Appendix D
Noise Analysis

SAN MARINO CENTER IMPROVEMENT PROJECT

NOISE STUDY

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SAN MARINO, CALIFORNIA
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NOISE STUDY

This report is an analysis of the potential noise impacts associated with the proposed San Marino Community Center Improvement project in the City of San Marino, California located in Los Angeles County. This report has been prepared by Birdseye Planning Group (BPG) under contract to ELMT Consulting, Inc., to support preparation of the environmental documentation pursuant to the California Environmental Quality Act (CEQA). This study analyzes the potential for temporary impacts associated with construction activity and long-term impacts associated with operation of the proposed project.

PROJECT DESCRIPTION

The San Marino Center Improvement Project (Project) is located at 1800 Huntington Drive, San Marino, which is the south side of Huntington Drive, adjacent and east of the Huntington Middle School and west and adjacent to the Crowell Public Library, identified by Los Angeles County Assessor's Parcel Number (APNs) 5334-024-903.The site currently supports an existing community center. The Project proposes to change the San Marino Center (SMC) building façade from a Modern Colonial Revival to a Spanish Mediterranean architectural style which is similar to adjacent buildings. Other upgrades include rehabilitation of the building interior to include additional offices to accommodate six City Recreation Department staff, optimize the interior public gathering space, and repair/replace the heating/air conditioning, plumbing and electrical systems and light fixtures to current building code standards.

The proposed interior space reconfiguration will allow for an occupancy rating of 1,083. Access to the site is via two driveways – one fronting Huntington Drive and the other along West Street east of the site. Access would not be changed with implementation of the project.

Exterior improvements include the following are comprised of the following:

- Replace the decorative wrought iron posts with stucco columns;
- Replace the wood shingled roof with the terra cotta tile;
- Replace doors and windows to match existing rectangular and square shapes but with grid patterns similar to the library windows as appropriate;
- Add wood accents where appropriate and complimentary such as around windows and the entry door;
- Add an open patio area at the back of the building that will have a stucco wall and a wood trellis ceiling similar to the open space areas at the library;
- Remove canopies that were added to the building after its original construction will be removed.
- New paint and stucco repair that will match the color of the library.

Exterior features that will remain intact or will not be impacted by the proposed improvements include the following:

- The cornerstone of the building inscribed with "San Marino Women's Club" near the building entry;
- Concrete walkway and concrete front patio; and
- Landscaping, including the large oak tree adjacent to the front entry, grassy areas and urban landscaping around the west and south of the building.

The project would not require ground disturbances associated with or grading. Minor demolition would be required. The majority of the work would be completed with hand tools or small pieces of equipment.

Adjacent land uses are vacant land to the Crowell Library to the east, a parking lot to the west; San Marino Unified School District offices to the south and Huntington Drive to the north. The proposed project is expected to be begin construction in early 2022 and be completed within 6-8 months. The project site is shown in Figure 1. Proposed floor plans are shown in Figure 2.

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 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

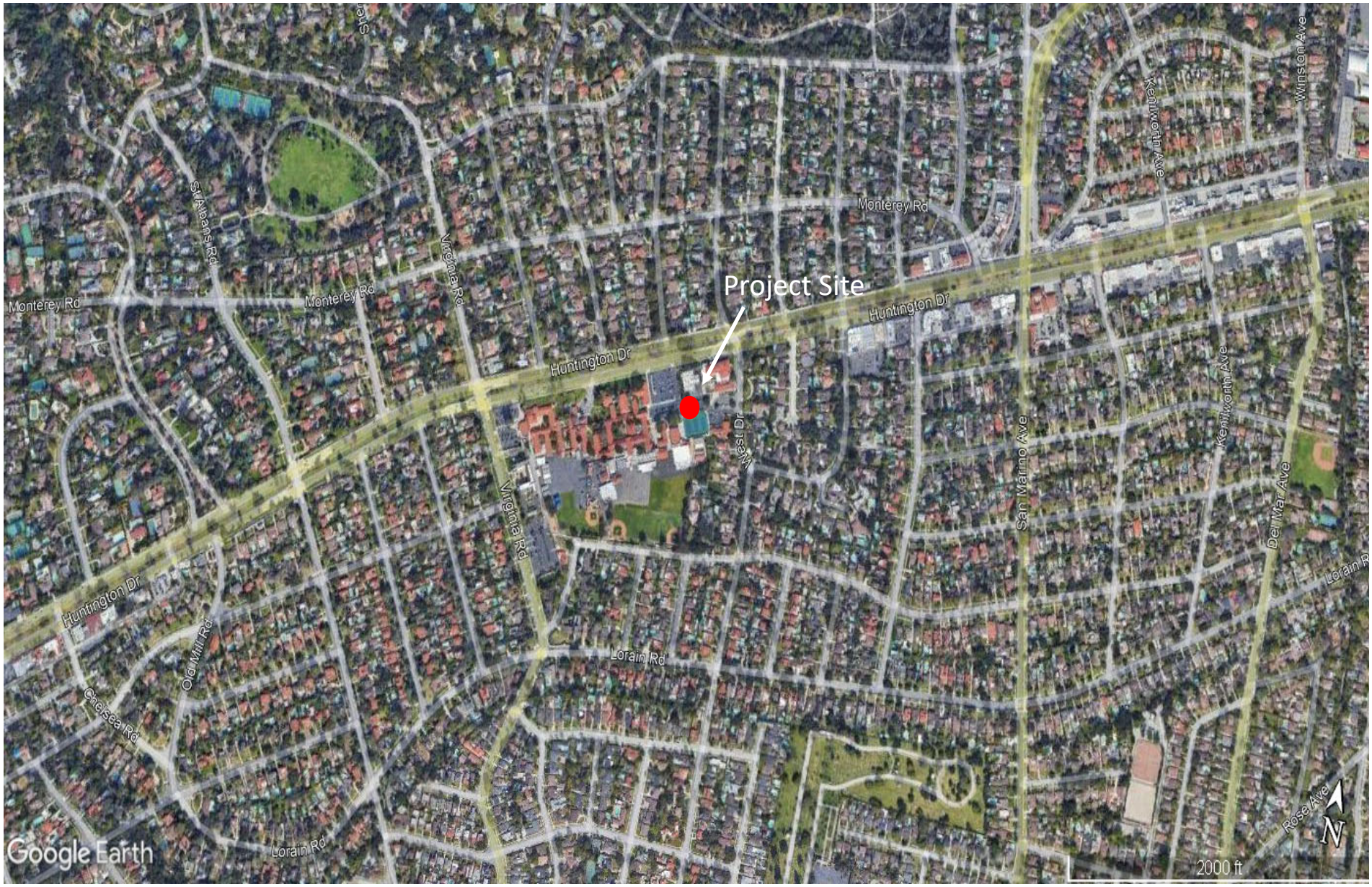

Figure 1—Vicinity Map

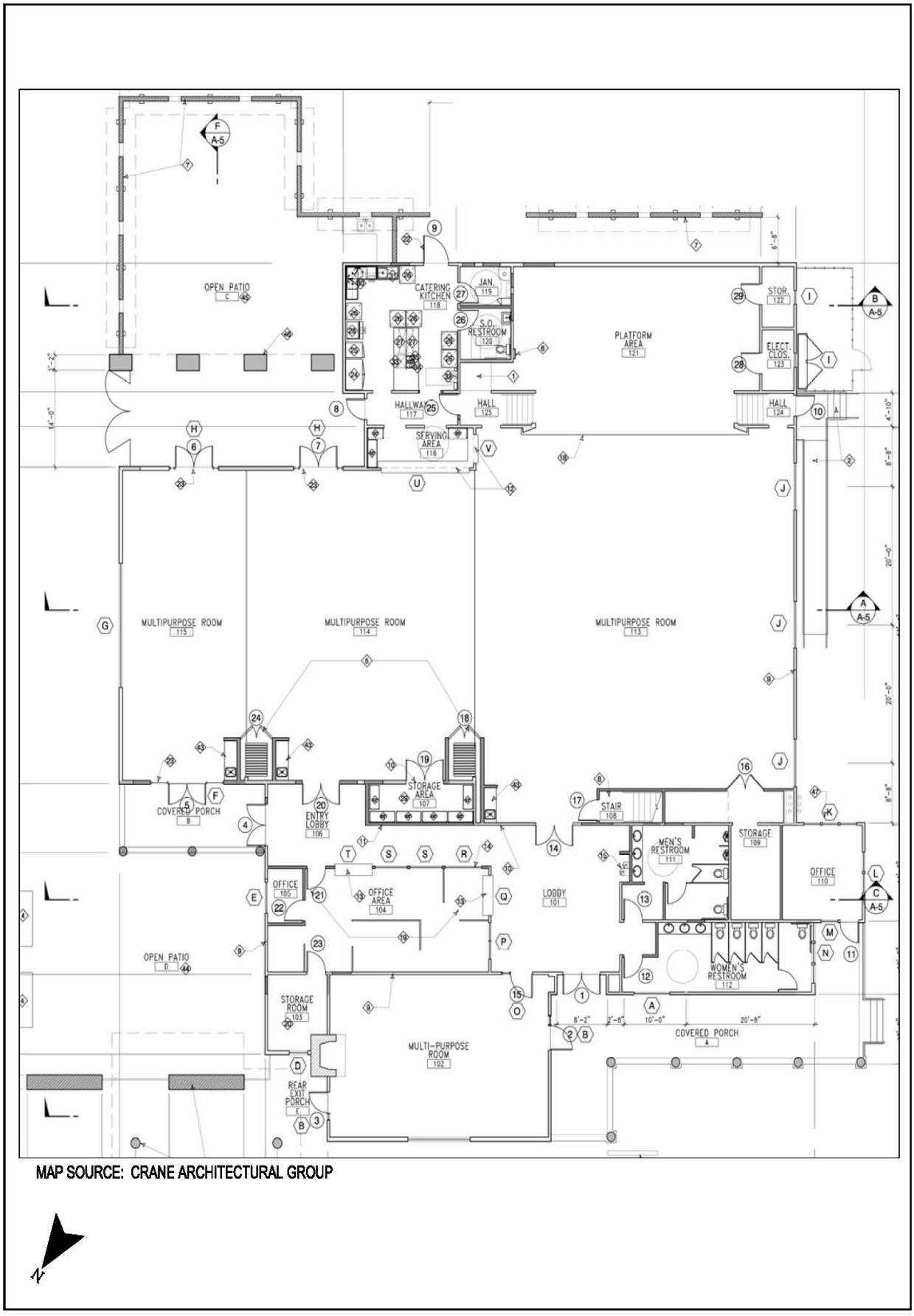

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Figure 2—Site Plan

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 (HMMH, 2006).

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.

Sensitive Receptors

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 sensitive receptors are the Valentine Elementary School and Huntington Middle School located adjacent to and south/southwest and single-family residences located across Huntington Drive approximately 200 feet north/northwest and northeast of the site and across from the Crowell Library on West Drive.

Project Site Setting

The Project site is an existing community center, constructed in 1952 as the San Marino Women's Club. The project site is bounded on the west by the Crowell library, on the east and south by the Huntington Middle School, and on the north by Huntington Drive. The most common and primary sources of noise in the project site vicinity are motor vehicles (e.g., automobiles and trucks) operating on Huntington Drive. Motor vehicle noise is of concern because where a high

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	1/2 as loud
Light Traffic (100 ft)	Large Business Office Quiet Urban Daytime	50	1/4 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**

Source: Compiled by dBF Associates, Inc., 2016

number of individual events occur, it can create a sustained noise level. Aircraft overflights were observed but do not noticeably contribute to the ambient noise environment.

To gather data on the general noise environment at the project site, two weekday morning 15-minute noise measurements were taken on and in proximity to the site on April 7, 2021, using an ANSI Type II integrating sound level meter. The predominant noise source was traffic. The temperature during monitoring was 65 degrees Fahrenheit with no perceptible wind.

Site 1 is located on the project site approximately 30 feet south of the nearest north/eastbound lanes of Huntington Drive. This location is on the site and represents noise levels at the sensitive receivers located along the north side of Huntington Drive. During monitoring, 224 cars/light trucks, four medium trucks (six tires/two axles) and zero heavy trucks (all vehicles with three or more axles) passed the site. Site 2 is located in front of the Crowell Library north of the site near the intersection of Huntington Drive and West Drive. This location is northeast of the site and represents noise levels at the nearest sensitive receivers located to the north of West Drive. During monitoring, 290 cars/light trucks, 10 medium truck (six tires/two axles) and zero heavy trucks (all vehicles with three or more axles) passed the site. The dominant noise source is traffic operating primarily on Huntington Drive. Table 2 identifies the noise measurement locations and measured noise levels. Monitoring locations are shown in Figure 3. As shown, the Leq was 61.6 dBA at Site 1 and 63.7 dBA at Site 2. The monitoring data sheet is provided as part of Appendix A.

Table 2
Noise Monitoring Results

Measurement Location	Primary Noise Source	Sample Time	Leq (dBA)
Project site approximately 30 feet south of the nearest Huntington Drive travel lane	Traffic	Weekday morning	61.6
Adjacent to the Crowell Library north of the site.	Traffic	Weekday morning	63.7

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

Regulatory Setting

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 in rural residential areas. Noise levels up to 70 dBA (CNEL or Ldn) are conditionally compatible.

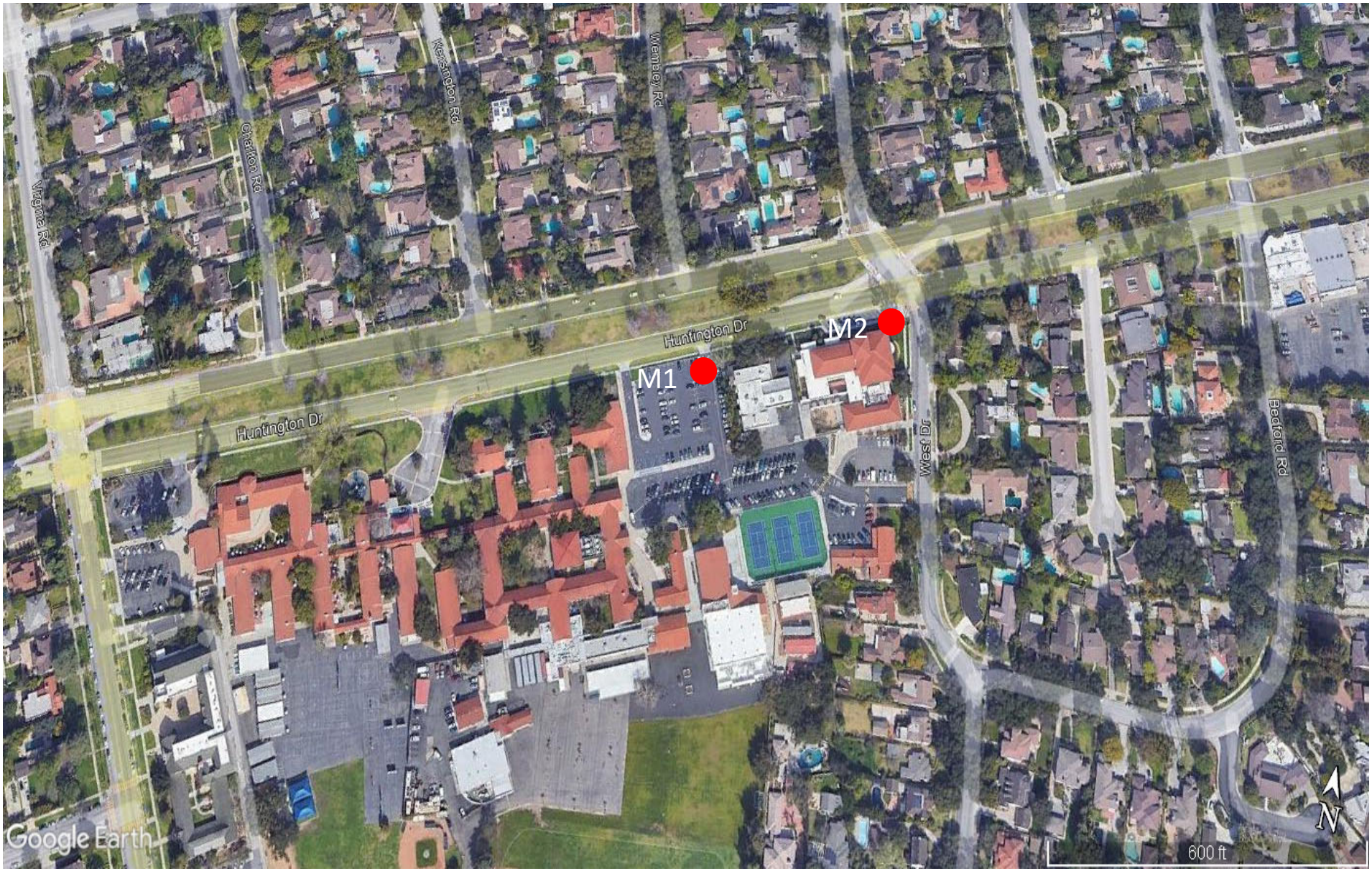

Figure 3—Noise Monitoring Locations

● - **Monitoring Locations**

City of San Marino Noise Ordinance

The project site is zoned Residential (R)-1. Per Section 14.04.04 of the Municipal Code, noise levels in R-1 Residential zones must not exceed 55 dBA between 7:00 a.m. and 10:00 p.m. and 45 dBA 10:00 p.m. 7:00 a.m.

Per Section 14.04.07 of the Municipal Code, it is unlawful for a person within a residential zone, or within a radius of five hundred feet (500 feet) therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures or projects or to operate equipment in such a manner that noise is produced which would constitute a violation of Section 14.04.05 of the Municipal Code unless, a permit is obtained from the planning and building director. As defined in Section 14.04.05, noise levels at any adjacent residential property line must not exceed 65 dB when originating from any parcel in an R-1 Zone and 75 dB from any parcel in a C-1 Zone, Park and Recreational Zone or Historical and Cultural Zone. These standards are used herein for the purpose evaluating stationary noise impacts.

With respect to traffic noise, no specific standards for this source are provided in the San Marino Municipal Code. 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 (updated in 2017) General Plan Guidelines, Appendix D Noise Element Guidelines, shows that exterior noise levels up to 60 dBA (CNEL or Ldn) are normally compatible. Noise levels between 60 dBA and 70 dBA (CNEL or Ldn) are conditionally compatible. These noise levels are referenced in the Noise Element of the San Marino General Plan (page V-82); and thus, are used as the standard herein for the purpose of evaluating traffic noise impacts. As shown in Table 2, existing conditions along Huntington Drive in proximity to the project site exceed 60 dBA.

Vibration Standards

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 and is referenced as vibration decibels (VdB). The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Table 3 shows various vibration levels and typical human responses and effects on buildings.

The San Marino Municipal Code does not address construction-related vibration; thus, for the purpose of evaluating project-related vibration impacts, thresholds established in the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment* (September 2018) (Table 6-3) are used. A threshold of 65 VdB is used for buildings where low ambient vibration is

Table 3
Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent 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.
0.01	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

essential for interior operations. These buildings include hospitals and recording studios. A threshold of 72 VdB is used for residences and buildings where people normally sleep (i.e., hotels and rest homes). A threshold of 75 VdB is used for institutional land uses where activities occur primarily during the daytime (i.e., churches and schools). The threshold used for the proposed project is 72 VdB as school buildings and single-family residences are the nearest sensitive receptors to the site.

Construction activities such as blasting, pile driving, demolition, excavation or drilling have the potential to generate ground vibrations. With respect to ground-borne vibration impacts on structures, the FTA states that ground-borne vibration levels in excess of 92 VdB would damage buildings extremely susceptible to vibration damage. The existing San Marino Center building is eligible for inclusion in the National Register of Historic Places; and thus, may be susceptible to vibration damage. However, no construction activities with the potential to generate ground vibration would be required to complete the proposed improvements. Thus, 94 VdB (PPV 0.2) is used herein to evaluate potential vibration impacts to neighboring structures. Construction activities referenced above that would generate significant vibration levels are not proposed. However, to provide information for use in completing the CEQA evaluation, construction-related vibration impacts are evaluated using the above referenced criteria.

IMPACT ANALYSIS

Methodology and Significance Thresholds

Methodology and Significance Thresholds

Construction noise estimates are based upon noise levels reported by the Federal Highway Administration for construction equipment and the distance between sensitive properties and Huntington Drive. Reference noise levels are used herein to estimate noise levels at nearby sensitive receptors based on a standard noise attenuation rate of 3 dBA for line sources such as haul roads and 6 dB per doubling of distance (line-of-sight method of sound attenuation) for stationary sources and construction equipment. For the purpose of CEQA review, noise levels along Huntington Drive and neighboring streets are estimated based on traffic volumes provided in the Traffic Impact Analysis (September 2021).

The impact analysis provided below is based on the following CEQA Guidelines, as listed in Appendix G of the CEQA Guidelines. An impact is considered significant if the project would:

a. 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?
b. Generate excessive groundborne vibration or groundborne noise levels?
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?

The proposed project is not located in proximity to an airport or private airstrip. Threshold **c** above does not apply and is not discussed further in this report.

Temporary Construction Noise

The primary main noise source during construction activities would be associated with demolition and construction of the proposed improvements. Most of the improvements would occur indoors; and thus, would be inaudible to neighboring uses. Exterior improvements requiring removal of concrete or other hardscape materials would require the use of jackhammers and small tractors/bobcats to transport material to haul trucks. Table 4 shows typical noise levels associated with heavy construction equipment.

The noise level used to estimate the typical maximum noise level that could occur is based on use of a jackhammer because it is likely to be the noisiest type of equipment used over a sustained period of time during exterior demolition. Installation of new concrete hardscape would require use of concrete mixers to deliver the material. Interior improvements would

require materials be delivered to the site; however, noise would be limited to haul trucks. Actual noise levels will fluctuate throughout the day and may periodically exceed 95 dBA at the property line depending on the location of jackhammer use used and whether multiple pieces of equipment are operating simultaneously in the same area.

Table 4
Typical Maximum Construction Equipment Noise Levels

Equipment Onsite	Typical Maximum Level (dBA) 25 Feet from the Source	Typical Maximum Level (dBA) 50 Feet from the Source	Typical Maximum Level (dBA) 100 Feet from the Source
Air Compressor	84	79	73
Backhoe	84	79	73
Bobcat Tractor	84	79	73
Concrete Mixer	85	78	72
Bulldozer	88	82	76
Jack Hammer	95	89	83
Pavement Roller	86	80	74
Street Sweeper	88	82	76
Man Lift	81	75	69
Dump Truck	82	76	70

Source: Noise levels based on FHWA Roadway Construction Noise Model (2006) Users Guide Table 1.
Noise levels based on actual maximum measured noise levels at 50 feet (Lmax).
Noise levels assume a noise attenuation rate of 6 dBA per doubling of distance.

Noise-sensitive uses near the project site include the Crowell Library which is located adjacent to and northeast of the San Marino Center. Existing school buildings and single-family residences located 200-300 feet west, south and east of the site. Typical maximum construction noise levels shown for 25 feet in Table 4 would be expected to occur at adjacent receivers based on the distance from the property line. For reference purposes, construction noise levels at varying distances from the source are shown in Table 5.

Table 5
Typical Maximum Construction Noise Levels at Various Distances from Project Construction

Distance from Construction	Typical Maximum Noise Level at Receptor (dBA)
25 feet	88
50 feet	82
100 feet	76
250 feet	68

500 feet	62
1,000 feet	56

As stated, noise levels will exceed 65 dBA periodically during the construction process. Thus, per Section 14.04.05 of the Municipal Code, a permit issued by the planning and building director would be required. With approval of the permit, noise impacts would be **less than significant.**

Construction Noise Reduction Measures

No significant temporary construction noise impacts are anticipated; no mitigation is required. However, construction noise levels could be reduced through implementation of the following measures:

N-1 Construction Equipment. Electrical power shall be used to run air compressors and similar power tools. Internal combustion engines should be equipped with a muffler of a type recommended by the manufacturer and in good repair. All diesel equipment should be operated with closed engine doors and should be equipped with factory-recommended mufflers. Construction equipment that continues to generate substantial noise at the project boundaries should be shielded with temporary noise barriers, such as barriers that meet a sound transmission class (STC) rating of 25, sound absorptive panels, or sound blankets on individual pieces of construction equipment. Stationary noise-generating equipment, such as generators and compressors, should be located as far as practically possible from the nearest residential property lines.

N-2 **Limit Operations Adjacent to Receivers**. Limit the number of large pieces of equipment (i.e., bulldozers or concrete mixers) operating adjacent to receivers to one at any given time.

N-3 Neighbor Notification. Provide notification to residential occupants nearest to the project site at least 24 hours prior to initiation of construction activities that could result in substantial noise levels at outdoor or indoor living areas. This notification should include the anticipated hours and duration of construction and a description of noise reduction measures being implemented at the project site. The notification should include a telephone number for local residents to call to submit complaints associated with construction noise. The notification should be posted along Huntington Drive and be visible from adjacent properties.

Temporary Construction-Related Vibration

Thus, this discussion focuses on temporary vibration caused by construction. As referenced, the closest building is the San Marino Center and neighboring Crowell Library. Use of a jackhammer and small tractor/bobcat may generate localized vibration; however, based on the

information in Table 6 below, vibration levels would not reach or exceed levels required to cause any structural damage or related impacts to the San Marino Center or Crowell Library. The nearest residence is approximately 205 feet north of the site across Huntington Drive. Based on the information presented in Table 6, vibration levels would attenuate to approximately 61 dBA at this residence during construction assuming use of a jackhammer. Vibration levels would be below the 72 VdB threshold required to be perceptible at neighboring residences. Temporary vibration impacts would be **less than significant.**

Table 6
Vibration Source Levels for Construction Equipment

Equipment	Approximate VdB				
	25 Feet	50 Feet	60 Feet	75 Feet	100 Feet
Large Bulldozer	87	81	79	77	75
Loaded Trucks	86	80	78	76	74
Jackhammer	79	73	71	69	67
Small Bulldozer	58	52	50	48	46

Source: Federal Railroad Administration, 1998

Operational Noise Exposure

Operation of the proposed project was evaluated for potential exterior traffic related impacts caused by increased traffic volumes associated with the project. Noise levels associated with existing and future traffic were based on trip generation estimates provided in the Traffic Impact Analysis (Linscott, Law and Greenspan, Inc. September 2021). A doubling of baseline traffic volumes would be required to cause a noticeable increase (3 dBA) in traffic noise. As stated, baseline conditions currently exceed 60 dBA, the normally acceptable sound level referenced in the San Marino General Plan Noise Element. Thus, the baseline and with project sound levels were calculated to determine whether the project would generate enough traffic to noticeably increase (+3 dBA or greater) the Leq over baseline conditions.

Exterior Traffic Noise. Traffic is the primary noise source that would be generated by the proposed project. As stated, existing measured noise levels along Huntington Drive exceed the exterior residential standard (60 dBA) referenced above during the monitoring period. Whether a traffic-related noise impact would occur is based on whether project traffic, when added to the existing observed traffic on Huntington Drive, would cause noise to noticeably increase over measured ambient conditions (i.e., +3 dBA) and/or exceed the 60 dBA standard in the City of San Marino General Plan Noise Element.

The roadway network (i.e., Huntington Drive and West Drive) adjacent to the project site was modeled using the Federal Highway Administration Traffic Noise Model (TNM) version 2.5 software (see Appendix A). 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 and vehicle mix on Huntington Drive are based on traffic counts obtained during the monitoring period.

Traffic volumes for the project were based on peak hour trip generation rates provided in the Traffic Impact Study Analysis. The proposed project would generate approximately 312 new daily trips. Of the total, 19 would occur in the morning (A.M.) peak hour and 25 would occur in the evening (P.M.) peak hour. The P.M. peak hour trips were added to baseline conditions to determine whether noise levels would increase as a result of project operation. The model was calibrated to calculate noise levels that are +/- 2 dBA those measured on-site and reported in Table 2.

Hourly average baseline noise levels (Leq) were calculated for the residential receivers located along Huntington Drive and West Drive northeast of the site. These are the closest receivers to the project site and would experience the highest concentration of project-related traffic. The receiving properties are defined as follows and shown in Figure 4:

1. Crowell Library adjacent to and northeast of the site;
2. Huntington Middle School buildings adjacent to the San Marino Center parking lost and Huntington Drive southwest of the site; and
3. Single-family residence at 1600 West Drive northeast of the site.

Baseline noise levels are shown Table 7. As shown, baseline conditions exceed the 60 dBA exterior standard at existing single-family residences and are consistent with measured noise levels. Noise levels associated with the project were calculated by distributing the 25 P.M. peak hour project trips into the baseline traffic volumes on Huntington Drive and West Drive. Volumes were concentrated in this area for the purpose of evaluating worst case noise conditions. The results are also shown in Table 7. Project peak hour traffic will have no effect on baseline traffic noise conditions.

Table 7
Modeled Noise Levels

Receptor	Existing Leq	Existing CNEL	With Project Leq	With Project CNEL	Decibel Change	Significant Impact
Site 1	62.6	63.6	62.6	63.6	+0.0	No
Site 2	63.6	64.6	63.6	64.6	+0.0	No
Site 3	63.1	64.1	63.1	64.1	+0.0	No

Interior Traffic Noise. California Energy Code Title 24 standards specify construction methods and materials that result in energy efficient structures 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.

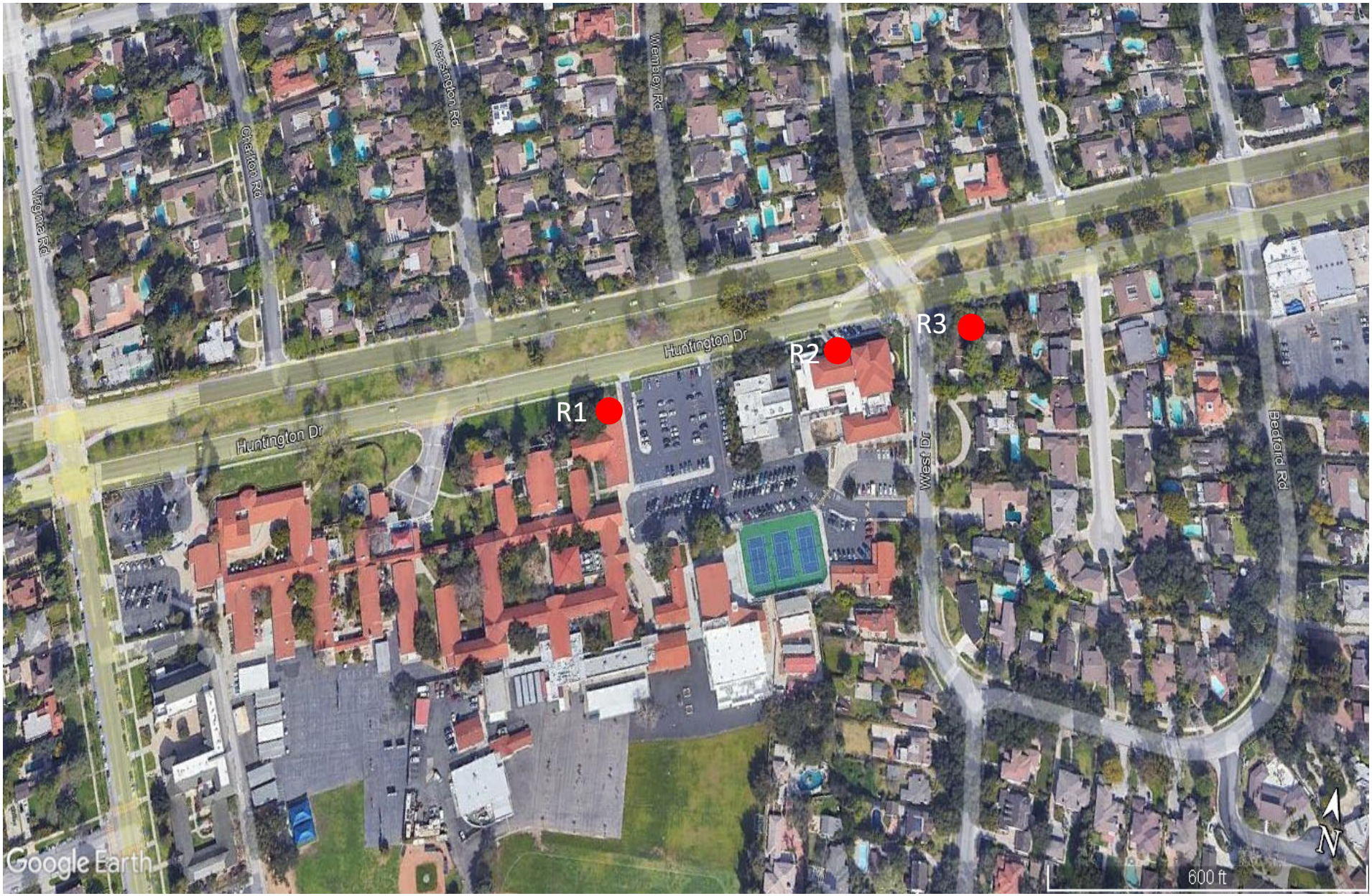

Figure 4—Noise Receivers ● **- Receiver Locations**

The receiving properties appear to have been constructed before Title 24 standards were implemented. As stated, the manner in which older buildings 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. Assuming windows are closed and a 20 dBA insertion loss, interior noise levels at residences modeled would range between 43 dBA and 44 dBA CNEL. Interior noise levels at receivers fronting Huntington Drive and West Drive in proximity to the site would be below the 45 dBA interior standard. In all cases modeled, the existing interior noise levels would change with the addition of project traffic.

CONCLUSION

As defined in Section 14.04.05, noise levels at any adjacent residential property line must not exceed 65 dB when originating from any parcel in an R-1 Zone and 75 dB from any parcel in a C-1 Zone, Park and Recreational Zone or Historical and Cultural Zone. The project site is located in an area designated for very low-density residential; thus, construction-related noise generated on-site may exceed 65 dBA at neighboring receivers. To avoid a municipal code violation, a permit would be obtained from the planning and building director. No significant or adverse noise impacts would occur as a result of project construction. Project related traffic would not change existing noise levels along Huntington Drive or West Drive. Noise levels would remain below 65 dBA CNEL. All events occurring on-site would be hosted indoors; thus, no exterior noise source would be audible at neighboring receivers.

REFERENCES

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Appendix A

Monitoring Data Sheet and Modeling Results

FIELD NOISE MEASUREMENT DATA

Project Name: San Marino Community Center Page 1 of
Project #: Day / Date My Name.

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

ID	Time Start	Time Stop	Leq	Lmin	Lmax	L10	L50	L90	Wind Spd/ Dir (mph)	Temp (°F)	RH (%)	Bar Psr (in Hg)	Cloud Cover (%)
1	7:05	7:20	68.6	46.5	71.8	66.4	57.2	50.5	1-2 W	65			0%
2	7:25	7:40	63.7	46.6	77.0	67.9	60.6	50.6	1-2 W	66			0%

	Location(s) / GPS Reading(s):
Roadway Name	Huntington Drive
Speed (post/obs)	45
Number of Lanes	6
Width (pave/row)	100'
1- or 2- way	2
Grade	0%
Bus Stops	~~NO~~ YES
Stoplights	YES
Street Parking	NO
Automobiles	229
Medium Trucks	4
Heavy Trucks	0

45
6
100'
2
0%
YES
YES
290
10
0
1 helicopter overflight

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

Notes and Sketches on Reverse

Site 1

Start Date	4/7/2021
Start Time	7:03:25 AM
End Time	7:18:24 AM
Duration	00:14:59
Meas Mode	Single
Input Range	High
Input Type	Mic
SPL Time Weight	Slow
LN% Freq Weight	dBA
Overload	No
UnderRange	Yes
Sensitivity	18.44mV/Pa

LZeq	70.2
LCeq	69.0
LAeq	61.6
LZSmax	82.9
LCSmax	82.0
LASmax	71.8
LZSmin	64.8
LCSmin	63.1
LASmin	46.5
LZE	99.7
LCE	98.5
LAE	91.1
LZpeak	94.7
LCpeak	93.0
LApeak	85.9
1%	70.2
2%	69.6
5%	67.8
8%	66.7
10%	66.1
25%	62.1
50%	57.2
90%	50.5
95%	49.5
99%	47.7

Site 2

Start Date	4/7/2021
Start Time	7:24:15 AM
End Time	7:39:14 AM
Duration	00:14:59
Meas Mode	Single
Input Range	High
Input Type	Mic
SPL Time Weight	Slow
LN% Freq Weight	dBA
Overload	No
UnderRange	Yes
Sensitivity	18.44mV/Pa

LZeq	74.8
LCeq	73.7
LAeq	63.7
LZSmax	93.0
LCSmax	92.4
LASmax	77.0
LZSmin	64.0
LCSmin	61.7
LASmin	46.6
LZE	104.3
LCE	103.2
LAE	93.2
LZpeak	102.1
LCpeak	102.1
LApeak	90.0
1%	71.4
2%	70.3
5%	69.0
8%	68.3
10%	67.9
25%	65.1
50%	60.6
90%	50.6
95%	49.4
99%	47.7

<Organization?>
<Analysis By?>

21 September 2021
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: <Project Name?>
RUN: San Marino Center - Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

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

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	62.6	66	62.6	10	----	62.6	0.0	8	-8.0
Receiver2	2	1	0.0	63.6	66	63.6	10	----	63.6	0.0	8	-8.0
Receiver3	3	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	3	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

<Organization?>
21 September 2021
<Analysis By?>
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: <Project Name?>
RUN: San Marino Center - w-Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

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

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
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All that meet NR Goal	0	0.0	0.0	0.0