Attachment 8

Noise and Vibration Technical Report

ESA

600 Foothill Project

IS/MND

Noise and Vibration Technical Report
February 2021

600 Foothill Project

1. Executive Summary

1. Project Location

The project site is located at 600 Foothill Boulevard in La Cañada-Flintridge, California. The project site is identified by Assessor's Parcel Numbers (APN) 5814-028-009.

2. Project Description

The proposed project would demolish the two existing structures (First Church of Christ Scientist of La Cañada) and surface parking lot and replace them with a 77,310 square foot (sf), three-story structure to be utilized for mixed-use purposes containing a senior living facility, non-service hotel, and office. The facility would include 47 senior housing units (age-restricted to seniors aged 55 years old and over), 12 non-serviced hotel units, 7,600 sf of office uses, and one level of underground parking containing 107 vehicle parking spaces.

3. Noise and Vibration Impact Summary

a) Would the project result in 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?

(1) Construction Impacts

Construction of the project is anticipated to occur over a 15-month period, beginning in Spring 2022 and ending in Summer 2023. Construction activities would consist of demolition, site preparation and clearing, grading/excavation, drainage/utilities/trenching, foundations/concrete pour, building construction, architectural coating, and landscaping.

Project construction would generate noise from the daytime operation of construction equipment on the project site and from haul truck trips on local roadways accessing and departing the project site. Project construction would use small-scale construction equipment over a 15-month period, where construction activities would vary from day-to-day. In addition, as no large buildings are proposed, there would be no pile driving activities. The construction activities associated with the grading would have the greatest potential to generate noise during construction; however, these activities would be conducted using small-scale construction equipment and would not occur continuously over the 15-month construction period.

On-site construction would be less than significant before mitigation at receptors R1, R2, R4, and R5. Maximum noise levels at the Presbyterian church (R3) would be 89 dBA and would exceed the threshold of 85 dBA. However, with implementation of MM-NOI-1, noise levels at R3 would be reduced to 84 dBA and therefore, would not exceed the construction noise threshold. Off-site construction noise from the movement of workers, vendors, and haul trucks would be less than significant along all analyzed roadway segments.

(2) Operational Impacts

Once constructed, operation of the Project's land uses would generate noise from four main sources: the operation of mechanical equipment on the exterior of Project buildings, the parking garage, the various outdoor spaces, and Project-generated traffic on select surrounding streets. All operational noise sources would adhere to LCFMC Section 5.02, would not exceed established ambient noise thresholds, and would result in less than significant noise impacts.

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

(1) Construction Impacts

Construction of the Project would generate vibration from operation of construction equipment and vehicles. The construction would not generate vibration levels that would cause structural damage or human annoyance, as compared to FTA and Caltrans thresholds at any of the sensitive receptors and impacts would be less than significant.

(2) Operational Impacts

Once construction is completed, the project would have no potential to generate vibration during operation as the project would not introduce new sources of vibration to the project site relative to existing conditions. Therefore, impacts related to vibration 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?

The project site is not within 2 miles of a public or private airport or airstrip facility. The nearest airfield to the project site is the Hollywood Burbank Airport, approximately 9.3 miles west of the Project site. Therefore, no impact would occur with implementation of the project.

2. Environmental Setting and Methodology

1. Introduction

ESA conducted a comprehensive noise and vibration impact analysis and report for the 600 Foothill Project (Project). Noise and vibration associated with construction and operation of the Project were quantified. This technical report describes the methodology used to measure the existing site's ambient noise levels and estimate noise and vibration from construction and operations of the Project.

2. Regulatory Framework

a) Federal

(1) Federal Noise Standards

There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the Project.

Under the Occupational Safety and Health Act of 1970 (29 U.S.C. §1919 et seq.), the Occupational Safety and Health Administration (OSHA) has adopted regulations designed to protect workers against the effects of occupational noise exposure. These regulations list permissible noise level exposure as a function of the amount of time during which the worker is exposed. The regulations further specify a hearing conservation program that involves monitoring the noise to which workers are exposed, ensuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation.

(2) Federal Vibration Guidelines

There are no federal vibration standards or regulations adopted by any agency specifically for evaluating vibration impacts from land use development projects such as the Project. However, FTA has adopted vibration criteria that are commonly used to evaluate potential structural damage to buildings by building category from construction activities. The vibration damage criteria adopted by FTA are shown in **Table 1,** *Construction Vibration Damage Criteria*.

TABLE 1
CONSTRUCTION VIBRATION DAMAGE CRITERIA

Building Category	PPV (in/sec)
I. Reinforced-concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

SOURCE: FTA, Transit Noise and Vibration Impact Assessment, 2018.

FTA has also adopted vibration criteria associated with the potential for human annoyance from groundborne vibration for the following three land-use categories: Category 1 – High Sensitivity, Category 2 – Residential, and Category 3 – Institutional as shown in **Table 2**, *Groundborne Vibration Impact Criteria for General Assessment*. FTA defines Category 1 as buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, historic buildings, hospitals with vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes. Category 2 refers to all residential land uses and any buildings where people sleep, such as hotels and hospitals. Category 3 refers to institutional land uses such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment but still have the potential for activity interference. The FTA uses a screening distance of 100 feet for highly vibration-sensitive buildings (e.g., historic buildings, hospitals with vibration sensitive equipment, Category 1) and 50 feet for residential uses (Category 2).[1] No vibration criteria have been adopted or recommended by FTA for commercial and office uses.

[1] FTA, Transit Noise and Vibration Impact Assessment, Table 6-8.

TABLE 2
GROUNDBORNE VIBRATION IMPACT CRITERIA FOR GENERAL ASSESSMENT

Land Use Category	Frequent Events[a]	Occasional Events[b]	Infrequent Events[c]
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB[d]	65 VdB[d]	65 VdB[d]
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB

a “Frequent Events” is defined as more than 70 vibration events of the same source per day.

b “Occasional Events” is defined as between 30 and 70 vibration events of the same source per day.

c “Infrequent Events” is defined as fewer than 30 vibration events of the same kind per day.

d This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes.

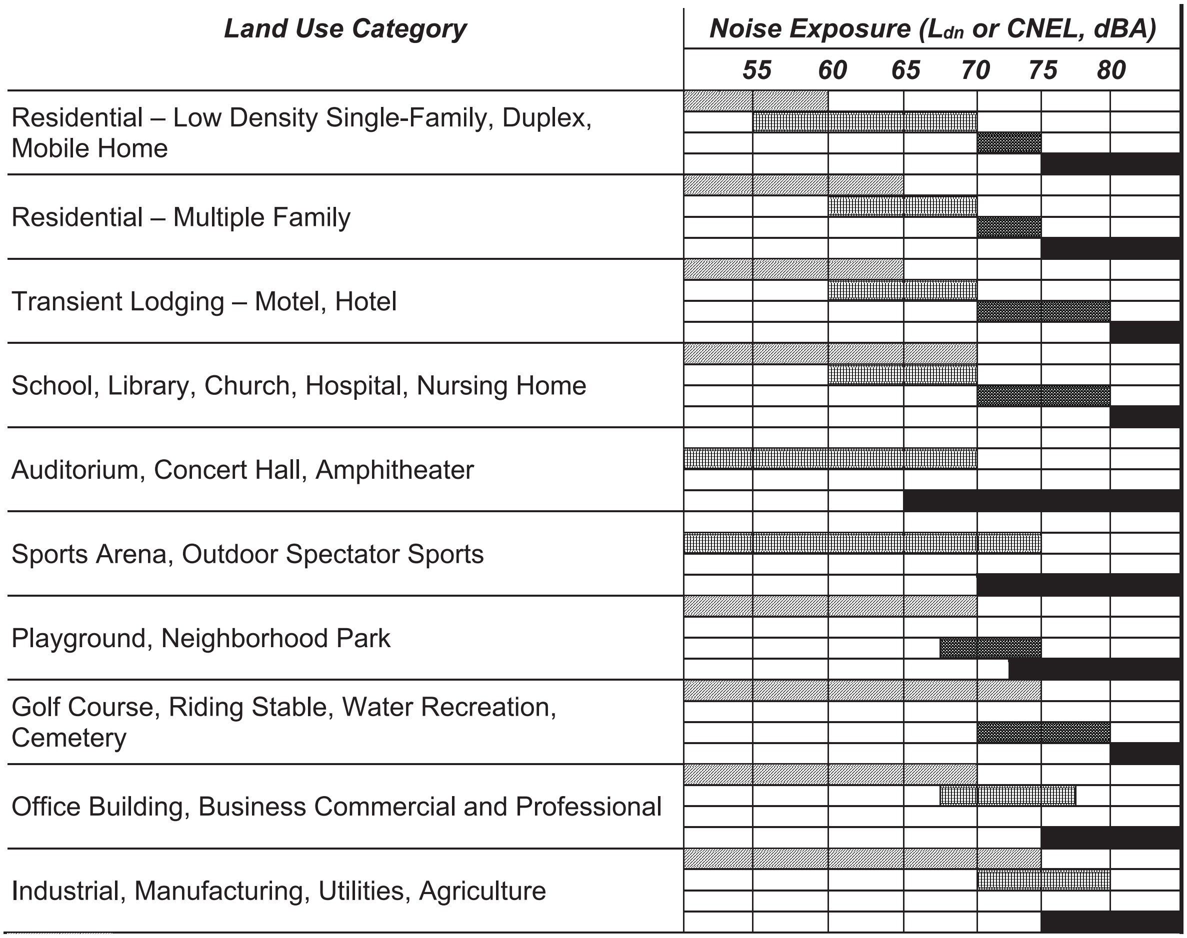
SOURCE: FTA, Transit Noise and Vibration Impact Assessment, 2018.

b) State

(1) California Noise Standards

The State of California does not have standards for environmental noise, but the Governor’s Office of Planning and Research (OPR) has established general plan guidelines for evaluating the compatibility of various land uses as a function of community noise exposure, as presented in **Figure 1**, *Guideline for Noise Compatible Land Use*.[2] The purpose of these guidelines is to maintain acceptable noise levels in a community setting for different land use types. Noise compatibility by different land uses types is categorized into four general levels: “normally acceptable,” “conditionally acceptable,” “normally unacceptable,” and “clearly unacceptable.” For instance, a noise environment ranging from 50 dBA CNEL to 65 dBA CNEL is considered to be “normally acceptable” for multi-family residential uses, while a noise environment of 75 dBA CNEL or above for multi-family residential uses is considered to be “clearly unacceptable.”

2 State of California Governor’s Office of Planning and Research, General Plan Guidelines, 2003.



NORMALLY ACCEPTABLE: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

CONDITIONALLY ACCEPTABLE: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.

NORMALLY UNACCEPTABLE: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.

CLEARLY UNACCEPTABLE: New construction or development should generally not be undertaken. Construction costs to make the indoor environmental acceptable would be prohibitive and the outdoor environment would not be usable.

SOURCE: State of California, General Plan Guidelines, Governor's Office of Planning and Research, 2003

Figure 1
Guidelines for Noise Compatible Land Use

In addition, California Government Code Section 65302(f) requires each county and city in the State to prepare and adopt a comprehensive long-range general plan for its physical development, with California Government Code Section 65302(f) requiring a noise element to be included in the general plan. The noise element must: (1) identify and appraise noise problems in the community; (2) recognize Office of Noise Control guidelines; and (3) analyze and quantify current and projected noise levels.

The State of California has also established noise insulation standards for new multi-family residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards set forth an interior standard of 45 dBA CNEL in any habitable room. They require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than 60 dBA CNEL. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

(2) California Vibration Standards

The State of California has not adopted statewide standards or regulations for evaluating vibration or groundborne noise impacts from land use development projects such as the Project.

c) Local

(1) La Cañada-Flintridge Municipal Code

The La Cañada-Flintridge Municipal Code (LCFMC) establishes prohibitions for disturbing, excessive, or offensive noise, and provisions such as sound level limits for the purpose of securing and promoting the public health, comfort, safety, peace, and quiet for its citizens. Section 5.02.110 of the LCFMC prohibits construction between the hours of 6:00 p.m. and 7:00 a.m. Monday through Friday, between the hours of 5:00 p.m. and 9:00 a.m. on Saturday, and at any time on Sunday or a holiday (i.e., construction is allowed Monday through Friday between 7:00 a.m. to 6:00 p.m.; and Saturdays between 9:00 a.m. to 5:00 p.m.). In addition, Section 5.02.110 of the City's Municipal Code sets a maximum noise level for construction equipment of 75 dBA for an eight-hour period for R-1 zoned (single-family residential) uses, 80 dBA for R-3 zoned (Mixed-Use) uses, and 85 dBA for public/semi-public, open space, and commercial uses when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

For operations, LCFMC Municipal Code Section 5.02.100 establishes one-hour average noise level limits for different land uses for both daytime (7:00 a.m. to 7:00 p.m.) and nighttime hours (7:00 p.m. to 7:00 a.m.). **Table 3** shows the one-hour average noise level standards identified in LCFMC Section 5.02.100.

TABLE 3
ONE-HOUR AVERAGE NOISE LEVEL STANDARDS BY LAND USE

Zoning District	One Hour Average Noise Level in dBA Between 7:00 a.m. and 7:00 p.m. Measured at Property Line or District Boundary	One Hour Average Noise Level in dBA Between 7:00 p.m. and 7:00 a.m. Measured at Any Boundary of a Residential Zone
Single-Family Residential (R-1)	60	50
Multifamily Residential (R-3 & RPD)	65	55
Commercial (CPD & FCD)	70	60
Mixed Use	75	65
Public/Semi Public and Open Space	65	55
Source: LCFMC Section 5.02.100		

(2) Local Vibration Standards

The City has not adopted citywide standards or regulations for evaluating vibration or groundborne noise impacts from land use development projects such as the Project.

3. Noise and Vibration Methodology

This section describes the methodology used to measure the existing site's noise environment and calculate noise and vibration resulting from Project construction and operational activities and to evaluate the associated impacts. Construction activities would generate noise from equipment usage and truck hauling. Long-term operational activities would generate emissions through vehicle trips (e.g. tenants, employees, visitors, waste disposal, deliveries), stationary sources (e.g. generators, heating, ventilation, and cooling) and outdoor gathering areas used for special events.

a) Noise

(1) Noise Attenuation

When noise propagates over a distance, the noise level reduces with distance depending on the type of noise source and the propagation path. Noise from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern, referred to as "spherical spreading." Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (i.e., reduce) at a rate between 6 dBA for acoustically "hard" sites and 7.5 dBA for "soft" sites for each doubling of distance from the reference measurement, as their energy is continuously spread out over a spherical surface (e.g., for hard surfaces, 80 dBA at 50 feet attenuates to 74 dBA at 100 feet, 68 dBA at 200 feet, etc.). Hard sites are those with a reflective surface between the source and the receiver, such as asphalt or concrete surfaces or smooth bodies of water. No excess ground attenuation is assumed for hard sites, and the reduction in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source.

Soft sites have an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees, which in addition to geometric spreading, provides an excess ground attenuation value of 1.5 dBA (per doubling distance).[3]

Roadways and highways consist of several localized noise sources on a defined path, and hence are treated as “line” sources, which approximate the effect of several point sources. Noise from a line source propagates over a cylindrical surface, often referred to as “cylindrical spreading.” Line sources (e.g., traffic noise from vehicles) attenuate at a rate between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement.[4] Therefore, noise due to a line source attenuates less with distance than that of a point source with increased distance.

Additionally, receptors located downwind from a noise source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Atmospheric temperature inversion (i.e., increasing temperature with elevation) can increase sound levels at long distances (e.g., more than 500 feet). Other factors such as air temperature, humidity, and turbulence can also have significant effects on noise levels.[5]

(2) Foundations of Vibration

Vibration can be interpreted as energy transmitted in waves through the ground or man-made structures, which generally dissipate with distance from the vibration source. Because energy is lost during the transfer of energy from one particle to another, vibration becomes less perceptible with increasing distance from the source.

As described in the Federal Transit Administration’s (FTA) *Transit Noise and Vibration Impact Assessment*, ground-borne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard.[6] In contrast to airborne noise, ground-borne vibration is not a common environmental problem, as it is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of ground-borne vibration are trains, heavy trucks traveling on rough roads, and construction activities, such as blasting, pile-driving, and operation of heavy earth-moving equipment.[7]

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal in inches per second (in/sec), and is most frequently used to describe vibration impacts to

[3] Caltrans, *Technical Noise Supplement* (TeNS), Section 2.1.4.2, September 2013.
[4] Caltrans, *Technical Noise Supplement* (TeNS), Section 2.1.4.1, September 2013.
[5] Caltrans, *Technical Noise Supplement* (TeNS), Section 2.1.4.3 September 2013.
[6] Federal Transit Administration, Transit Noise and Vibration Impact Assessment, Section 7, September 2018.
[7] Caltrans, *Transportation and Construction Vibration Guidance Manual*, September 2013, page 1.

buildings. The root mean square (RMS) amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS. The relationship of PPV to RMS velocity is expressed in terms of the "crest factor," defined as the ratio of the PPV amplitude to the RMS amplitude. PPV is typically a factor of 1.4 to 6 times greater than RMS vibration velocity.[8] VdB acts to compress the range of numbers required to describe vibration. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include buildings where vibration would interfere with operations within the building or cause damage (especially older masonry structures), locations where people sleep, and locations with vibration sensitive equipment.[9]

The effects of groundborne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction. Annoyance from vibration often occurs when the vibration levels exceed the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings.

(3) Existing Noise and Vibration Levels

(a) Noise-Sensitive Receptor Locations

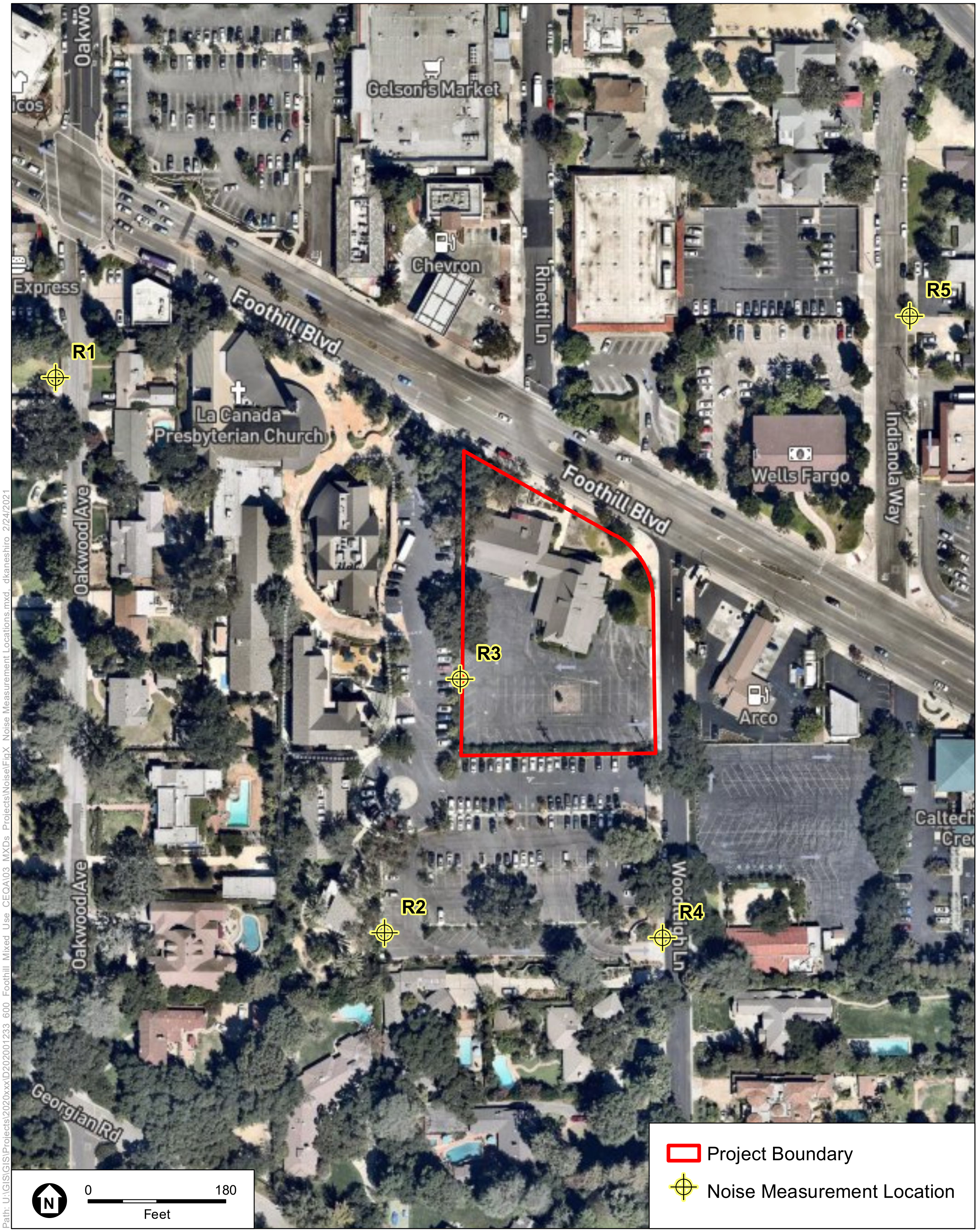
To establish baseline noise conditions representing the nearby noise sensitive land uses in the vicinity of the project site, existing ambient noise levels measurements were conducted on February 9, 2021 at 5 locations near the project site. **Figure 2** shows the locations of the noise measurements, labeled as R1 through R5, as described as follows:

- R1 – single-family residential uses along Oakwood Avenue, approximately 415 feet northwest of the Project Site;
- R2 - single-family residential uses approximately 225 feet southwest of the Project Site;
- R3 – Presbyterian church on the western project site boundary, approximately 25 feet from the Project Site;
- R4 – single-family residential uses approximately 250 feet south of the Project Site;
- R5 – educational/daycare uses approximately 380 feet northeast of the Project Site;

[8] Federal Transit Administration, Transit Noise and Vibration Impact Assessment, Section 5.1, September 2018.

[9] Federal Transit Administration, Transit Noise and Vibration Impact Assessment, Section 6.1, 6.2, and 6.3, September 2018.

All other noise-sensitive uses are located at distances greater than 500 feet from the Project Site and would experience lower noise levels from potential sources of noise on the Project Site due to distance loss.



SOURCE: Open Street Map, 2021

600 Foothill

Figure 2
Noise Measurement Locations

ESA

(b) Vibration-Sensitive Receptor Locations

Typically, groundborne vibration generated by man-made activities (i.e., rail and roadway traffic, operation of mechanical equipment and typical construction equipment) diminishes rapidly with distance from the vibration source. Construction activities, such as impact pile driving, would have the greatest effect on vibration sensitive land uses. Energy is lost during the transfer of energy from one particle to another and as a result, vibration becomes less perceptible with increasing distance from the source. Therefore, with respect to potential structural damage, structures in close proximity (adjacent) to the Project Site are considered vibration sensitive. As shown in Table IV.I-1, the structural category/construction type (i.e., reinforced-concrete, engineered concrete, non-engineered timber, and building susceptible to damage) determines the vibration damage criteria for a specific building/structure.[10]

With respect to human annoyance, sensitive land uses include buildings where use of vibration-sensitive equipment is used (e.g., hospitals, research, and manufacturing), residential land uses and buildings where people normally sleep, schools, churches, and doctor's offices. Industrial or commercial (including office) uses are not considered vibration-sensitive.

Structural damage and human annoyance impacts from vibration were analyzed at the closest vibration receptor (as measured to the structure itself and not the property line), which is the service station 65 feet east of the Project site. All other vibration sensitive receptors are located further away and would experience levels less than those analyzed in the IS/MND.

(c) Ambient Noise Levels

The predominant existing noise source near the Project Site is roadway noise from 6th Street to the north, 7th Street to the south, and noise from the freight and passenger rail lines and rail yards to the east ("Railway Property"). Other noise sources include general residential and commercial-related activities associated with refuse service activities and the loading and unloading activities as well as noise related to surrounding industrial operations such as loading and unloading activities, stationary mechanical equipment (e.g., generators, fans, condenser units, etc.), and operation of on-site equipment (e.g., forklifts).

To establish conservative baseline for ambient noise levels, ambient noise measurements were conducted at five locations corresponding to the sensitive receptors identified in Section 3.a)(3)(a), above.

[10] Where the structural category/type of a vibration-sensitive receptor is unclear, the analysis herein utilizes a conservative assumption. For example, although structures where industrial processes take place would generally be constructed of concrete, the threshold for non-engineered timber and masonry has been applied due to the uncertainty of building construction.

Weekday daytime (between 7:00 AM and 10:00 PM) noise measurements were conducted to characterize the existing noise environment at the Project Site and at off-site sensitive receptors. The City's standard for noise analysis is to compare Project-related noise levels to short-term (15-minute) ambient noise measurements at sensitive receptors. Because the Project's impacts are determined based on Project-related increases to baseline noise levels, noise measurements are generally taken outside of the peak traffic window to ensure that baseline levels do not represent elevated traffic noise and, accordingly, provide a more conservative impact analysis. The measured noise levels are provided in **Table 4**, *Summary of Ambient Noise Measurements*.

TABLE 4
SUMMARY OF AMBIENT NOISE MEASUREMENTS

Measurement Location	Measured Ambient Noise Levels[a, b] (dBA L_{eq})
R1	55.0
R2	53.0
R3	50.7
R4	59.1
R5	58.9

[a] Detailed measured noise data, including hourly L_{eq} levels, are provided in Section 3 of this Attachment.
SOURCE: ESA, 2021.

(a) Existing Roadway Noise Levels

Existing roadway CNEL noise levels were calculated for roadway segments located within the study area were based on vehicular turning movement data at intersections identified for traffic impact analysis by Fehr & Peers for the City.

Turning movements at each studied intersection were used to determine traffic volumes along 11 roadway segments within the Project vicinity. The roadway segments, when compared to roadways located farther away from the Project Site, would experience the greatest percentage increase in traffic generated by the Project (i.e., as distances are increased from the Project Site, traffic is spread out over a greater geographic area, and its effects are reduced).

Existing roadway CNEL noise levels were calculated using the Federal Highway Administration's (FHWA's) Highway Traffic Noise Model (FHWA-TNM)[11] and traffic volumes at the study intersections reported in the TA. The TNM model calculates the average noise level at specific locations based on traffic volumes, average speeds, and site environmental conditions.

(4) On-Site Construction

On-site construction noise impacts were evaluated by determining the noise levels generated by the different types of construction activity anticipated, calculating the construction-related noise level generated by the mix of equipment assumed for all construction activities at nearby sensitive receptor locations, and comparing these construction-related noise levels to existing ambient noise levels (i.e., noise levels without construction noise) at those receptors. Construction activities include demolition of the existing uses on the Project Site and construction of the buildings and any infrastructure improvements needed to serve the Project.

Project construction includes the following eight construction stages: (1) demolition, (2) site preparation, (3) grading/excavation (4) drainage/ utilities/ trenching, (5) foundation concrete pour, (6) building construction, (7) architectural coating, and (8) landscaping. According to the phasing schedule provided by the Project construction team, the following overlaps in stages would occur: (a) excavation/grading and drainage/ utilities/ trenching, (b) drainage/ utilities/ trenching and foundations/concrete pour, and (c) architectural coating, and landscaping. The construction noise significance threshold used in this analysis is the temporary construction noise levels outlined in LCFMC Section 5.02.

(5) Off-Site Roadway Noise (Construction and Operation)

Roadway noise impacts were evaluated using the FHWA TNM based on the roadway traffic volume data provided by Fehr & Peers for the Project. This method allows for the definition of roadway configurations, barrier information (if any), and receiver locations. Roadway noise attributable to Project development was calculated and compared to baseline noise levels that would occur under the "Without Project" condition.

With respect to operational traffic noise, impacts are evaluated for the existing year and the earliest buildout year of 2023. Operational traffic noise is also evaluated for a cumulative year (2023), which would be the worst-case scenario for the analysis comparing existing without Project levels to future with project levels. Calculations are provided in Section 3 of this Technical Appendix.

[11] The traffic noise model which was developed based on calculation methodologies provided in the Caltrans TeNS document and traffic data provided by Fehr & Peers for this IS/MND. This methodology, considered an industry standard, allows for the definition of roadway configurations, barrier information (if any), and receiver locations.

(6) On-Site Stationary Noise (Operation)

Stationary noise impacts were evaluated by considering the noise levels generated by outdoor stationary noise sources, such as open spaces, outdoor activities, rooftop mechanical equipment, and the parking garage, both quantitatively and qualitatively. Open space noise was estimated by calculating the hourly L_{eq} noise level from each noise source at sensitive receptor property lines, and comparing such noise levels to existing ambient noise levels and LCFMC Section 5.02 noise standards. More specifically, the following steps were undertaken to calculate outdoor stationary noise impacts:

1. Ambient noise levels at surrounding off-site sensitive receptor locations were determined based on field measurement data (see **Table 4**).
2. Distances between stationary noise sources and surrounding sensitive receptor locations were measured using Project architectural drawings, site plans, and Google Earth.
3. Stationary source noise levels were then calculated for the closest sensitive receptor and closest residential sensitive receptor location based on the standard point-source noise-distance attenuation factor of 6 dBA for each doubling of distance over a hard surface.
4. Noise level increases were compared to the stationary source noise significance thresholds discussed below.
5. For outdoor mechanical equipment, the maximum allowable noise emissions from any and all outdoor mechanical equipment were specified such that noise levels would not exceed the significance threshold discussed below.
6. Parking related noise levels were assessed qualitatively and considers that the parking garage is entirely below-grade.

For operational stationary noise, the operational stationary noise is assumed to comply with LCFMC Section 5.02 which sets ambient noise standards for specific land uses.

For purposes of providing a conservative noise analysis for outdoor spaces, the maximum occupant load of Project outdoor spaces was calculated based on an occupancy load factor of 15 square feet per person for an assembly area without fixed seats, according to the California Building Code Table 1004.5 Maximum Floor Area Allowances Per Occupant.[12] Although this occupancy load factor provides an overestimation of the occupancy load and associated noise within passive landscaped areas, it has been applied to the square footage of the Project's outdoor spaces to provide a conservative worst-case noise analysis.

Actual capacities for the Project outdoor spaces would be lower and, in some cases substantially lower, due to design considerations, such as building ingress/egress limitations, elevator and stairwell capacities, fire escape route capacities, and other

[12] California Building Standards Commission, 2019 Title 24, Part 2, Volume 1 – California Building Code.

capacity considerations. Noise from female adults, male adults, and children talking at a raised level is approximately 63 dBA, 65 dBA, and 65 dBA, respectively, at a distance of 3 feet.[13] As a conservative analysis, it is assumed that each outdoor space would be at full capacity and that half of the visitors would be adults (half male and half female) and half would be children. Of the adults and children, half would be talking simultaneously (assuming approximately half of the occupants talking and the other half listening).

(7) Groundborne Vibration (Construction and Operation)

Groundborne vibration impacts were evaluated by identifying potential vibration sources, measuring the distance between vibration sources and surrounding structure locations, and making a determination based on the significance criteria described in the Vibration Impacts section.

The City currently does not have significance criteria to assess vibration impacts during construction. Thus, FTA guidelines set forth in their 2018 Transit Noise and Vibration Assessment and California Department of Transportation (Caltrans) guidelines from their 2013 Transportation and Construction Vibration Guidance Manual are used to evaluate potential impacts related to construction vibration for both potential building damage and human annoyance.[14] [15]

Based on the FTA guidance, groundborne vibration could result in building damage if any of the following were to occur:

- Project construction activities cause groundborne vibration levels to exceed 0.5 in/sec PPV at the nearest offsite reinforced-concrete, steel, or timber building.
- Project construction activities cause groundborne vibration levels to exceed 0.3 in/sec PPV at the nearest offsite engineered concrete and masonry building.
- Project construction activities cause groundborne vibration levels to exceed 0.2 in/sec PPV at the nearest offsite non-engineered timber building.
- Project construction activities cause groundborne vibration levels to exceed 0.12 in/sec PPV at buildings extremely susceptible to vibration damage, such as historic buildings.

Structural impacts from the Project were evaluated based on Caltrans' Transit Noise and Vibration Impact Assessment which provides PPV values for different types of equipment at a distance of 25 feet (See Table 12-2 of the Assessment). The standardized PPV values can then be attenuated based on the measured distance of the vibration sensitive receptor from the Project Site. The standard attenuation formula is as follows:

[13] *American Journal of Audiology* Vol.7 21-25 October 1998. doi:10.1044/1059-0889(1998/012).
[14] FTA, Transit Noise and Vibration Impact Assessment, 2018
[15] Caltrans, Transportation and Construction Vibration Guidance Manual, 2013

$$PPV_{equip} = PPV_{ref} \times (25/D)^n$$

Where: PPV_{equip} is the PPV in in/sec of the equipment adjusted for distance

PPV_{ref} is the reference vibration level in in/sec at 25 feet

D is the distance from the equipment to the receiver

n is the soil type classification (typically ranging from 1 to 1.5; a factor of 1.5 was used for this analysis)

Based on FTA guidance, construction vibration could be perceived as annoying to humans if any of the following were to occur:

- Project construction activities cause groundborne vibration levels to exceed 72 VdB at off-site residential uses.

The FTA guidance further classifies the vibration levels above based on whether the vibration-producing events are frequent, occasional, or infrequent. “Frequent Events” is defined as more than 70 vibration events of the same source per day. “Occasional Events” is defined as between 30 and 70 vibration events of the same source per day. “Infrequent Events” is defined as fewer than 30 vibration events of the same kind per day. The values listed above are applicable to “Frequent Events.” For purposes of conservative analysis, the vibration analysis provided herein for potential human annoyance compares the estimated vibration levels generated during construction and operation of the Project to the 72 VdB significance threshold for off-site residential uses for “Frequent Event.” The vibration analysis for the Project conservatively used the closet distance to construction activity and the construction phase with the equipment mix that would result in the greatest potential vibration.

Similar to structural impacts, the Project’s human annoyance impacts are calculated using the same methodology from Caltrans’ Transit Noise and Vibration Impact Assessment which provides VdB values for different types of equipment at a distance of 25 feet (See Table 12-2 of the Assessment). The standardized PPV values can then be attenuated based on the measured distance of the vibration sensitive receptor from the Project Site. The standard attenuation formula is as follows:

$$VdB_{equip} = VdB_{ref} - 30 \times \log(D/25)$$

Where: VdB_{equip} is the noise level in velocity decibels of the equipment adjusted for distance

VdB_{ref} is the reference vibration level in velocity decibels at 25 feet

D is the distance from the equipment to the receiver

3. Noise and Vibration Worksheets

Noise and Vibration Calculations and Model Outputs

Project: 600 Foothill

Construction Noise Impact on Sensitive Receptors

Parameters

Construction Hours:	8	Daytime hours (7 am to 7 pm)
	0	Evening hours (7 pm to 10 pm)
	0	Nighttime hours (10 pm to 7 am)
Leq to L10 factor	3	

				R1					R2				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L11**	**Estimated Noise Shielding, dBA**
Demolition					***62***	***56***				***77***	***71***		
Concrete Saw	1	90	20%	415	62	55	58	10	225	77	70	73	0
Dozer	1	82	40%	590	51	47	50	10	400	64	60	63	0
Tractor/Loader/Backhoe	3	80	25%	730	51	45	48	10	560	64	58	61	0
Site Preparation					***58***	***54***				***73***	***69***		
Graders	1	85	40%	415	57	53	56	10	225	72	68	71	0
Dozer	1	82	40%	590	51	47	50	10	400	64	60	63	0
Tractor/Loader/Backhoe	1	80	25%	730	47	41	44	10	560	59	53	56	0
Grading/Excavation					***60***	***55***				***74***	***69***		
Auger Drill Rig	1	84	20%	415	56	49	52	10	225	71	64	67	0
Excavator	1	81	40%	415	53	49	52	10	225	68	64	67	0
Graders	1	85	40%	590	54	50	53	10	400	67	63	66	0
Dozer	1	82	40%	590	51	47	50	10	400	64	60	63	0
Vacuum Street Sweeper	1	82	10%	730	49	39	42	10	560	61	51	54	0
Tractor/Loader/Backhoe	1	80	25%	730	47	41	44	10	560	59	53	56	0
Drainage/Utilities/Trenching					***56***	***52***				***70***	***66***		
Tractor/Loader/Backhoe	1	80	25%	415	52	46	49	10	225	67	61	64	0
Other Equipment	1	85	50%	590	54	51	54	10	400	67	64	67	0
Foundations/Concrete Pour					***57***	***52***				***72***	***66***		
Cranes	2	81	16%	415	56	48	51	10	225	71	63	66	0
Pumps	2	81	50%	590	53	50	53	10	400	66	63	66	0
Building Construction					***56***	***50***				***70***	***64***		
Cranes	1	81	16%	415	53	45	48	10	225	68	60	63	0
Forklift	1	75	10%	415	47	37	40	10	225	62	52	55	0
Generator Sets	1	81	50%	590	50	47	50	10	400	63	60	63	0
Tractor/Loader/Backhoe	1	80	25%	730	47	41	44	10	560	59	53	56	0
Architectural Coating					***50***	***46***				***65***	***61***		
Air Compressor	1	78	40%	415	50	46	49	10	225	65	61	64	0
Landscpaing					***52***	***42***				***66***	***56***		
Forklift	1	75	10%	415	47	37	40	10	225	62	52	55	0
Vacuum Street Sweeper	1	82	10%	590	51	41	44	10	400	64	54	57	0
Maximum Overlapping Noise Levels													
Excavation/Grading + Drainage/Utilities/Trenching					61	57				76	71		
Drainage/Utilities/Trenching + Foundations/Concrete Pour					60	55				74	69		
Architectural Coating + Landscaping					54	47				69	62		
Maximum Combined Noise Levels					**62**	**57**				**77**	**71**		

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: 600 Foothill

Construction Noise Impact on Sensitive Receptors

Parameters

Construction Hours:	8	Daytime hours (7 am to 7 pm)
	0	Evening hours (7 pm to 10 pm)
	0	Nighttime hours (10 pm to 7 am)
Leq to L10 factor	3	

				R3					R4					R5				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L12**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L11**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L12**	**Estimated Noise Shielding, dBA**
Demolition					***96***	***89***				***76***	***70***				***73***	***67***		
Concrete Saw	1	90	20%	25	96	89	92	0	250	76	69	72	0	380	72	65	68	0
Dozer	1	82	40%	200	70	66	69	0	425	63	59	62	0	515	62	58	61	0
Tractor/Loader/Backhoe	3	80	25%	300	69	63	66	0	625	63	57	60	0	660	62	56	59	0
Site Preparation					***94***	***87***				***72***	***68***				***69***	***65***		
Graders	1	85	40%	25	91	87	90	0	250	71	67	70	0	380	67	63	66	0
Dozer	1	82	40%	200	70	66	69	0	425	63	59	62	0	515	62	58	61	0
Tractor/Loader/Backhoe	1	80	25%	300	64	58	61	0	625	58	52	55	0	660	58	52	55	0
Grading/Excavation					***92***	***86***				***74***	***68***				***71***	***66***		
Auger Drill Rig	1	84	20%	25	90	83	86	0	250	70	63	66	0	380	66	59	62	0
Excavator	1	81	40%	25	87	83	86	0	250	67	63	66	0	380	63	59	62	0
Graders	1	85	40%	200	73	69	72	0	425	66	62	65	0	515	65	61	64	0
Dozer	1	82	40%	200	70	66	69	0	425	63	59	62	0	515	62	58	61	0
Vacuum Street Sweeper	1	82	10%	300	66	56	59	0	625	60	50	53	0	660	60	50	53	0
Tractor/Loader/Backhoe	1	80	25%	300	64	58	61	0	625	58	52	55	0	660	58	52	55	0
Drainage/Utilities/Trenching					***86***	***80***				***69***	***65***				***67***	***63***		
Tractor/Loader/Backhoe	1	80	25%	25	86	80	83	0	250	66	60	63	0	380	62	56	59	0
Other Equipment	1	85	50%	200	73	70	73	0	425	66	63	66	0	515	65	62	65	0
Foundations/Concrete Pour					***90***	***82***				***71***	***65***				***68***	***63***		
Cranes	2	81	16%	25	90	82	85	0	250	70	62	65	0	380	66	58	61	0
Pumps	2	81	50%	200	72	69	72	0	425	65	62	65	0	515	64	61	64	0
Building Construction					***88***	***80***				***69***	***63***				***67***	***61***		
Cranes	1	81	16%	25	87	79	82	0	250	67	59	62	0	380	63	55	58	0
Forklift	1	75	10%	25	81	71	74	0	250	61	51	54	0	380	57	47	50	0
Generator Sets	1	81	50%	200	69	66	69	0	425	62	59	62	0	515	61	58	61	0
Tractor/Loader/Backhoe	1	80	25%	300	64	58	61	0	625	58	52	55	0	660	58	52	55	0
Architectural Coating					***84***	***80***				***64***	***60***				***60***	***56***		
Air Compressor	1	78	40%	25	84	80	83	0	250	64	60	63	0	380	60	56	59	0
Landscpaing					***81***	***71***				***65***	***55***				***63***	***53***		
Forklift	1	75	10%	25	81	71	74	0	250	61	51	54	0	380	57	47	50	0
Vacuum Street Sweeper	1	82	10%	200	70	60	63	0	425	63	53	56	0	515	62	52	55	0
Maximum Overlapping Noise Levels																		
Excavation/Grading + Drainage/Utilities/Trenching					93	87				75	70				72	68		
Drainage/Utilities/Trenching + Foundations/Concrete Pour					92	84				73	68				71	66		
Architectural Coating + Landscaping					86	81				68	61				65	58		
Maximum Combined Noise Levels					**96**	**89**				**76**	**70**				**73**	**68**		

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Traffic Noise Summary Table
Existing Plus Construction

Roadway Segment	Existing Land Uses Located Along Roadway Segment	Traffic Noise Levels (dBA CNEL) Existing	Construction Contribution	Combined Noise Level	Increase over Existing	Significant Impact?
Foothill Boulevard between Oakwood Avenue and Rinetti Lane	Commercial/Religious/Educational	67.5	61.2	68.4	0.9	No
Foothill Boulevard between Rinetti Lane and Woodleigh Lane	Commercial/Religious	67.9	61.2	68.7	0.8	No
Foothill Boulevard between Woodleigh Lane and Gould Avenue	Commercial	67.8	61.2	68.6	0.9	No
Foothill Boulevard e/o Gould Avenue	Commercial	68.7	61.2	69.4	0.7	No
Foothill Boulevard w/o Oakwood Avenue	Commercial	67.5	61.2	68.4	0.9	No
Gould Avenue n/o Foothill Boulevard	Commercial	67.1	47.2	67.1	0.0	No
Gould Avenue s/o Foothill Boulevard	Commercial/Residential	58.0	45.8	58.3	0.3	No
Oakwood Avenue n/o Foothill Boulevard	Commercial/Educational	64.3	47.6	64.4	0.1	No
Oakwood Avenue s/o Foothill Boulevard	Residential/Educational	57.0	47.6	57.4	0.5	No
Rinetti Lane n/o Foothill Boulevard	Commercial/Educational	61.8	48.9	62.0	0.2	No
Woodleigh Lane s/o Foothill Boulevard	Commercial/Religious/Residential	60.3	48.9	60.6	0.3	No

TRAFFIC NOISE ANALYSIS TOOL

Project Name: 600 Foothill
Analysis Scenario: Construction Trips
Source of Traffic Volumes: Fehr & Peers

	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)	Noise Level dBA CNEL
			Auto	MT	HT	Auto	MT	HT		
Foothill Boulevard between Oakwood Avenue and Rinetti Lane	Hard	35	30	30	30	10	1	23	60.9	61.2
Foothill Boulevard between Rinetti Lane and Woodleigh Lane	Hard	35	30	30	30	10	1	23	60.9	61.2
Foothill Boulevard between Woodleigh Lane and Gould Avenue	Hard	35	30	30	30	10	1	23	60.9	61.2
Foothill Boulevard e/o Gould Avenue	Hard	35	30	30	30	10	1	23	60.9	61.2
Foothill Boulevard w/o Oakwood Avenue	Hard	35	30	30	30	10	1	23	60.9	61.2
Gould Avenue n/o Foothill Boulevard	Hard	30	30	30	30	10	1	0	46.9	47.2
Gould Avenue s/o Foothill Boulevard	Hard	30	25	25	25	10	1	0	45.5	45.8
Oakwood Avenue n/o Foothill Boulevard	Hard	20	25	25	25	10	1	0	47.3	47.6
Oakwood Avenue s/o Foothill Boulevard	Hard	20	25	25	25	10	1	0	47.3	47.6
Rinetti Lane n/o Foothill Boulevard	Hard	15	25	25	25	10	1	0	48.6	48.9
Woodleigh Lane s/o Foothill Boulevard	Hard	15	25	25	25	10	1	0	48.6	48.9

For hard ground, the propagation rate is 3 dB per doubling the distance.
For soft ground, the propagation rate is 4.5 dB per doubling the distance.

600 Foothill

Vibration Level Calculations

Based on Federal Transit Administration, Office of Planning and Environment

	N =	1.5

Construction Equipment	Project Equipment	Equipment Peak Particle Velocity @ 25 Feet* (inches/second)	Distance to Receptor for < 0.5 PPV (Feet)	Estimated Velocity Decibels @ Distance** (VdB)	Estimated Peak Particle Velocity @ Distance*** (inches/second)
Unmitigated Vibration Levels					
R1					
Earth Mover	Yes	0.011	65	56.3	0.003
Excavator/Roller/Compactor	Yes	0.047	65	69.0	0.011
Forklift/Cement Mixer	Yes	0.047	65	69.0	0.011
Wheel loader/Tractor/Backhoe	Yes	0.076	65	73.1	0.018
Large Bulldozer/Grader	Yes	0.089	65	74.5	0.021
Loaded Trucks	Yes	0.076	65	73.1	0.018
Small Bulldozer/Paver/Air Compressor	Yes	0.003	65	45.1	0.001

Source:

Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual,* 2018.

Notes:

* Values taken from Table 7-4.

** Based on the formula VdB = 20 x LOG10 (v/v_{ref}), where v_{ref} is equal to 1×10^{-6} in/sec (see page 111).

The approximate rms vibration velocity level (v) is calculated from PPV using a crest factor of 4 (see page 184).

*** Based on the formula PPV(D) = PPV(25 ft) x $(25/D)^N$, where D is equal to the distance (see page 185).

N = soil type classification factor (typically ranges from 1 to 1.5)

600 Foothill
Open Space Noise Calculation Summary

Outdoor Space	Nearest Receptor	Nearest Diagonal Distance*	Estimated Daytime Leq	Estimated Nighttime Leq	Daytime			
					Existing Ambient	Ambient + Project	Threshold	Exceed?
Courtyard	R3	150	47.1	47.1	50.7	52.3	70.0	No
Entry Plaza	R3	200	41.2	41.2	50.7	51.2	70.0	No
Pool Deck	R3	33	57.0	57.0	50.7	57.9	70.0	No
Bocce Ball Court	R3	25	52.0	52.0	50.7	54.4	70.0	No
Outdoor Space	**Nearest Receptor**	**Nearest Diagonal Distance***	**Estimated Daytime Leq**	**Estimated Nighttime Leq**	**Daytime**			
					Existing Ambient	**Ambient + Project**	**Threshold**	**Exceed?**
Courtyard	R2/R4	350	39.7	39.7	53.0	53.2	60.0	No
Entry Plaza	R2/R4	465	33.9	33.9	53.0	53.1	60.0	No
Pool Deck	R2/R4	471	34.0	34.0	53.0	53.1	60.0	No
Bocce Ball Court	R2/R4	350	29.1	29.1	53.0	53.0	60.0	No

* The diagonal distance is factors in the height of the floor where the outdoor space is located (based on project elevations) and the ground distance (meas

600 Foothill
Open Space Noise Calculation

Courtyard							
Category	**# of Individuals (estimated capacity)**	**# of Individuals Speaking (half of estimated capacity)**	**Reference Distance (ft)[1]**	**Reference Noise Level (dBA)[1]**	**Combined Noise Level (dBA)**	**Distance to Receptor (ft)**	**Noise Level at Receptor (dBA)**
Total Capacity	463						
Females (Adult)	115	58	3	55	72.6	150	38.7
Males (Adult)	116	58	3	58	75.6	150	41.7
Children	232	116	3	58	78.6	150	44.7
Total	**463**	**232**	**-**	**-**	**81.1**	**-**	**47.1**

Source:

[1] American Journal of Audiology Vol. 7, p. 3 (1998)

Courtyard							
Category	**# of Individuals (estimated capacity)**	**# of Individuals Speaking (half of estimated capacity)**	**Reference Distance (ft)[1]**	**Reference Noise Level (dBA)[1]**	**Combined Noise Level (dBA)**	**Distance to Receptor (ft)**	**Noise Level at Receptor (dBA)**
Total Capacity	463						
Females (Adult)	115	58	3	55	72.6	350	31.3
Males (Adult)	116	58	3	58	75.6	350	34.3
Children	232	116	3	58	78.6	350	37.3
Total	**463**	**232**	**-**	**-**	**81.1**	**-**	**39.7**

Source:

[1] American Journal of Audiology Vol. 7, p. 3 (1998)

600 Foothill
Open Space Noise Calculation

Entry Plaza							
Category	# of Individuals (estimated capacity)	# of Individuals Speaking (half of estimated capacity)	Reference Distance (ft)[1]	Reference Noise Level (dBA)[1]	Combined Noise Level (dBA)	Distance to Receptor (ft)	Noise Level at Receptor (dBA)
Total Capacity	210						
Females (Adult)	52	26	3	55	69.1	200	32.7
Males (Adult)	53	27	3	58	72.3	200	35.8
Children	105	53	3	58	75.2	200	38.8
Total	**210**	**106**	**-**	**-**	**77.7**	**-**	**41.2**
Amplified Music (85 dBA Leq at 25 feet per NOISE-PDF-5)			25	85	84.0	200	65.9

Source: 50.7

[1] American Journal of Audiology Vol. 7, p. 3 (1998) 66.08046491

Entry Plaza							
Category	# of Individuals (estimated capacity)	# of Individuals Speaking (half of estimated capacity)	Reference Distance (ft)[1]	Reference Noise Level (dBA)[1]	Combined Noise Level (dBA)	Distance to Receptor (ft)	Noise Level at Receptor (dBA)
Total Capacity	210						
Females (Adult)	52	26	3	55	69.1	465	25.3
Males (Adult)	53	27	3	58	72.3	465	28.5
Children	105	53	3	58	75.2	465	31.4
Total	**210**	**106**	**-**	**-**	**77.7**	**-**	**33.9**
Amplified Music (85 dBA Leq at 25 feet per NOISE-PDF-5)			25	85	84.0	465	58.6

Source: 53

[1] American Journal of Audiology Vol. 7, p. 3 (1998) 59.67563014

600 Foothill
Open Space Noise Calculation

Pool Deck							
Category	**# of Individuals (estimated capacity)**	**# of Individuals Speaking (half of estimated capacity)**	**Reference Distance (ft)[1]**	**Reference Noise Level (dBA)[1]**	**Combined Noise Level (dBA)**	**Distance to Receptor (ft)**	**Noise Level at Receptor (dBA)**
Total Capacity	221						
Females (Adult)	55	28	3	55	69.5	33	48.6
Males (Adult)	56	28	3	58	72.5	33	51.6
Children	110	55	3	58	75.4	33	54.6
Total	**221**	**111**	**-**	**-**	**77.9**	**-**	**57.0**
Amplified Music (85 dBA Leq at 25 feet per NOISE-PDF-5)			25	85	72.0	33	69.6
Source:							50.7
[1] American Journal of Audiology Vol. 7, p. 3 (1998)							69.87644245
							69.8236249

Pool Deck							
Category	**# of Individuals (estimated capacity)**	**# of Individuals Speaking (half of estimated capacity)**	**Reference Distance (ft)[1]**	**Reference Noise Level (dBA)[1]**	**Combined Noise Level (dBA)**	**Distance to Receptor (ft)**	**Noise Level at Receptor (dBA)**
Total Capacity	221						
Females (Adult)	55	28	3	55	69.5	471	25.6
Males (Adult)	56	28	3	58	72.5	471	28.6
Children	110	55	3	58	75.4	471	31.5
Total	**221**	**111**	**-**	**-**	**77.9**	**-**	**34.0**
Amplified Music (85 dBA Leq at 25 feet per NOISE-PDF-5)			25	85	72.0	471	46.5
Source:							53
[1] American Journal of Audiology Vol. 7, p. 3 (1998)							53.92101859

600 Foothill
Open Space Noise Calculation

Bocce Ball Court							
Category	# of Individuals (estimated capacity)	# of Individuals Speaking (half of estimated capacity)	Reference Distance (ft)[1]	Reference Noise Level (dBA)[1]	Combined Noise Level (dBA)	Distance to Receptor (ft)	Noise Level at Receptor (dBA)
Total Capacity	40						
Females (Adult)	10	5	3	55	62.0	25	43.6
Males (Adult)	10	5	3	58	65.0	25	46.6
Children	20	10	3	58	68.0	25	49.6
Total	**40**	**20**	**-**	**-**	**70.4**	**-**	**52.0**
Amplified Music (85 dBA Leq at 25 feet per NOISE-PDF-5)			25	85	85.0	25	85.0

Source:

[1] American Journal of Audiology Vol. 7, p. 3 (1998)

Bocce Ball Court							
Category	# of Individuals (estimated capacity)	# of Individuals Speaking (half of estimated capacity)	Reference Distance (ft)[1]	Reference Noise Level (dBA)[1]	Combined Noise Level (dBA)	Distance to Receptor (ft)	Noise Level at Receptor (dBA)
Total Capacity	40						
Females (Adult)	10	5	3	55	62.0	350	20.7
Males (Adult)	10	5	3	58	65.0	350	23.7
Children	20	10	3	58	68.0	350	26.7
Total	**40**	**20**	**-**	**-**	**70.4**	**-**	**29.1**
Amplified Music (85 dBA Leq at 25 feet per NOISE-PDF-5)			25	85	85.0	350	62.1

Source:

[1] American Journal of Audiology Vol. 7, p. 3 (1998)

Traffic Noise Summary Table
Existing Plus Project

Roadway Segment	Existing Land Uses Located Along Roadway Segment	Traffic Noise Levels (dBA CNEL) Existing	Existing with Project	Increase over Existing	Significant Impact?
Foothill Boulevard between Oakwood Avenue and Rinetti Lane	Commercial/Religious/Educational	67.5	67.5	0.0	No
Foothill Boulevard between Rinetti Lane and Woodleigh Lane	Commercial/Religious	67.9	67.9	0.0	No
Foothill Boulevard between Woodleigh Lane and Gould Avenue	Commercial	67.8	67.8	0.0	No
Foothill Boulevard e/o Gould Avenue	Commercial	68.7	68.7	0.0	No
Foothill Boulevard w/o Oakwood Avenue	Commercial	67.5	67.5	0.0	No
Gould Avenue n/o Foothill Boulevard	Commercial	67.1	67.1	0.0	No
Gould Avenue s/o Foothill Boulevard	Commercial/Residential	58.0	58.0	0.0	No
Oakwood Avenue n/o Foothill Boulevard	Commercial/Educational	64.3	64.3	0.0	No
Oakwood Avenue s/o Foothill Boulevard	Residential/Educational	57.0	57.0	0.0	No
Rinetti Lane n/o Foothill Boulevard	Commercial/Educational	61.8	61.8	0.0	No
Woodleigh Lane s/o Foothill Boulevard	Commercial/Religious/Residential	60.3	60.7	0.4	No

Traffic Noise Summary Table
Future Plus Project

Roadway Segment	Existing Land Uses Located Along Roadway Segment	Traffic Noise Levels (dBA CNEL) Future Year (2023)	Future Year (2023) with Project	Increase over Existing	Significant Impact?
Foothill Boulevard between Oakwood Avenue and Rinetti Lane	Multi-Family Residential/Commercial	67.6	67.6	0.0	No
Foothill Boulevard between Rinetti Lane and Woodleigh Lane	Commercial	68.0	68.0	0.0	No
Foothill Boulevard between Woodleigh Lane and Gould Avenue	Residential/Commercial	67.9	67.9	0.0	No
Foothill Boulevard e/o Gould Avenue	Single-Family Residential	68.8	68.8	0.0	No
Foothill Boulevard w/o Oakwood Avenue	Single-Family Residential/Educational	67.7	67.7	0.0	No
Gould Avenue n/o Foothill Boulevard	Commercial/Single-Family Residential	67.2	67.2	0.0	No
Gould Avenue s/o Foothill Boulevard	Residential	58.1	58.1	0.0	No
Oakwood Avenue n/o Foothill Boulevard	Single-Family Residential	64.4	64.4	0.0	No
Oakwood Avenue s/o Foothill Boulevard	Commercial	57.1	57.1	0.0	No
Rinetti Lane n/o Foothill Boulevard	Commercial	61.9	61.9	0.0	No
Woodleigh Lane s/o Foothill Boulevard	Commercial	60.4	60.8	0.4	No

Traffic Noise Summary Table
Cumulative (Existing Plus Future with Project)

Roadway Segment	Existing Land Uses Located Along Roadway Segment	Traffic Noise Levels (dBA CNEL) Existing	Future Year (2023) with Project	Increase over Existing	Significant Impact?	Project Increment
Foothill Boulevard between Oakwood Avenue and Rinetti Lane	Multi-Family Residential/Commercial	67.5	67.6	0.1	No	0.0
Foothill Boulevard between Rinetti Lane and Woodleigh Lane	Commercial	67.9	68.0	0.1	No	0.0
Foothill Boulevard between Woodleigh Lane and Gould Avenue	Residential/Commercial	67.8	67.9	0.2	No	0.0
Foothill Boulevard e/o Gould Avenue	Single-Family Residential	68.7	68.8	0.1	No	0.0
Foothill Boulevard w/o Oakwood Avenue	Single-Family Residential/Educational	67.5	67.7	0.1	No	0.0
Gould Avenue n/o Foothill Boulevard	Commercial/Single-Family Residential	67.1	67.2	0.1	No	0.0
Gould Avenue s/o Foothill Boulevard	Residential	58.0	58.1	0.1	No	0.0
Oakwood Avenue n/o Foothill Boulevard	Single-Family Residential	64.3	64.4	0.1	No	0.0
Oakwood Avenue s/o Foothill Boulevard	Commercial	57.0	57.1	0.1	No	0.0
Rinetti Lane n/o Foothill Boulevard	Commercial	61.8	61.9	0.1	No	0.0
Woodleigh Lane s/o Foothill Boulevard	Commercial	60.3	60.8	0.5	No	0.4

TRAFFIC NOISE ANALYSIS TOOL

Project Name: **600 Foothill**
Analysis Scenario: **Existing**
Source of Traffic Volumes: **Fehr & Peers**

	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)	Noise Level dBA CNEL
			Auto	MT	HT	Auto	MT	HT		
Foothill Boulevard between Oakwood Avenue and Rinetti Lane	Hard	35	30	30	30	1663	34	17	67.2	67.5
Foothill Boulevard between Rinetti Lane and Woodleigh Lane	Hard	35	30	30	30	1839	38	19	67.6	67.9
Foothill Boulevard between Woodleigh Lane and Gould Avenue	Hard	35	30	30	30	1788	36	18	67.5	67.8
Foothill Boulevard e/o Gould Avenue	Hard	35	30	30	30	2196	45	23	68.4	68.7
Foothill Boulevard w/o Oakwood Avenue	Hard	35	30	30	30	1688	35	17	67.2	67.5
Gould Avenue n/o Foothill Boulevard	Hard	30	30	30	30	1312	27	13	66.8	67.1
Gould Avenue s/o Foothill Boulevard	Hard	30	25	25	25	232	5	2	57.7	58.0
Oakwood Avenue n/o Foothill Boulevard	Hard	20	25	25	25	656	13	7	64.0	64.3
Oakwood Avenue s/o Foothill Boulevard	Hard	20	25	25	25	121	3	1	56.7	57.0
Rinetti Lane n/o Foothill Boulevard	Hard	15	25	25	25	276	6	3	61.5	61.8
Woodleigh Lane s/o Foothill Boulevard	Hard	15	25	25	25	196	4	2	60.0	60.3

For hard ground, the propagation rate is 3 dB per doubling the distance.
For soft ground, the propagation rate is 4.5 dB per doubling the distance.

TRAFFIC NOISE ANALYSIS TOOL

Project Name: 600 Foothill
Analysis Scenario: Existing + Project
Source of Traffic Volumes: Fehr & Peers

	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)	Noise Level dBA CNEL
			Auto	MT	HT	Auto	MT	HT		
Foothill Boulevard between Oakwood Avenue and Rinetti Lane	Hard	35	30	30	30	1667	34	17	67.2	67.5
Foothill Boulevard between Rinetti Lane and Woodleigh Lane	Hard	35	30	30	30	1843	38	19	67.6	67.9
Foothill Boulevard between Woodleigh Lane and Gould Avenue	Hard	35	30	30	30	1801	37	18	67.5	67.8
Foothill Boulevard e/o Gould Avenue	Hard	35	30	30	30	2206	45	23	68.4	68.7
Foothill Boulevard w/o Oakwood Avenue	Hard	35	30	30	30	1692	35	17	67.2	67.5
Gould Avenue n/o Foothill Boulevard	Hard	30	30	30	30	1316	27	13	66.8	67.1
Gould Avenue s/o Foothill Boulevard	Hard	30	25	25	25	232	5	2	57.7	58.0
Oakwood Avenue n/o Foothill Boulevard	Hard	20	25	25	25	656	13	7	64.0	64.3
Oakwood Avenue s/o Foothill Boulevard	Hard	20	25	25	25	121	3	1	56.7	57.0
Rinetti Lane n/o Foothill Boulevard	Hard	15	25	25	25	276	6	3	61.5	61.8
Woodleigh Lane s/o Foothill Boulevard	Hard	15	25	25	25	216	4	2	60.4	60.7

For hard ground, the propagation rate is 3 dB per doubling the distance.
For soft ground, the propagation rate is 4.5 dB per doubling the distance.

TRAFFIC NOISE ANALYSIS TOOL

Project Name: 600 Foothill
Analysis Scenario: Future Baseline (2023)
Source of Traffic Volumes: Fehr & Peers

	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)	Noise Level dBA CNEL
			Auto	MT	HT	Auto	MT	HT		
Foothill Boulevard between Oakwood Avenue and Rinetti Lane	Hard	35	30	30	30	1713	35	17	67.3	67.6
Foothill Boulevard between Rinetti Lane and Woodleigh Lane	Hard	35	30	30	30	1894	39	19	67.7	68.0
Foothill Boulevard between Woodleigh Lane and Gould Avenue	Hard	35	30	30	30	1840	38	19	67.6	67.9
Foothill Boulevard e/o Gould Avenue	Hard	35	30	30	30	2262	47	23	68.5	68.8
Foothill Boulevard w/o Oakwood Avenue	Hard	35	30	30	30	1739	36	18	67.4	67.7
Gould Avenue n/o Foothill Boulevard	Hard	30	30	30	30	1352	28	14	66.9	67.2
Gould Avenue s/o Foothill Boulevard	Hard	30	25	25	25	239	5	2	57.8	58.1
Oakwood Avenue n/o Foothill Boulevard	Hard	20	25	25	25	676	14	7	64.1	64.4
Oakwood Avenue s/o Foothill Boulevard	Hard	20	25	25	25	125	3	1	56.8	57.1
Rinetti Lane n/o Foothill Boulevard	Hard	15	25	25	25	285	6	3	61.6	61.9
Woodleigh Lane s/o Foothill Boulevard	Hard	15	25	25	25	202	4	2	60.1	60.4

For hard ground, the propagation rate is 3 dB per doubling the distance.
For soft ground, the propagation rate is 4.5 dB per doubling the distance.

TRAFFIC NOISE ANALYSIS TOOL

Project Name: 600 Foothill
Analysis Scenario: Future Baseline + Project (2023)
Source of Traffic Volumes: Fehr & Peers

	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)	Noise Level dBA CNEL
			Auto	MT	HT	Auto	MT	HT		
Foothill Boulevard between Oakwood Avenue and Rinetti Lane	Hard	35	30	30	30	1717	35	18	67.3	67.6
Foothill Boulevard between Rinetti Lane and Woodleigh Lane	Hard	35	30	30	30	1898	39	19	67.7	68.0
Foothill Boulevard between Woodleigh Lane and Gould Avenue	Hard	35	30	30	30	1854	38	19	67.6	67.9
Foothill Boulevard e/o Gould Avenue	Hard	35	30	30	30	2272	47	23	68.5	68.8
Foothill Boulevard w/o Oakwood Avenue	Hard	35	30	30	30	1743	36	18	67.4	67.7
Gould Avenue n/o Foothill Boulevard	Hard	30	30	30	30	1356	28	14	66.9	67.2
Gould Avenue s/o Foothill Boulevard	Hard	30	25	25	25	239	5	2	57.8	58.1
Oakwood Avenue n/o Foothill Boulevard	Hard	20	25	25	25	676	14	7	64.1	64.4
Oakwood Avenue s/o Foothill Boulevard	Hard	20	25	25	25	125	3	1	56.8	57.1
Rinetti Lane n/o Foothill Boulevard	Hard	15	25	25	25	285	6	3	61.6	61.9
Woodleigh Lane s/o Foothill Boulevard	Hard	15	25	25	25	221	5	2	60.5	60.8

For hard ground, the propagation rate is 3 dB per doubling the distance.
For soft ground, the propagation rate is 4.5 dB per doubling the distance.

Summary

File Name on Meter	R1
File Name on PC	SLM_0004983_LxT_Data_109.01.ldbin
Serial Number	0004983
Model	SoundTrack LxT®
Firmware Version	2.302
User	
Location	600 Foothill
Job Description	
Note	

Measurement

Description	
Start	2021-02-09 09:54:57
Stop	2021-02-09 10:09:57
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2021-02-09 08:35:02
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting			
Peak Weight	A Weighting			
Detector	Slow			
Preamp	PRMLxT1			
Microphone Correction	Off			
Integration Method	Exponential			
Overload	144.6 dB			
	A	**C**	**Z**	
Under Range Peak	**100.8**	97.8	102.8	dB
Under Range Limit	**49.8**	47.8	55.8	dB
Noise Floor	36.7	37.3	45.0	dB

Results

LASeq	55.0 dB	
LASE	84.6 dB	
EAS	31.721 µPa²h	
EAS8	1.015 mPa²h	
EAS40	5.075 mPa²h	
LApeak (max)	2021-02-09 10:08:22	84.3 dB
LASmax	2021-02-09 10:08:23	69.2 dB
LASmin	2021-02-09 09:54:57	43.9 dB
SEA	-99.9 dB	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s
LCSeq	64.8 dB	
LASeq	55.0 dB	
LCSeq - LASeq	9.8 dB	
LAIeq	56.9 dB	
LAeq	55.1 dB	
LAIeq - LAeq	1.9 dB	

Summary

File Name on Meter	R2
File Name on PC	SLM_0004983_LxT_Data_108.01.ldbin
Serial Number	0004983
Model	SoundTrack LxT®
Firmware Version	2.302
User	
Location	600 Foothill
Job Description	
Note	

Measurement

Description	
Start	2021-02-09 09:36:01
Stop	2021-02-09 09:51:01
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2021-02-09 08:35:02
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting			
Peak Weight	A Weighting			
Detector	Slow			
Preamp	PRMLxT1			
Microphone Correction	Off			
Integration Method	Exponential			
Overload	144.6 dB			
	A	**C**	**Z**	
Under Range Peak	**100.8**	97.8	102.8	dB
Under Range Limit	**49.8**	47.8	55.8	dB
Noise Floor	36.7	37.3	45.0	dB

Results

LASeq	53.0 dB	
LASE	90.0 dB	
EAS	110.063 µPa²h	
EAS8	3.522 mPa²h	
EAS40	17.610 mPa²h	
LApeak (max)	2021-02-09 09:49:28	92.7 dB
LASmax	2021-02-09 09:49:31	74.2 dB
LASmin	2021-02-09 09:39:00	47.4 dB
SEA	-99.9 dB	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s
LCSeq	74.7 dB	
LASeq	60.4 dB	
LCSeq - LASeq	14.3 dB	
LAIeq	62.5 dB	
LAeq	60.4 dB	
LAIeq - LAeq	2.1 dB	

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	53.0					
LS(max)	74.2	2021/02/09 9:49:31				
LS(min)	47.4	2021/02/09 9:39:00				
LPeak(max)	92.7	2021/02/09 9:49:28				

Summary

File Name on Meter	R3
File Name on PC	SLM_0004983_LxT_Data_106.01.ldbin
Serial Number	0004983
Model	SoundTrack LxT®
Firmware Version	2.302
User	
Location	600 Foothill
Job Description	
Note	

Measurement

Description	
Start	2021-02-09 09:01:46
Stop	2021-02-09 09:16:46
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2021-02-09 08:35:02
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting		
Peak Weight	A Weighting		
Detector	Slow		
Preamp	PRMLxT1		
Microphone Correction	Off		
Integration Method	Exponential		
Overload	144.6 dB		
	A	**C**	**Z**
Under Range Peak	**100.8**	97.8	102.8 dB
Under Range Limit	**49.8**	47.8	55.8 dB
Noise Floor	36.7	37.3	45.0 dB

Results

LASeq	50.7 dB	
LASE	80.2 dB	
EAS	11.731 µPa²h	
EAS8	375.393 µPa²h	
EAS40	1.877 mPa²h	
LApeak (max)	2021-02-09 09:11:44	82.8 dB
LASmax	2021-02-09 09:02:44	60.6 dB
LASmin	2021-02-09 09:05:48	46.3 dB
SEA	-99.9 dB	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s
LCSeq	63.4 dB	
LASeq	50.7 dB	
LCSeq - LASeq	12.7 dB	
LAIeq	51.5 dB	
LAeq	50.7 dB	
LAIeq - LAeq	0.8 dB	

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	50.7					
LS(max)	60.6	2021/02/09 9:02:44				
LS(min)	46.3	2021/02/09 9:05:48				
LPeak(max)	82.8	2021/02/09 9:11:44				

Summary

File Name on Meter	R4
File Name on PC	SLM_0004983_LxT_Data_107.01.ldbin
Serial Number	0004983
Model	SoundTrack LxT®
Firmware Version	2.302
User	
Location	600 Foothill
Job Description	
Note	

Measurement

Description	
Start	2021-02-09 09:18:47
Stop	2021-02-09 09:33:47
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2021-02-09 08:35:02
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting		
Peak Weight	A Weighting		
Detector	Slow		
Preamp	PRMLxT1		
Microphone Correction	Off		
Integration Method	Exponential		
Overload	144.6 dB		
	A	**C**	**Z**
Under Range Peak	**100.8**	97.8	102.8 dB
Under Range Limit	**49.8**	47.8	55.8 dB
Noise Floor	36.7	37.3	45.0 dB

Results

LA_{Seq}	59.1 dB	
LASE	88.7 dB	
EAS	82.058 µPa²h	
EAS8	2.626 mPa²h	
EAS40	13.129 mPa²h	
$LA_{peak\ (max)}$	2021-02-09 09:33:04	89.8 dB
LAS_{max}	2021-02-09 09:25:38	73.5 dB
LAS_{min}	2021-02-09 09:18:53	46.8 dB
SEA	-99.9 dB	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s
LC_{Seq}	67.9 dB	
LA_{Seq}	59.1 dB	
LC_{Seq} - LA_{Seq}	8.8 dB	
LAI_{eq}	61.4 dB	
LA_{eq}	59.1 dB	
LAI_{eq} - LA_{eq}	2.2 dB	

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	59.1					
$L_{S(max)}$	73.5	2021/02/09 9:25:38				
$L_{S(min)}$	46.8	2021/02/09 9:18:53				
$L_{Peak(max)}$	89.8	2021/02/09 9:33:04				

Summary

File Name on Meter	R5
File Name on PC	SLM_0004983_LxT_Data_105.01.ldbin
Serial Number	0004983
Model	SoundTrack LxT®
Firmware Version	2.302
User	
Location	600 Foothill
Job Description	
Note	

Measurement

Description	
Start	2021-02-09 08:40:35
Stop	2021-02-09 08:55:35
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2021-02-09 08:35:06
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting			
Peak Weight	A Weighting			
Detector	Slow			
Preamp	PRMLxT1			
Microphone Correction	Off			
Integration Method	Exponential			
Overload	144.6 dB			
	A	**C**	**Z**	
Under Range Peak	**100.8**	97.8	102.8	dB
Under Range Limit	**49.8**	47.8	55.8	dB
Noise Floor	36.7	37.3	45.0	dB

Results

LAseq	58.9 dB	
LASE	88.5 dB	
EAS	77.955 µPa²h	
EAS8	2.495 mPa²h	
EAS40	12.473 mPa²h	
LApeak (max)	2021-02-09 08:44:42	85.7 dB
LASmax	2021-02-09 08:46:16	68.0 dB
LASmin	2021-02-09 08:54:02	53.9 dB
SEA	-99.9 dB	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s
LCseq	70.0 dB	
LAseq	58.9 dB	
LCseq - LAseq	11.1 dB	
LAIeq	60.2 dB	
LAeq	58.9 dB	
LAIeq - LAeq	1.3 dB	

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	58.9					
LS(max)	68.0	2021/02/09 8:46:16				
LS(min)	53.9	2021/02/09 8:54:02				
LPeak(max)	85.7	2021/02/09 8:44:42				