local general plan or noise ordinance, or applicable standards of other agencies?

Temporary Construction Noise

Consistent with the City's Noise Ordinance, project construction would be limited to the period between 7:00 a.m. and 6:00 p.m. each day, Monday through Friday, and no earthmoving or grading operations shall be conducted on the premises on Saturdays, Sundays or legal holidays. Construction noise data for individual pieces of equipment that are commonly used at construction sites were used to evaluate temporary noise levels for consistency with the General Plan Noise Element standard of 85 dBA Lmax at 100 feet.

As stated, noise sensitive receivers are located 70 feet to the east and south of the site. Table 6 shows sound levels for each piece of equipment at a reference distance of 50 and 100 feet, as well as the percentage of time during a typical day that this equipment is in use. Project construction would occur over the entire project site; thus, construction activities will vary in distance from the nearest noise sensitive receivers which are existing classrooms located approximately 70 feet east/northeast of the eastern project site boundary and both single- and multifamily residences located in a commercial zone along the south side of Seagaze Drive (905 and 909 Seagaze Drive) and 104 South Clementine Street. As stated, these residences are approximately 70 feet south of the southern site boundary as measured from the back of each

sidewalk. Commercial uses, which are not noise sensitive, are located approximately 50 feet to the west and 90 feet to the north.

**Table 6
Typical Maximum Construction Equipment Noise Levels**

Equipment Onsite	Typical Maximum Level (dBA) 50 Feet from the Source	Typical Maximum Level (dBA) 100 Feet from the Source	Usage Factor
Air Compressor	78	72	40%
Backhoe	78	72	40%
Bobcat Tractor	84	78	40%
Concrete Mixer	79	73	40%
Loader	79	73	40%
Bulldozer	82	76	40%
Jack Hammer	89	83	20%
Pavement Roller	80	74	20%
Street Sweeper	82	76	10%
Man Lift	75	69	20%
Dump Truck	77	71	40%
Mobile Crane	81	75	16%
Excavator/Scraper	84	78	40%

*Source: FTA Noise and Vibration Impact Assessment Manual (September 2018), Table 7-1.
Noise levels are based on actual maximum measured noise levels at 50 feet (Lmax).
Noise levels are based on a noise attenuation associated with the usage factor.*

The Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) data were used to estimate construction noise levels at the nearest occupied noise-sensitive receivers referenced above. Although the model was funded by the Federal Highway Administration, the RCNM data is used for non-roadway projects because the same types of construction equipment used for roadway projects are used for other types of construction. Input variables for the RCNM consist of the receiver/land use types, the equipment type and number of each type of equipment used; the duty cycle for each piece of equipment (e.g., percentage of hours the equipment typically works per day), and the distance from the noise-sensitive receiver. As noted, the distances were varied across the site as equipment cannot work simultaneously in the same location from a given point. Conservatively, no topographical or structural shielding was assumed nor did the calculations include reductions to account for the fact that not all equipment would operate at the same time. Table 7 shows noise levels during each phase of construction with equipment operating at 70, 85 and 100 feet from the noise sensitive receivers to the south and east.

**Table 7
Estimated Construction Noise Levels**

Construction Phase	Lmax
Demolition (back hoe, front-end loader, dump truck)	78.3 ⁽¹⁾
Site Preparation (dozer, back hoe, front-end loader)	79.7 ⁽²⁾
Grading (dozer, excavator, backhoe and front-loader, dump truck)	81.8 ⁽³⁾
Building Construction (crane, manlift, backhoe and front-end loader)	79.8 ⁽⁴⁾
Paving (paver and roller)	78.9 ⁽⁵⁾
Architectural Coating (air compressor)	73.1 ⁽⁶⁾

Methodology:

- (1) Backhoe at 70 feet, front end loader at 85 feet and dump truck at 100 feet.
- (2) Backhoe at 70 feet, front end loader at 85 feet and dozer at 100 feet.
- (3) Dozer at 85 feet, excavator at 100 feet, backhoe at 70 feet, front end loader at 85 feet and dump truck at 85 feet
- (4) Crane at 100 feet, manlift at 85 feet, front end loader at 85 feet and backhoe at 70 feet;
- (5) Paver and roller operate at 20 percent usage consecutively at 70 feet
- (6) Air compressor(s) operating at 85 feet

As shown in Table 7, maximum construction noise levels would not exceed the applicable construction noise significance threshold - 85 dBA Lmax at 100 feet as stated in the City of Oceanside General Plan. Thus, temporary construction noise impacts would be less than significant.

Operational Noise Exposure

Operation of the proposed project was evaluated for potential noise impacts associated with project operational traffic related as well as operational noise generated by project features such as HVAC equipment and common area open space.

Exterior Traffic Noise. Traffic is the primary noise source that would be generated by operation of the proposed project. As stated, existing noise levels were measured at the project site on April 11, 2024 and again on March 18, 2025. The Leq during the April 2024 monitoring period ranged from 54.7 dBA along the southern site boundary along Seagaze Drive to 66.1 dBA at the northeast corner of North Horne Street and Mission Avenue. Similar noise levels were measured during the March 18, 2025 monitoring period. The existing measured Leq along the Mission Avenue frontage and at the northeast corner of the project site exceeds 65 dBA, the traffic noise threshold established in the General Plan Noise Element for residential and other sensitive uses. The dominant noise source is traffic on both east and westbound Mission Avenue as well as north and southbound traffic on North Horne Street turning onto eastbound Mission Avenue. Interstate 5 traffic is not audible above ambient conditions at the site. The roadway network adjacent to the project site, including the site driveway, was modeled using the Federal Highway Administration Traffic Noise Model (TNM) version 2.5 software. The model calculates traffic noise at receiver locations based on traffic volumes, travel speed,

mix of vehicle types operating on the roadways (i.e., cars/trucks, medium trucks and heavy trucks) and related factors. Traffic volumes used to establish the vehicle mix on Mission Avenue, North Clementine Street, North Horne Street and Seagaze Drive are based on the LTS trip distribution estimates (CR Associates, Inc., June 2025).

Current hourly average baseline noise levels (Leq) were calculated for the residential receivers located south of the project site and the Oceanside High School classrooms located at the northwest corner of the campus. The following lists the closest sensitive receivers to the project site that would experience the highest concentration of project-related traffic noise.

- Receiver 1. Project northern façade between North Clementine Street and North Horne Street;
- Receiver 2. Project eastern façade between Mission Avenue and Seagaze Drive;
- Receiver 3. Oceanside High School classrooms and adjacent outdoor courtyard area located at northeast corner of North Horne Street and Mission Avenue.
- Receiver 4. Multifamily building at 909 Seagaze Avenue;
- Receiver 5. Single-family residence at 104 South Clementine Street;

The LTS demonstrates that the project will generate a total of 1,517 daily trips, including 101 (38-in/63-out) trips during the a.m. peak hour and 110 (67-in/43-out) trips during the p.m. peak hour. In the Opening Year modeling, noise levels associated with the project were calculated by distributing the highest 110 p.m. peak hour project trips into the cumulative projects plus baseline traffic volumes within the neighboring street network based on trip distribution volumes shown in the LTS, along Mission Avenue, North Clementine Street, North Horne Street and Seagaze Drive. Note that the LTS discloses that the Horizon Year (2050) scenario has some volumes that are less than Opening Year (2030) based on changes in factors such as population density and transit use. The Horizon Year volumes are based on the City's recent modeling efforts to update the General Plan and represent the most current and reliable projections of future volumes. This is reflected in Table 8 below which shows noise levels in 2050 are lower than 2030 for both the without and with project conditions.

The receiver locations are shown in Figure 5 and the modeling results are shown in Table 8 for existing conditions, 2030 No Project, 2030 With Project, 2050 No Project and 2050 With Project conditions. As stated, 2030 would be the first complete year of occupancy. As shown, without the project, traffic noise at Receiver 1 and 3 would exceed 65 dBA. Thus, the project would have a potentially significant impact if the project's traffic contribution exceeded 3 dBA. Table 8 shows the highest increase between the 2030 No Project/2030 With Project scenario and the 2050 No Project/2050 With Project scenario. For all receivers, the greatest increase would occur between 2050 No Project and 2050 With Project scenario. The highest increase would be +0.3 dBA at Receivers 1, 2 and 3. The project would not cause noise levels that were (or are projected to be) below 65 dBA CNEL in a without project scenario to exceed 65 dBA CNEL nor would the

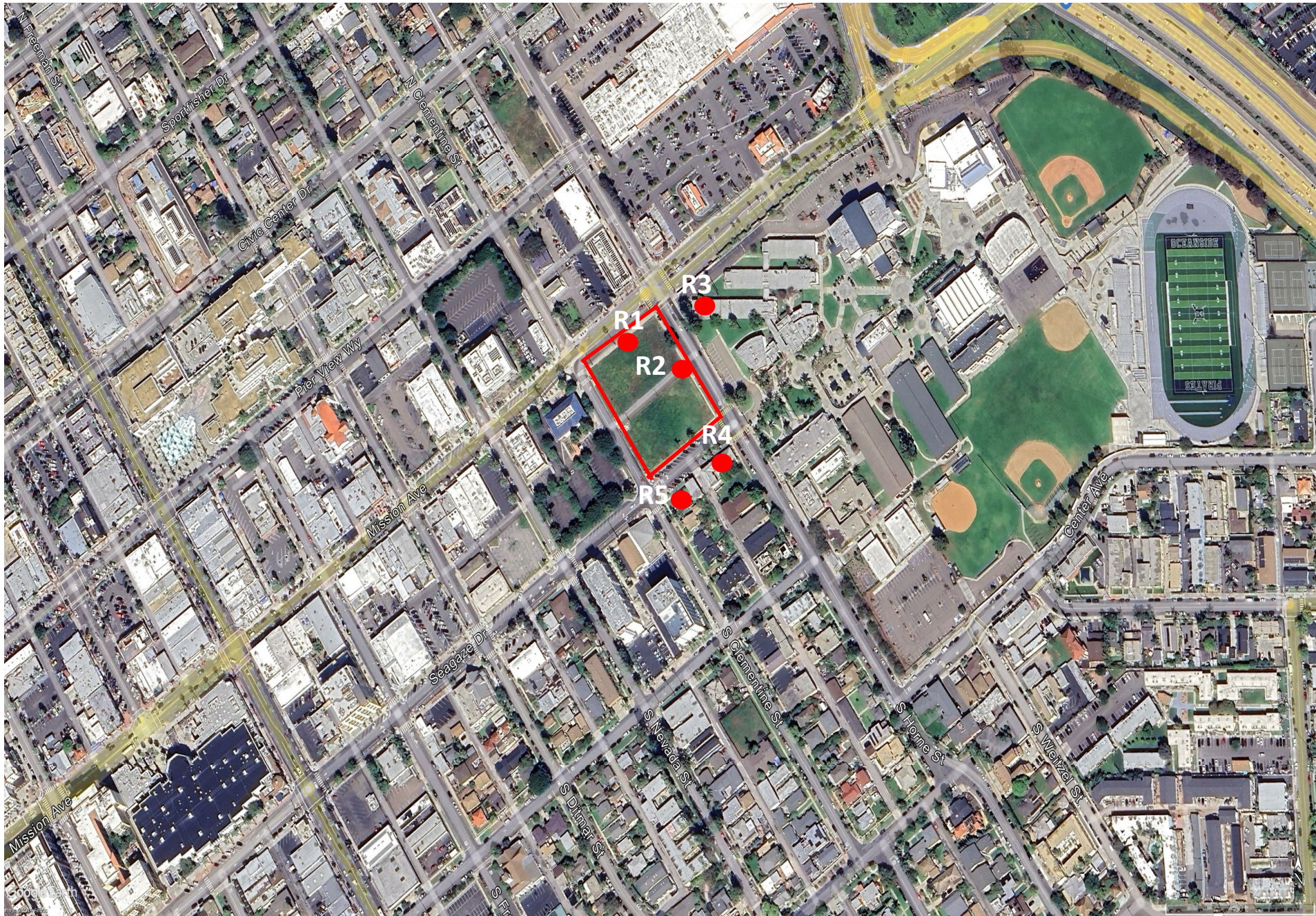


Figure 5 - Noise Receiver Locations

 - Project Site

project cause an increase of 3 dBA or more for those scenarios where noise levels without the project exceed 65 dBA CNEL. Therefore, traffic noise impacts with the project at all receivers would be less than significant under the applicable thresholds.

**Table 8
Modeled Noise Levels**

Receiver	Existing Ldn/CNEL	Opening Year No Project Ldn/CNEL (2030)	Opening Year w/Project Ldn/CNEL (2030)	Horizon Year No Project Ldn/CNEL (2050)	Horizon Year w/Project Ldn/CNEL (2050)	Highest dBA Increase Between 2030 and 2050 No Project and With Project Conditions	Significant Impact
Receiver 1	65.2	66.3	66.5	65.1	65.4	+0.3	No
Receiver 2	63.6	64.3	64.5	63.5	63.8	+0.3	No
Receiver 3	67.0	68.1	68.3	66.9	67.2	+0.3	No
Receiver 4	62.8	63.3	63.4	62.5	62.7	+0.2	No
Receiver 5	64.4	64.9	65.0	63.8	64.0	+0.2	No

1st noise analysis the increase was calculated using Existing/Ldn/CNEL, and this study is by the projection year 2030, with no project.

Interior Traffic Noise. California Energy Code Title 24 standards specify construction methods and materials that result in up to a 30 dBA reduction in exterior noise levels (assuming windows are closed). This includes operation of mechanical ventilation (e.g., heating and air conditioning), in combination with standard building construction that includes dual-glazed windows with a minimum Sound Transmission Class (STC) rating of 26 or higher. When windows are open, the insertion loss drops to about 10 dBA. The manner in which older homes in California were constructed (approximately 30 years old or older) generally provides a reduction of exterior-to-interior noise levels varying between 20 and 25 dBA with closed windows.

The project units would be constructed consistent with current Title 24 standards. The window, door and wall assemblies would provide at least a 30 dBA reduction in exterior to interior noise levels. Based on noise levels shown in Table 8, the highest interior noise levels would range from 36.5 dBA CNEL to 34.5 dBA CNEL for Receivers 1 and 2 in the Opening Year (2030) With Project Condition. Thus, interior noise levels at Receivers 1 and 2 would be less than the 45 dBA Title 24 and City of Oceanside interior residential noise standard.

As stated above, the manner in which older homes in California were constructed (approximately 30 years old or older) generally provides a reduction of exterior-to-interior noise levels varying between 20 and 25 dBA with closed windows. For the purpose of this discussion, the buildings representing Receivers 3, 4 and 5 provide 20 to 25 dBA of attenuation. Using the lower 20 dBA attenuation, with project contributions during the 2030 With Project condition, interior noise levels at Receiver 4 would be 43.4 dBA CNEL and interior noise levels at Receiver 5 would be 45 dBA CNEL. Thus, interior noise levels at Receivers 4 and 5 would be equal to or less than the 45 dBA Title 24 and City of Oceanside interior residential noise standard. The Oceanside High School building (Receiver 3) interior noise levels would be 48.1 dBA without the project and interior noise levels with the project would be 48.3 dBA with the project. As the

without project conditions exceed 45 dBA, and the project would cause a maximum increase of 0.3, well below the significance threshold/audibility threshold of 3 dBA; project impacts to interior noise would be less than significant.

Outdoor Open Space. Balconies would be provided on the exterior of each project unit as outdoor open space. The maximum allowable sound levels within outdoor open spaces is 65 dBA CNEL. As shown in Table 8 above, exterior noise levels would exceed this requirement at the north and eastern building facades at ground level. Noise levels at outdoor open space balconies facing Mission Avenue, North Horne Street and North Clementine Street were estimated using the TNM with adjustments to receiver locations and heights to reflect the noise reduction distance associated with increased elevation and distance from adjacent roadways. The modeling results took into consideration the project design features that include four-foot tall glass or other solid barrier around the balconies located on (i) floors two and three facing Mission Avenue; (ii) units on floors one, two and three facing North Horne Street; and (iii) units on floors one, two and three facing North Clementine Street within approximately 100 feet of Mission Avenue. As the modeling demonstrates, a wall partition barrier with a single-layer of glass as incorporated into the project as a design feature will provide 5-10 dBA of attenuation as sound waves will refract over the top of the barrier (City of Vancouver Noise Control Manual). With that level of attenuation incorporated into the project design for those locations, noise levels at the exterior balconies will not exceed the significance threshold of 65 dBA.

With respect to the outdoor courtyard area adjacent to and south of the nearest Oceanside High School classroom building modeled as Receiver 3, exterior noise levels within the open space area would be approximately 66.9 dBA CNEL during the 2050 Without Project condition. The noise level with the project under that scenario would increase by 0.3 dBA CNEL to 67.2 dBA CNEL. As the conditions without the project would already exceed the 65 dBA CNEL threshold standard, but the project would only contribute a +0.3 dBA increase which is well below the significance/audibility threshold of 3 dBA, impacts will be less than significant as the project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project, nor would the proposed units be exposed to noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies

Heating, Ventilation and Air Conditioning/Pool Equipment. Stationary noise generated by residential properties can include noise associated with outdoor heating, ventilation and air conditioning systems (HVAC) and/or pool equipment. As a project design feature, the individual HVAC systems for each unit would be located within an enclosed space within each unit. The HVAC systems for the common areas, again as a project design feature, would be within an enclosed space within the building and any exterior rooftop HVAC units would be placed near the center of the building and shrouded to minimize sound levels. The project design places the pool within the interior courtyard on the 3rd level and the pool equipment

would be located within an enclosed space proximal to the pool area. Thus, no stationary sources associated with the project would be audible off-site such that the project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies; impacts would be less than significant.

Outdoor Recreational Use Area. As stated, the project would have an interior courtyard swimming pool and outdoor recreation area on the 3rd level that will only be available to project residents and their guests. Section 38.12 of the Oceanside Municipal Code limits noise levels at the adjacent noise sensitive receivers, which are located in a commercial zone along Seagaze Avenue or Public/Civic (Oceanside High School), to 65 dBA Leq from 7:00 a.m. to 9:59 p.m. and 60 dBA from 10:00 p.m. to 6:59 a.m. Noise levels in excess of that standard at any point beyond the property boundary would violate the Municipal Code. Further, noise associated with use of the outdoor pool area would be required to comply with Chapter 38 - Noise Control, of the Municipal Code. Pool/outdoor recreation area would not be audible outside the project boundaries as those activities are located within an interior courtyard. Further California Public Resources Code section 21085 provides that “the effects of noise generated by project occupants and their guests on human beings is not a significant effect on the environment.” Thus, CEQA does not require a noise of the effect of noise generated at the outdoor recreation use area by the occupants and guests of the project.

b. Generation of excessive groundborne vibration or groundborne noise levels?

Temporary Construction-Related Vibration

The vibration velocity level for perception by humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. The California Department of Transportation uses the following standards when addressing vibration. Excessive ground-borne vibration would occur if construction-related ground-borne vibration exceeds the “severe” vibration annoyance potential criteria for human receptors of 0.4 inch per second PPV or the damage potential criteria to older residential structures of 0.3 inch per second PPV for continuous/frequent intermittent construction sources, as specified by Caltrans (April 2020) The PPV and accompanying VdB level associated with common construction equipment is shown in Table 9. Based on the project geotechnical study and information from the applicant, heavy impact construction methods that could generate enough vibration to damage buildings proximal to the project site (i.e., pile driving, rock breaking, drilling, blasting) would not be required for the project.

Construction activity on the project site would be temporary and vibration events would be transitory occurring only during equipment pass bys. Using vibration levels associated with a large bulldozer, the piece of grading equipment with the highest vibration level, as a worst case

scenario, groundborne vibration would be approximately 0.089 PPV at 25 feet (see Table 9 below). Even conservatively assuming a clam shovel or vibratory roller would be used on-site when excavating the parking garage or performing other site development activities, those equipment pieces can generate 0.202 PPV and 0.21 PPV, respectively, at 25 feet from the source. If used on-site, they would likely operate in the excavation pit below ground level and the elevation of neighboring properties. The PPV generated by a heavy bulldozer, clam shovel and vibratory roller at 25 feet are below the vibration thresholds of significance referenced above. As stated, the closest sensitive properties are 70 feet from the property line so project generated construction related vibrations would be below those reported in Table 9 .

Sustained equipment operation is not expected to occur proximal to adjacent properties nor would the PPV reach levels reach the lowest of the significance thresholds of 0.3 inch per second PPV. Thus, even using conservative assumptions, project impacts related to construction vibration would be less than significant.

**Table 9
Vibration Source Levels for Construction Equipment**

	Peak Particle Velocity (inches/second) at 25 feet	Approximate Vibration Level LV (dVB) at 25 feet
Pile driver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Pile driver (sonic)	0.734 upper range	105
	0.170 typical	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill (slurry wall - soil)	0.008 in soil	66
Hydromill (slurry wall - rock)	0.017 in rock	75
Vibratory Roller	0.21	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, September 2018.

Operation-Related Vibration

The proposed project is a multistory mixed use project with residential apartments above ground floor commercial use along Mission Avenue. These uses do not generate vibration of the type that could result in excessive groundbourne vibration or groundborne noise. Project operation will not result in the generation of excessive groundborne vibration or groundborne noise levels. Impacts would be less than significant.

c. 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 airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

There are no private airstrips within the vicinity of the project site. The closest airport to the proposed project site is the Oceanside Municipal Airport, approximately 1.9 miles northeast of the site. According to the Oceanside Municipal Airport's Airport Land Use Compatibility Plan Exhibit IV-5, Future Airport Noise Contours, the project site is not located within a noise exposure range of 60–75 dB CNEL (San Diego County Regional Airport Authority 2010). Thus, the project residents and employees would not be exposed to excessive noise levels associated with an airport or air strip. Impacts would be less than significant.

CONCLUSION

The proposed project was evaluated for potential construction and operational noise impacts in accordance with the applicable CEQA significance thresholds. As discussed herein, project related noise impacts would be less than significant..

Would the project result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

As stated, construction noise levels would be less than the 85 dBA Lmax instantaneous standard at 100 feet. Temporary construction impacts would be less than significant. With the project's design features and the relative contribution of the project compared to without project scenarios, operational impacts related to exterior and interior traffic noise would be less than significant.. No impact would occur with operation of the building HVAC system. Noise associated with use of the outdoor pool area would be confined to the 3rd level interior courtyard. The project would not result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Would the project result in the generation of excessive groundborne vibration or groundborne noise levels?

As stated herein, temporary impacts associated with construction vibration would be less than significant. The proposed project is a multistory residential apartment building with ground floor commercial. These uses do not generate vibration; thus, no vibration impacts are anticipated to occur with operation of the project.

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 airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

With respect to airport operations, the project site is located west of the Oceanside Municipal Airport and is located outside the operational noise exposure range of 60–75 dB CNEL. Thus, the project residents and employees would not be exposed to excessive noise levels generated by airport operations. Impacts would be less than significant.

REFERENCES

- California State Office of Planning and Research, Updates to the General Plan Guidelines, Appendix D Noise Element Guidelines, 2017
- California Department of Transportation, Noise and Vibration Guidance Manual, April 2020
- City of Oceanside, General Plan Noise Element, 1974
- City of Oceanside Municipal Code Section 38.12 – General Sound Level Limits
- City of Oceanside Municipal Code Section 38.1 (h) – Noise Ordinance
- City of Oceanside Municipal Code Section 38.16 – Nuisance Noise
- City of Oceanside, *Engineering Design Manual*, August 26, 1992
- City of San Diego California Environmental Quality Act (CEQA) Significance Determination Thresholds (September 2022)
- City of Vancouver, Noise Control Manual
- CR Associates, Inc., Trip Generation Rates and Distribution Figures, June 2025
- dBf & Associates, Inc., Reference Noise Level Compilation Table, 2016.
- Federal Highway Administration, Traffic Noise Model Version 2.5, 2004.
- Federal Highway Administration, Road Construction Noise Model Version 2.5, June 2017
- Federal Transit Administration. *Transit Noise and Vibration Impact Assessment*. September 2018.
- Geocon, Incorporated, *Geotechnical Investigation, 901 Mission Avenue Mixed Use, Oceanside, California*, May 2024

Appendix A

Monitoring Data Sheet and Modeling Results

FIELD NOISE MEASUREMENT DATA

Project Name: 901 Mission Avenue Page 1 of 1
 Project #: _____ Day / Date Apr 11 / 2008 My Name: _____

Sound Level Meter	Calibrator	Weather Meter
Model #: <u>Piccolo II</u>	Model #: _____	Model #: _____
Serial #: _____	Serial #: _____	Serial #: _____
Weighting: <u>A</u> C / Flat	Pre-Test: _____ dBA SPL	Terrain: Hard / Soft <u>Mixed</u>
Response: <u>Slow</u> / Fast / Impl	Post-Test: _____ dBA SPL	Topo: <u>Flat</u> / Hilly (describe)
Windscreen: <u>Yes</u> / No		Wind: <u>Steady</u> / Gusty

ID	Time Start	Time Stop	Leq	Lmin	Lmax	L10	L50	L90	Wind Spd/Dir (mph)	Temp (°F)	RH (%)	Bar Pscr (in Hg)	Cloud Cover (%)
1	12:38	12:53	54.7	47.9	63.9								
2	12:59	1:14	62.2	48.2	83.4				2-3W	75			60%
3	1:22	1:37	66.1	52.4	103.7				2-3W	75			60%
4	1:43	1:58	63.0	50.6	84.3				2-3W	75			60%

Roadway Name	SEAGR26	SEAGR26	Location(s) / GPS Reading(s):
Speed (post/obs)	25/100	25/25	25/30
Number of Lanes	2	2	2/4
Width (pave/row)	24	24	24/60
1- or 2- way	2	2	2/2
Grade	+2%	2%	0/2%
Bus Stops	NO	NO	NO
Stoplights	NO	NO	0 Mission
Street Parking	YES	YES	NO
Automobiles	26/74	45/85	148/269
Medium Trucks	0/0	0/4	4/7
Heavy Trucks	0/0	0/0	0/0

Other Noise Sources: distant aircraft / roadway traffic / trains / landscaping / rustling leaves / children playing / dogs barking / birds vocalizing

Notes and Sketches on Reverse

FIELD NOISE MEASUREMENT DATA

Project Name: Clementine Page 1 of 1
 Project #: _____ Day / Date _____ My Name _____

Sound Level Meter		Calibrator		Weather Meter	
Model #: <u>Piccolo II</u>	Model # _____	Model # _____	Model # _____	Serial # _____	Serial # _____
Serial # _____	Serial # _____	Serial # _____	Serial # _____	Serial # _____	Serial # _____
Weighting: <u>A</u> C / Flat	Pre-Test: _____ dBA SPL	Terrain: <u>Hard / Soft / Mixed</u>			
Response: <u>Slow</u> / Fast / Impl	Post-Test: _____ dBA SPL	Topo: <u>Flat</u> / Hilly (describe)			
Windscreen: <u>Yes</u> / No		Wind: <u>Steady</u> / Gusty			

ID	Time Start	Time Stn	Leq	Lmin	Lmax	L10	L50	L90	Wind Spd/ Dir (mph)	Temp (°F)	RH (%)	Bar Psr (in Hg)	Cloud Cover (%)
			<u>63.5</u>						<u>8mph E</u>	<u>103</u>			<u>0/</u>

Roadway Name Clementine Location(s) / GPS Reading(s): _____
 Speed (post/obs) 25mph
 Number of Lanes 1
 Width (pave/row) 12ft
 1- or 2- way 1 way
 Grade 0%
 Bus Stops n/a
 Stoplights n/a
 Street Parking yes
 Automobiles segregate 77 clementine 47
 Medium Trucks 1 total
 Heavy Trucks _____

Other Noise Sources: distant aircraft / roadway traf / trains / ascending / rustling leaves / children playing / dogs barking / birds vocalizing
 Notes and Sketches on Reverse

03/18/2025

4

FIELD NOISE MEASUREMENT DATA

Project Name: Horne Page 1 of 1
 Project #: _____ Day / Date _____ My Name _____

Sound Level Meter		Calibrator		Weather Meter	
Model #: <u>Pascal II</u>	Model # _____	Model # _____	Serial # _____	Model # _____	Serial # _____
Serial # _____	Serial # _____	Pre-Test: _____ dBA SPL	Terrain: <u>Hard / Soft / Mixed</u>	Post-Test: _____ dBA SPL	Topo: <u>Flat / Hilly (describe)</u>
Weighting: <u>A</u> C / Flat	Response: <u>Slow</u> / Fast / Impl	Windscreen: <u>Yes</u> / No	Wind: <u>Steady</u> / Gusty		

ID	Time Start	Time Stop	Leq	Lmin	Lmax	L10	L50	L90	Wind Spd/Dir (mph)	Temp (°F)	RH (%)	Bar Prs (in Hg)	Cloud Cover (%)
			<u>66.1</u>						<u>Simple 103</u>				<u>01</u>

Roadway Name: Horne Street Location(s) / GPS Reading(s): _____
 Speed (post/obs): 25 mph
 Number of Lanes: 2
 Width (pave/row): 12 ft
 1- or 2- way: 2
 Grade: 0%
 Bus Stops: N/A
 Stoplights: Yes
 Street Parking: Yes
 Automobiles: Horne: 108 Mission: 252
 Medium Trucks: _____
 Heavy Trucks: total: 04

Other Noise Sources: distant aircraft / roadway traf / trains / windchimes / rustling leaves / children playing / dogs barking / birds vocalizing
 Notes and Sketches on Reverse

03/18/2025

3

FIELD NOISE MEASUREMENT DATA

Project Name: MISSION Page 1 of 1
 Project #: _____ Day / Date _____ My Name: _____

Sound Level Meter		Calibrator		Weather Meter	
Model #: <u>Pico 10 II</u>	Model # _____	Model # _____	Serial # _____	Model # _____	Serial # _____
Serial # _____	Serial # _____	Pre-Test: _____ dBA SPL	Terrain: <u>Hard / Soft / Mixed</u>	Post-Test: _____ dBA SPL	Topo: <u>Flat / Hilly (describe)</u>
Weighting: <u>A</u> C / Flat	Response: <u>Slow</u> / Fast / Impl	Windscreen: <u>Yes</u> / No	Wind: <u>Steady</u> / Gusty		

ID	Time Start	Time Stn	Leq	Lmin	Lmax	L10	L50	L90	Wind Spd/ Dir (mph)	Temp (°F)	RH (%)	Bar Psr (in Hg)	Cloud Cover (%)
			<u>66.7</u>						<u>0 mph E</u>	<u>63</u>			<u>0%</u>

Roadway Name MISSION Avenue
 Speed (post/obs) 25
 Number of Lanes 4
 Width (pave/row) 12
 1- or 2- way 2
 Grade _____
 Bus Stops yes
 Stoplights yes
 Street Parking no
 Automobiles 181
 Medium Trucks 1
 Heavy Trucks 1

Location(s) / GPS Reading(s):

Other Noise Sources: distant aircraft / roadway traf / trains / landscaping / rustling leaves / children playing / dogs barking / birds vocalizing

Notes and Sketches on Reverse

03/18/2015

1

FIELD NOISE MEASUREMENT DATA

Project Name: Seagrove Street Page 1 of 1
 Project #: _____ Day / Date _____ My Name _____

<u>Sound Level Meter</u>		<u>Calibrator</u>		<u>Weather Meter</u>	
Model # <u>Pascal II</u>	Model # _____	Model # _____	Serial # _____	Model # _____	Serial # _____
Serial # _____	Serial # _____	Serial # _____	Serial # _____	Serial # _____	Serial # _____
Weighting: <u>C</u> / Flat	Pre-Test: _____ dBA SPL	Terrain: <u>Hard</u> / Soft / Mixed	Post-Test: _____ dBA SPL	Topo: <u>Flat</u> / Hilly (describe)	Wind: <u>Steady</u> / Gusty
Response: <u>Slow</u> / Fast / Impl	Windscreen: <u>Yes</u> / No				

ID	Time Start	Time Stmn	Leq	Lmin	Lmax	L10	L50	L90	Wind Spd/Dir (mph)	Temp (°F)	RH (%)	Bar Per (In Hg)	Cloud Cover (%)
			58.3						Strong E	63°			01

Roadway Name Seagrove Street
 Speed (post/obs) 25 mph
 Number of Lanes 2
 Width (pave/row) 12 ft.
 1- or 2- way 2 way
 Grade _____
 Bus Stops n/a
 Stoplights n/a
 Street Parking yes
 Automobiles 10
 Medium Trucks 1
 Heavy Trucks 0

Location(s) / GPS Reading(s):

Other Noise Sources: aircraft airway train trains / ant/crapping / rustling leaves / children playing / dogs barking / birds vocalizing

Notes and Sketches on Reverse

Site 1

Start Date	4/11/2024
Start Time	12:38:17 PM
End Time	12:53:16 PM
Duration	00:14:59
Meas Mode	Single
Input Range	Low
Input Type	Mic
SPL Time Weight	Fast
LN% Freq Weight	dB
Overload	No
UnderRange	No
Sensitivity	18.44mV/Pa

LZeq	76.3
LCeq	71.8
LAeq	54.7
LZFmax	91.9
LCFmax	84.5
LAFmax	63.9
LZFmin	64.4
LCFmin	61.8
LAFmin	47.9
LZE	105.8
LCE	101.3
LAE	84.2
LZpk	100.7
LCpk	94.5
LApk	81.0
LAF1%	60.0
LAF2%	59.2
LAF5%	58.0
LAF8%	57.3
LAF10%	57.0
LAF25%	55.4
LAF50%	53.9
LAF90%	51.4
LAF95%	50.6
LAF99%	49.4

Site 2

Start Date	4/11/2024
Start Time	12:59:22 PM
End Time	1:14:22 PM
Duration	00:15:00
Meas Mode	Single
Input Range	Low
Input Type	Mic
SPL Time Weight	Fast
LN% Freq Weight	dB
Overload	No
UnderRange	No
Sensitivity	18.44mV/Pa

LZeq	76.4
LCeq	73.9
LAeq	62.2
LZFmax	93.3
LCFmax	92.7
LAFmax	83.4
LZFmin	65.1
LCFmin	62.5
LAFmin	48.5
LZE	105.9
LCE	103.4
LAE	91.7
LZpk	102.5
LCpk	101.9
LApk	94.5
LAF1%	70.6
LAF2%	68.5
LAF5%	65.7
LAF8%	64.0
LAF10%	63.2
LAF25%	59.9
LAF50%	56.9
LAF90%	51.8
LAF95%	51.0
LAF99%	49.8

Site 3

Start Date	4/11/2024
Start Time	1:22:26 PM
End Time	1:37:25 PM
Duration	00:14:59
Meas Mode	Single
Input Range	Low
Input Type	Mic
SPL Time Weight	Fast
LN% Freq Weight	dB
Overload	Yes
UnderRange	No
Sensitivity	18.44mV/Pa

LZeq	80.1
LCeq	78.0
LAeq	71.4
LZFmax	103.3
LCFmax	103.1
LAFmax	103.2
LZFmin	67.9
LCFmin	65.7
LAFmin	52.4
LZE	109.6
LCE	107.5
LAE	100.9
LZpk	113.4
LCpk	113.4
LApk	115.7
LAF1%	76.2
LAF2%	73.2
LAF5%	69.5
LAF8%	67.0
LAF10%	66.1
LAF25%	62.9
LAF50%	60.6
LAF90%	57.0
LAF95%	55.8
LAF99%	53.7

Site 4

Start Date	4/11/2024
Start Time	1:43:26 PM
End Time	1:58:25 PM
Duration	00:14:59
Meas Mode	Single
Input Range	Low
Input Type	Mic
SPL Time Weight	Fast
LN% Freq Weight	dB
Overload	No
UnderRange	No
Sensitivity	18.44mV/Pa

LZeq	81.2
LCeq	79.4
LAeq	63.0
LZFmax	102.1
LCFmax	101.7
LAFmax	84.3
LZFmin	66.3
LCFmin	64.4
LAFmin	50.6
LZE	110.7
LCE	108.9
LAE	92.5
LZpk	109.4
LCpk	109.2
LApk	94.8
LAF1%	74.1
LAF2%	70.5
LAF5%	66.3
LAF8%	64.7
LAF10%	63.9
LAF25%	61.1
LAF50%	56.4
LAF90%	53.5
LAF95%	52.9
LAF99%	51.9

Site 1 - Seagaze

Start Date 3/18/2025
Start Time 4:40:13 PM
End Time 4:55:13 PM
Duration 00:15:00
Meas Mode Single
Input Range Low
Input Type Mic
SPL Time Weight Slow
LN% Freq Weight dBA
Overload No
UnderRange No
Sensitivity 18.44mV/Pa

LZeq 75.8
LCeq 71.8
LAeq 55.3
LZSmax 91.2
LCSmax 84.5
LASmax 67.0
LZSmin 66.0
LCSmin 63.5
LASmin 50.1
LZE 105.3
LCE 101.3
LAE 84.8
LZpk 102.7
LCpk 96.5
LApk 89.0
LAS1% 61.8
LAS2% 61.1
LAS5% 59.1
LAS8% 57.6
LAS10% 57.2
LAS25% 55.7
LAS50% 54.1
LAS90% 52.1
LAS95% 51.5
LAS99% 50.7

Site 2 - Clementine

Start Date 3/18/2025
Start Time 5:00:00 PM
End Time 5:15:00 PM
Duration 00:15:00
Meas Mode Single
Input Range Low
Input Type Mic
SPL Time Weight Slow
LN% Freq Weight dBA
Overload No
UnderRange No
Sensitivity 18.44mV/Pa

LZeq 80.1
LCeq 76.5
LAeq 63.5
LZSmax 95.3
LCSmax 95.0
LASmax 85.5
LZSmin 67.5
LCSmin 65.0
LASmin 50.4
LZE 109.6
LCE 106.0
LAE 93.0
LZpk 108.4
LCpk 104.4
LApk 96.8
LAS1% 75.6
LAS2% 69.7
LAS5% 64.5
LAS8% 63.1
LAS10% 62.6
LAS25% 59.7
LAS50% 56.3
LAS90% 52.4
LAS95% 51.7
LAS99% 50.9

Site 3 - Horne

Start Date 3/18/2025
Start Time 5:41:29 PM
End Time 5:56:29 PM
Duration 00:15:00
Meas Mode Single
Input Range Low
Input Type Mic
SPL Time Weight Slow
LN% Freq Weight dBA
Overload Yes
UnderRange No
Sensitivity 18.44mV/Pa

LZeq 83.1
LCeq 80.1
LAeq 66.1
LZSmax 98.7
LCSmax 93.2
LASmax 77.0
LZSmin 71.2
LCSmin 69.2
LASmin 57.0
LZE 112.6
LCE 109.6
LAE 95.6
LZpk 111.4
LCpk 106.6
LApk 105.9
LAS1% 74.6
LAS2% 73.5
LAS5% 71.2
LAS8% 69.7
LAS10% 69.2
LAS25% 65.9
LAS50% 63.8
LAS90% 61.1
LAS95% 60.2
LAS99% 58.3

Site 4 - Mission

Start Date	3/18/2025
Start Time	5:20:58 PM
End Time	5:35:58 PM
Duration	00:15:00
Meas Mode	Single
Input Range	Low
Input Type	Mic
SPL Time Weight	Slow
LN% Freq Weight	dB
Overload	Yes
UnderRange	No
Sensitivity	18.44mV/Pa

LZeq	80.8
LCeq	77.8
LAeq	66.7
LZSmax	95.1
LCSmax	95.0
LASmax	88.6
LZSmin	69.3
LCSmin	67.1
LASmin	54.3
LZE	110.3
LCE	107.3
LAE	96.2
LZpk	111.5
LCpk	110.6
LApk	107.1
LAS1%	76.5
LAS2%	73.2
LAS5%	69.8
LAS8%	68.0
LAS10%	67.3
LAS25%	64.3
LAS50%	61.5
LAS90%	57.4
LAS95%	56.3
LAS99%	55.5

RESULTS: SOUND LEVELS

<Project Name?>

<Organization?>

16 April 2025

<Analysis By?>

TNM 2.5

Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

<Project Name?>

RUN:

901 Mission Avenue Existing

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver

Name	No.	#DUs	Existing LAeq1h	No Barrier				With Barrier				
				LAeq1h		Increase over existing		Type Impact	Calculated LAeq1h	Noise Reduction		Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	
			dB	dB	dB	dB		dB	dB	dB	dB	
Receiver1	1	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0
Receiver2	2	1	0.0	62.6	66	62.6	10	----	62.6	0.0	8	-8.0
Receiver3	3	1	0.0	66.0	66	66.0	10	Snd Lvl	66.0	0.0	8	-8.0
Receiver4	4	1	0.0	61.8	66	61.8	10	----	61.8	0.0	8	-8.0
Receiver5	5	1	0.0	63.4	66	63.4	10	----	63.4	0.0	8	-8.0

Dwelling Units

	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	5	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

RESULTS: SOUND LEVELS

<Project Name?>

<Organization?>
<Analysis By?>

25 April 2025
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

<Project Name?>

RUN:

901 Mission Avenue OY Cumulative

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver

Name	No.	#DUs	Existing LAeq1h	No Barrier					With Barrier				
				LAeq1h		Increase over existing		Type Impact	Calculated LAeq1h	Noise Reduction		Calculated minus Goal	
				Calculated	Crit'n	Calculated	Crit'n			Calculated	Goal		
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB	
Receiver1	1	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0	
Receiver2	2	1	0.0	63.4	66	63.4	10	----	63.4	0.0	8	-8.0	
Receiver3	3	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0	
Receiver4	4	1	0.0	62.0	66	62.0	10	----	62.0	0.0	8	-8.0	
Receiver5	5	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0	
Receiver6	6	1	0.0	68.4	66	68.4	10	Snd Lvl	68.4	0.0	8	-8.0	
Receiver7	7	1	0.0	65.7	66	65.7	10	----	65.7	0.0	8	-8.0	
Receiver8	8	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0	

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	8	0.0	0.0	0.0
All Impacted	3	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

RESULTS: SOUND LEVELS

<Project Name?>

<Organization?>
<Analysis By?>

25 April 2025
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

<Project Name?>

RUN:

901 Mission Avenue 2030 Cumulative WP

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver

Name	No.	#DUs	Existing LAeq1h	No Barrier				With Barrier				
				LAeq1h		Increase over existing		Type Impact	Calculated LAeq1h	Noise Reduction		Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n			Calculated	Goal	
			dB	dB	dB	dB		dB	dB	dB	dB	
Receiver1	1	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
Receiver2	2	1	0.0	63.5	66	63.5	10	----	63.5	0.0	8	-8.0
Receiver3	3	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
Receiver4	4	1	0.0	62.4	66	62.4	10	----	62.4	0.0	8	-8.0
Receiver5	5	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	5	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

RESULTS: SOUND LEVELS

<Project Name?>

<Organization?>
<Analysis By?>

25 April 2025
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

<Project Name?>

RUN:

901 Mission Avenue 2050 Cumulative NP

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver

Name	No.	#DUs	Existing LAeq1h	No Barrier				With Barrier				
				LAeq1h		Increase over existing		Type Impact	Calculated LAeq1h	Noise Reduction		Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	
			dB	dB	dB	dB		dB	dB	dB	dB	
Receiver1	1	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
Receiver2	2	1	0.0	62.5	66	62.5	10	----	62.5	0.0	8	-8.0
Receiver3	3	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
Receiver4	4	1	0.0	61.5	66	61.5	10	----	61.5	0.0	8	-8.0
Receiver5	5	1	0.0	62.8	66	62.8	10	----	62.8	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	5	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

RESULTS: SOUND LEVELS

<Project Name?>

<Organization?>
<Analysis By?>

25 April 2025
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

<Project Name?>

RUN:

901 Mission Avenue 2050 Cumulative WP

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver

Name	No.	#DUs	Existing LAeq1h	No Barrier				With Barrier				
				LAeq1h		Increase over existing		Type Impact	Calculated LAeq1h	Noise Reduction		Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	
			dB	dB	dB	dB		dB	dB	dB	dB	
Receiver1	1	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
Receiver2	2	1	0.0	62.5	66	62.5	10	----	62.5	0.0	8	-8.0
Receiver3	3	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
Receiver4	4	1	0.0	61.5	66	61.5	10	----	61.5	0.0	8	-8.0
Receiver5	5	1	0.0	62.8	66	62.8	10	----	62.8	0.0	8	-8.0

Dwelling Units

	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	5	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0